



**EUROPEAN COMMUNITIES AND CERTAIN MEMBER STATES – MEASURES
AFFECTING TRADE IN LARGE CIVIL AIRCRAFT**

RECOURSE TO ARTICLE 22.6 OF THE DSU BY THE EUROPEAN UNION

DECISION BY THE ARBITRATOR

*BCI deleted, as indicated [[***]]*

TABLE OF CONTENTS

1 INTRODUCTION	12
1.1 Original proceedings and compliance proceedings.....	12
1.2 Request for arbitration and arbitration proceeding	13
1.3 Second compliance proceedings	15
2 PROCEDURAL MATTERS.....	15
2.1 Page limits on parties' written submissions	15
2.2 Treatment of BCI and HSBI	16
2.3 Public presentation of the parties' opening statements	16
2.4 The European Union's request for a preliminary ruling.....	17
2.4.1 The European Union's argument concerning Article 22.8 of the DSU.....	18
2.4.2 The European Union's argument concerning non-retroactivity of WTO remedies	20
2.4.3 Prior arbitration decisions referred to by the European Union	20
2.4.4 The European Union's argument concerning the uniqueness of actionable subsidies disputes	23
3 MANDATE OF THE ARBITRATOR	24
4 BURDEN OF PROOF AND DUTY TO PRODUCE EVIDENCE	25
5 ARTICLE 7.10 OF THE SCM AGREEMENT	26
6 THE EUROPEAN UNION'S OBJECTION TO THE LEVEL OF COUNTERMEASURES	28
6.1 Overview of the parties' approaches and order of analysis	28
6.2 Absence of a reference to impedance in the United States' request for countermeasures	29
6.2.1 Coverage of the United States' Article 22.2 request.....	31
6.2.2 Specificity of the United States' Article 22.2 request.....	33
6.3 Assessment of the United States proposed methodology	34
6.3.1 Appropriateness of using the 2011-2013 Reference Period and accepting Annual Suspension of concessions	34
6.3.2 The appropriate counterfactual	46
6.3.3 General European Union arguments against the United States methodology.....	47
6.3.3.1 Exclusion of the value of past deliveries from the level of Annual Suspension	48
6.3.3.2 Inclusion of both lost sales and impedance in determining the level of Annual Suspension: "Over-counting"	49
6.3.3.2.1 Temporal assignment of the value of lost sales to the 2011-2013 Reference Period	51
6.3.3.2.2 Temporal assignment of the value of impedance to the 2011-2013 Reference Period	56
6.3.3.2.3 Temporal assignment of the value of both lost sales and impedance to the 2011-2013 Reference Period.....	57
6.3.3.3 Inclusion of both lost sales and impedance in determining the maximum level of Annual Suspension: "Double-counting".....	57
6.3.3.4 Setting of an end-date for countermeasures based on counterfactual Boeing deliveries resulting from the adverse effects determined to exist.....	58
6.3.3.5 Exclusion of the value of Boeing LCA components produced outside the United States	59
6.3.4 Technical European Union arguments against the United States' methodology.....	63

6.3.4.1	Summary of the United States' technical approach to valuing the adverse effects determined to exist	64
6.3.4.1.1	The United States' valuation of lost sales	65
6.3.4.1.2	The United States' valuation of impedance	67
6.3.4.1.3	Annualization of the average values of lost sales and impedance.....	68
6.3.4.2	Preliminary considerations	69
6.3.4.2.1	General evidentiary issues.....	69
6.3.4.2.2	Closest competing models	73
6.3.4.2.3	Product-market-specific countermeasures	74
6.3.4.2.4	Valuation of services.....	76
6.3.4.3	Issues surrounding the valuation of lost sales	76
6.3.4.3.1	Representativeness of the 2011-2013 Reference Period	78
6.3.4.3.2	Use of facts post-dating the lost sales.....	79
6.3.4.3.3	United States' perspective versus Boeing's perspective	81
6.3.4.3.4	Number and models of aircraft sold and delivered in the counterfactual	82
6.3.4.3.4.1	Failure to take actual cancellations into account	83
6.3.4.3.4.2	Failure to take potential future cancellations into account	84
6.3.4.3.4.3	Valuation of deposits and PDPs for counterfactually cancelled orders.....	87
6.3.4.3.4.4	Failure to take conversions into account	88
6.3.4.3.5	Timing of Boeing's counterfactual deliveries.....	91
6.3.4.3.5.1	Failure to use Boeing delivery schedules.....	91
6.3.4.3.5.2	Failure to take deferrals of deliveries into account	92
6.3.4.3.6	Delivery prices of Boeing's counterfactual deliveries	94
6.3.4.3.6.1	Choice of the comparator orders	96
6.3.4.3.6.2	Failure to use [[***]] escalation factors	104
6.3.4.3.6.3	Failure to perform necessary price adjustments.....	105
6.3.4.3.6.4	Discounting of Boeing's counterfactual delivery prices	107
6.3.4.3.7	Conclusion	112
6.3.4.4	Issues surrounding the valuation of impedance.....	112
6.3.4.4.1	Representativeness of the 2011-2013 Reference Period	114
6.3.4.4.2	Number and models of increased Boeing counterfactual LCA deliveries	114
6.3.4.4.2.1	Absence of an economic model	116
6.3.4.4.2.2	Supply- and demand-side factors	117
6.3.4.4.2.3	Conclusion.....	139
6.3.4.4.3	Delivery prices.....	141
6.3.4.4.4	Conclusion	143
6.4	Calculation of countermeasures commensurate with the adverse effects determined to exist	143
6.4.1	General approach	143
6.4.2	Valuation of lost sales	143
6.4.3	Valuation of impedance	146

6.4.4	Aggregated annualized value of lost sales and impedance.....	147
6.4.5	Countermeasures commensurate with the annualized value of the adverse effects determined to exist.....	149
6.4.5.1	The "commensurate" 2013 Annual Suspension Value.....	150
6.4.5.2	Adjustment of the annualized value of adverse effects determined to exist for inflation to the present day	150
6.4.5.3	Adjustment of the annualized value of adverse effects determined to exist for inflation for future years in which countermeasures are applied	151
6.5	The European Union's argument on the level of countermeasures that the Arbitrator's determination may not exceed in this proceeding.....	153
7	THE EUROPEAN UNION'S CLAIM CONCERNING THE PRINCIPLES AND PROCEDURES SET OUT IN ARTICLE 22.3 OF THE DSU (CROSS-RETALIATION)	154
8	THE EUROPEAN UNION'S CLAIM THAT THE PROPOSED COUNTERMEASURES ARE NOT ALLOWED UNDER THE COVERED AGREEMENTS	155
9	CONCLUSIONS.....	156

LIST OF ANNEXES**ANNEX A****WORKING PROCEDURES OF THE ARBITRATOR**

Contents		Page
Annex A-1	Working Procedures of the Arbitrator	4
Annex A-2	Additional Working Procedures for the Protection of Business Confidential Information and Highly Sensitive Business Information	9
Annex A-3	Additional Working Procedures for the Substantive Meeting with the Arbitrator	21

ANNEX B**ARGUMENTS OF THE PARTIES**

Contents		Page
Annex B-1	Integrated executive summary of the arguments of the United States	23
Annex B-2	Executive summary of the arguments of the European Union	32

ANNEX C**DECISION OF THE ARBITRATOR CONCERNING THE EUROPEAN UNION'S PRELIMINARY RULING REQUEST**

Contents		Page
Annex C-1	Communication from the Arbitrator Preliminary Ruling (Conclusion)	49

CASES CITED IN THIS DECISION

Short Title	Full Case Title and Citation
<i>Brazil – Aircraft (Article 22.6 – Brazil)</i>	Decision by the Arbitrator, <i>Brazil – Export Financing Programme for Aircraft – Recourse to Arbitration by Brazil under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS46/ARB, 28 August 2000, DSR 2002:I, p. 19
<i>Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)</i>	Decision by the Arbitrator, <i>Canada – Export Credits and Loan Guarantees for Regional Aircraft – Recourse to Arbitration by Canada under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS222/ARB, 17 February 2003, DSR 2003:III, p. 1187
<i>EC – Bananas III (Article 21.5 – Ecuador)</i>	Panel Report, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Article 21.5 of the DSU by Ecuador</i> , WT/DS27/RW/ECU, adopted 6 May 1999, DSR 1999:II, p. 803
<i>EC – Bananas III (US) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB, 9 April 1999, DSR 1999:II, p. 725
<i>EC – Bananas III (Ecuador) (Article 22.6 – EC)</i>	Decision by the Arbitrator, <i>European Communities – Regime for the Importation, Sale and Distribution of Bananas – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS27/ARB/ECU, 24 March 2000, DSR 2000:V, p. 2237
<i>EC – Hormones</i>	Appellate Body Report, <i>European Communities – Measures Concerning Meat and Meat Products (Hormones)</i> , WT/DS26/AB/R, WT/DS48/AB/R, adopted 13 February 1998, DSR 1998:I, p. 135
<i>EC – Hormones (US) (Article 22.6 – EC)</i>	Decision by the Arbitrators, <i>European Communities – Measures Concerning Meat and Meat Products (Hormones), Original Complaint by the United States – Recourse to Arbitration by the European Communities under Article 22.6 of the DSU</i> , WT/DS26/ARB, 12 July 1999, DSR 1999:III, p. 1105
<i>EC and certain member States – Large Civil Aircraft</i>	Appellate Body Report, <i>European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft</i> , WT/DS316/AB/R, adopted 1 June 2011, DSR 2011:I, p. 7
<i>EC and certain member States – Large Civil Aircraft</i>	Panel Report, <i>European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft</i> , WT/DS316/R, adopted 1 June 2011, as modified by Appellate Body Report WT/DS316/AB/R, DSR 2011:II, p. 685
<i>EC and certain member States – Large Civil Aircraft (Article 21.5 – US)</i>	Appellate Body Report, <i>European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft – Recourse to Article 21.5 of the DSU by the United States</i> , WT/DS316/AB/RW and Add.1, adopted 28 May 2018
<i>EC and certain member States – Large Civil Aircraft (Article 21.5 – US)</i>	Panel Report, <i>European Communities and Certain Member States – Measures Affecting Trade in Large Civil Aircraft – Recourse to Article 21.5 of the DSU by the United States</i> , WT/DS316/RW and Add.1, adopted 28 May 2018, as modified by Appellate Body Report WT/DS316/AB/RW
<i>EEC – Apples (Chile I)</i>	GATT Panel Report, <i>EEC Restrictions on Imports of Apples from Chile</i> , L/5047, adopted 10 November 1980, BISD 27S/98
<i>Japan – DRAMS (Korea)</i>	Appellate Body Report, <i>Japan – Countervailing Duties on Dynamic Random Access Memories from Korea</i> , WT/DS336/AB/R and Corr.1, adopted 17 December 2007, DSR 2007:VII, p. 2703
<i>Thailand – Cigarettes (Philippines)</i>	Appellate Body Report, <i>Thailand – Customs and Fiscal Measures on Cigarettes from the Philippines</i> , WT/DS371/AB/R, adopted 15 July 2011, DSR 2011:IV, p. 2203
<i>US – 1916 Act (EC) (Article 22.6 – US)</i>	Decision by the Arbitrator, <i>United States – Anti-Dumping Act of 1916, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS136/ARB, 24 February 2004, DSR 2004:IX, p. 4269
<i>US – Anti-Dumping and Countervailing Duties (China)</i>	Panel Report, <i>United States – Definitive Anti-Dumping and Countervailing Duties on Certain Products from China</i> , WT/DS379/R, adopted 25 March 2011, as modified by Appellate Body Report WT/DS379/AB/R, DSR 2011:VI, p. 3143
<i>US – Carbon Steel</i>	Appellate Body Report, <i>United States – Countervailing Duties on Certain Corrosion-Resistant Carbon Steel Flat Products from Germany</i> , WT/DS213/AB/R and Corr.1, adopted 19 December 2002, DSR 2002:IX, p. 3779
<i>US – Continued Suspension</i>	Appellate Body Report, <i>United States – Continued Suspension of Obligations in the EC – Hormones Dispute</i> , WT/DS320/AB/R, adopted 14 November 2008, DSR 2008:X, p. 3507
<i>US – COOL (Article 22.6 – United States)</i>	Decisions by the Arbitrator, <i>United States – Certain Country of Origin Labelling (COOL) Requirements – Recourse to Article 22.6 of the DSU the United States</i> , WT/DS384/ARB and Add.1 / WT/DS386/ARB and Add.1, circulated to WTO Members 7 December 2015

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US – FSC (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Tax Treatment for "Foreign Sales Corporations" – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS108/ARB, 30 August 2002, DSR 2002:VI, p. 2517
US – Gambling	Appellate Body Report, <i>United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services</i> , WT/DS285/AB/R, adopted 20 April 2005, DSR 2005:XII, p. 5663 (and Corr.1, DSR 2006:XII, p. 5475)
US – Gambling (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Measures Affecting the Cross-Border Supply of Gambling and Betting Services – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS285/ARB, 21 December 2007, DSR 2007:X, p. 4163
US – Large Civil Aircraft (2 nd complaint)	Appellate Body Report, <i>United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)</i> , WT/DS353/AB/R, adopted 23 March 2012, DSR 2012:I, p. 7
US – Large Civil Aircraft (2 nd complaint)	Panel Report, <i>United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint)</i> , WT/DS353/R, adopted 23 March 2012, as modified by Appellate Body Report WT/DS353/AB/R, DSR 2012:II, p. 649
US – Large Civil Aircraft (2 nd complaint) (Article 21.5 – EU)	Appellate Body Report, <i>United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint) – Recourse to Article 21.5 of the DSU by the European Union</i> , WT/DS353/AB/RW and Add.1, adopted 11 April 2019
US – Large Civil Aircraft (2 nd complaint) (Article 21.5 – EU)	Panel Report, <i>United States – Measures Affecting Trade in Large Civil Aircraft (Second Complaint) – Recourse to Article 21.5 of the DSU by the European Union</i> , WT/DS353/RW and Add.1, adopted 11 April 2019, as modified by Appellate Body Report WT/DS353/AB/RW.
US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by the European Communities – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/EEC, 31 August 2004, DSR 2004:IX, p. 4591
US – Offset Act (Byrd Amendment) (Chile) (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Continued Dumping and Subsidy Offset Act of 2000, Original Complaint by Chile – Recourse to Arbitration by the United States under Article 22.6 of the DSU</i> , WT/DS217/ARB/CHL, 31 August 2004, DSR 2004:IX, p. 4511
US – Section 110(5) Copyright Act (Article 25)	Award of the Arbitrator, <i>United States – Section 110(5) of the US Copyright Act – Recourse to Arbitration under Article 25 of the DSU</i> , WT/DS160/ARB25/1, 9 November 2001, DSR 2001:II, p. 667
US – Tuna II (Mexico) (Article 21.5 – Mexico)	Appellate Body Report, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 21.5 of the DSU by Mexico</i> , WT/DS381/AB/RW and Add.1, adopted 3 December 2015, DSR 2015:X, p. 5133
US – Tuna II (Mexico) (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Measures Concerning the Importation, Marketing and Sale of Tuna and Tuna Products – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS381/ARB, 25 April 2017
US – Upland Cotton	Panel Report, <i>United States – Subsidies on Upland Cotton</i> , WT/DS267/R, Add.1 to Add.3 and Corr.1, adopted 21 March 2005, as modified by Appellate Body Report WT/DS267/AB/R, DSR 2005:II, p. 299
US – Upland Cotton (Article 21.5 – Brazil)	Appellate Body Report, <i>United States – Subsidies on Upland Cotton – Recourse to Article 21.5 of the DSU by Brazil</i> , WT/DS267/AB/RW, adopted 20 June 2008, DSR 2008:III, p. 809
US – Upland Cotton (Article 21.5 – Brazil)	Panel Report, <i>United States – Subsidies on Upland Cotton – Recourse to Article 21.5 of the DSU by Brazil</i> , WT/DS267/RW and Corr.1, adopted 20 June 2008, as modified by Appellate Body Report WT/DS267/AB/RW, DSR 2008:III, p. 997
US – Upland Cotton (Article 22.6 – US I)	Decision by the Arbitrator, <i>United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 4.11 of the SCM Agreement</i> , WT/DS267/ARB/1, 31 August 2009, DSR 2009:IX, p. 3871
US – Upland Cotton (Article 22.6 – US II)	Decision by the Arbitrator, <i>United States – Subsidies on Upland Cotton – Recourse to Arbitration by the United States under Article 22.6 of the DSU and Article 7.10 of the SCM Agreement</i> , WT/DS267/ARB/2 and Corr.1, 31 August 2009, DSR 2009:IX, p. 4083
US – Washing Machines (Article 22.6 – US)	Decision by the Arbitrator, <i>United States – Anti-Dumping and Countervailing Measures on Large Residential Washers from Korea – Recourse to Article 22.6 of the DSU by the United States</i> , WT/DS464/ARB and Add.1, 8 February 2019
US – Wool Shirts and Blouses	Appellate Body Report, <i>United States – Measure Affecting Imports of Woven Wool Shirts and Blouses from India</i> , WT/DS33/AB/R, adopted 23 May 1997, and Corr.1, DSR 1997:I, p. 323

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Exhibit	Title
EU-54	Ascend, Flight Fleet Analyzer
EU-58	Flight Global, "Cathay swaps batch of A350-1000s to smaller -900", 13 September 2017
EU-59	Chicago Business Journal, "United Airlines postponing delivery of much-anticipated Airbus-350", 6 September, 2017
EU-60	Airways Magazine, "United Converts A350-1000 Order to A350-900", 6 September 2017
EU-68	"Comparing July 2018 delivery prices based on different LCA price inflators: (i) Hypothetical escalation rate; (ii) PPI for LCA Manufacturing"
EU-77 (HSBI)	Transaero (2013) comparator campaign: projected versus actual escalation rates
EU-79	Updated Ascend Database
EU-81	Boeing cancellation rates
EU-83 (HSBI)	Transaero Airlines Deposits and Pre-delivery Payments
EU-86 (HSBI)	2012/2013 Airbus lost sales campaigns: The Emirates [[***]]
EU-87 (HSBI)	2012/2013 Airbus lost sales campaigns: Cathay Pacific [[***]]
EU-88 (HSBI)	2012/2013 Airbus lost sales campaigns: Cathay Pacific [[***]]
EU-89 (HSBI)	2012/2013 Airbus lost sales campaigns: Singapore Airways [[***]]
EU-90 (HSBI)	2012/2013 Airbus lost sales campaigns: Singapore Airways [[***]]
EU-91 (HSBI)	2012/2013 Airbus lost sales campaigns: United Airlines [[***]]
EU-92 (HSBI)	2012/2013 Airbus lost sales campaigns: United Airlines [[***]]
EU-106 (HSBI)	Emirates [[HSBI]]
EU-116	Boeing 2008 Annual Report
EU-117	The Seattle Times, "747-8 delay causes doubts about Boeing", 7 October 2009
EU-123 (BCI)	Airbus, Status of A380 orders and deliveries
EU-125 (HSBI)	Air France Campaign A380, 2001
EU-126 (HSBI)	British Airways Campaign A380, 2007
EU-127 (HSBI)	China Southern Airlines Campaign A380, 2005
EU-128 (HSBI)	Emirates Airlines Campaign A380, 2001
EU-129 (HSBI)	Korean Air Campaign A380, 2008
EU-130 (HSBI)	Lufthansa Campaign A380, 2001
EU-131 (HSBI)	Qantas Campaign A380, 2001
EU-132 (HSBI)	Singapore Airlines Campaign A380, 2006
EU-135 (HSBI)	United Airlines Campaign A350-1000
EU-138	Irwin, Douglas A., Pavcnik, Nina, 2004. "Airbus versus Boeing revisited: international competition in the aircraft market", Journal of International Economics, Elsevier, vol. 64(2): 223-245
EU-139	Airbus, "New agreement with United Airlines increases A350 XWB order to 45", 6 September 2017
EU-140 (HSBI)	Letter [[***]]
EU-141	Reuters, "Cathay Pacific defers five A350 deliveries, switches six to smaller models", 13 September 2017
EU-142 (HSBI)	Email [[***]]
EU-143 (HSBI)	Correcting US lost sales valuation
EU-145	The Emirates Group Annual Report, 2018-19
EU-146	Andreas Spaeth, "Emirates to buy Rolls Royce Powered A380S Says Sir Tim Clark", Airline Ratings, 2 November 2018
USA-2	Airbus presentation by John Leahy, COO Customers, Commercial update – Global Investor Forum
USA-3	Emirates to choose between A350-900 and 787-10 next year, Murdo Morrison, FlightGlobal (Oct. 1, 2015)
USA-4	Wide Body Battle: Boeing 787-10 Or Airbus A350-900?, Dhierin Bechai, Seeking Alpha (Dec. 19, 2014)
USA-5 (BCI)	Boeing Declaration
USA-6	Cathay Pacific Announces Additional Aircraft Order, Cathay Pacific Press Release (Dec. 27, 2013)
USA-7	Boeing Launches 787-10 Dreamliner, Boeing Press Release (June 18, 2013)
USA-8	United Converts 10 787 Orders to 777-300ER, Edward Russell, FlightGlobal (Apr. 23, 2015)
USA-9	Airbus and Boeing Orders 2013, Aviation Strategy (Feb. 2014)
USA-12 (HSBI)	Cathay Pacific 777-300ER Order Information
USA-13 (HSBI)	Transaero 747-8I Order Information
USA-14 (HSBI)	Singapore Airlines 787-10 Order Information
USA-15 (HSBI)	United 777-300ER Order Information
USA-16 (HSBI)	Emirates [[***]] Information
USA-19 (HSBI)	Calculation of 2011 747-8I Delivery Prices

Exhibit	Title
USA-20	Producer Price Indexes – Program Overview, U.S. Department of Labor, Bureau of Labor Statistics
USA-22 (HSBI)	Aggregation of Adverse Effects Determined to Exist by Year
USA-26 (HSBI)	Revised 747-8I Global Delivery Prices for 2012 and 2013 (revision to Exhibit USA-17 (HSBI))
USA-27 (HSBI)	Revised Calculation of 2011 747-8I Delivery Prices (revision to Exhibit USA-19 (HSBI))
USA-28 (HSBI)	Revised Aggregation of Adverse Effects Determined to Exist by Year (revision to Exhibit USA-22 (HSBI))
USA-29 (HSBI)	Boeing Contracted Delivery Schedules and Actual Delivery Information for "Comparator" Orders
USA-30 (HSBI)	Boeing E-mail regarding First Set of Arbitrator Questions
USA-35 (BCI)	Boeing e-mail from [[***]] (Dec. 13, 2018)
USA-36 (BCI)	Boeing e-mail from [[***]] (Dec. 13, 2018)
USA-37 (BCI)	Boeing Escalation Slide
USA-38 (BCI)	[[***]]
USA-39 (BCI)	[[***]]
USA-40 (BCI)	[[***]]
USA-41 (BCI)	[[***]]
USA-43	Boeing Historical Deliveries through October 2018, Boeing website
USA-44 (HSBI)	Boeing Contracted Delivery Schedules, Delivery Schedule Changes, and Actual Delivery Information for "Comparator" Orders
USA-53	Boeing 747 deliveries (2000 – 2013), Excel download from Boeing website
USA-54	Boeing 747 Family, Boeing website
USA-56 (BCI)	Boeing e-mail from [Eric Howard] (Dec. 10, 2018)
USA-57	Boeing, Lufthansa Announce Order for 747-8 Intercontinental, Boeing Press Release
USA-58 (BCI)	Letter from Boeing to the U.S. Export-Import Bank (November 1, 2018)
USA-59 (HSBI)	[[***]]
USA-60 (BCI)	Boeing E-mail from [[***]] (Feb. 10, 2019)
USA-61 (HSBI)	Calculation of Delivery Prices for Comparator Orders
USA-62 (BCI)	Boeing E-mail regarding Question 112
USA-63 (BCI)	Boeing E-mail regarding Question 113
USA-65 (HSBI)	Survival Rate Calculation
USA-66 (HSBI)	Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132
USA-68 (HSBI)	Cathay Pacific 2013 777-300ER Order Documentation
USA-69 (HSBI)	Cathay Pacific March 2011 777-300ER Order Documentation
USA-71 (HSBI)	[[***]]
USA-73 (HSBI)	Singapore Airlines 2013 787-10 Order Documentation
USA-74 (HSBI)	United 2015 777-300ER Order Documentation
USA-75 (HSBI)	Transaero 2013 747-8I Order Documentation
USA-76 (HSBI)	Korean Air 2013 747-8I Order Documentation
USA-77 (HSBI)	Air China 2012 747-8I Order Documentation
USA-78 (HSBI)	Air China 2013 747-8I Order Documentation
USA-79 (HSBI)	Lufthansa 2006 747-8I Order Documentation
USA-80 (HSBI)	[[***]]
USA-81 (HSBI)	[[***]]
USA-82 (BCI)	Boeing E-mail regarding Question 124
USA-84 (BCI)	Boeing E-mail regarding Questions 130-131
USA-85 (HSBI)	Singapore Airlines Escalation Documentation
USA-86	Machinists Back Contract With Boeing; 8-Week Strike Ends, New York Times (Nov. 2, 2008)
USA-87 (HSBI)	Lufthansa Escalation Documentation
USA-89 (HSBI)	Korean Air 2009 747-8I Order Documentation
USA-90 (HSBI)	[[***]]
USA-91 (HSBI)	[[***]] Order Documentation
USA-92 (HSBI)	[[***]] Order Documentation
USA-93 (HSBI)	[[***]] Order Documentation
USA-94 (HSBI)	[[***]] Order Documentation
USA-95 (HSBI)	[[***]] Order Documentation
USA-96 (HSBI)	[[***]] Order Documentation
USA-97 (HSBI)	[[***]] Order Documentation
USA-98 (BCI)	Boeing E-mail regarding Question 145
USA-99 (HSBI)	Second Revised Aggregation of Adverse Effects Determined to Exist by Year (revision to Exhibit USA-28 (HSBI))
USA-100 (BCI)	Boeing E-mail from [[***]] (Feb. 11, 2019)
USA-101 (HSBI)	Boeing E-mail regarding Questions 136, 139-142
USA-103 (HSBI)	Second Revised 747-8I Global Delivery Prices for 2012 and 2013 (revision to Exhibit USA-26(HSBI))

Exhibit	Title
USA-104 (HSBI)	Second Revised Calculation of 2011 747-8I Delivery Prices (revision to Exhibit USA-27(HSBI))
USA-106 (HSBI)	Net Price Calculations for Questions 153 and 154(d) Alternative Impedance Valuations
USA-114	Technical specs of 777X, Boeing website
USA-115	Boeing Website, 747-400 Deliveries Pre-1990
USA-116 (BCI)	Boeing E-mail regarding Question 171
USA-117	GDP Deflator, provided on a quarterly and annual basis
USA-118 (BCI)	Boeing E-mail regarding Question 173
USA-119 (HSBI)	Boeing E-mail regarding Question 174
USA-120 (BCI)	Boeing WACC Data for 2012, 2013

ABBREVIATIONS USED IN THIS DECISION

Abbreviation	Description
747-8F	Boeing 747-8 Freighter
747-8I	Boeing 747-8 Intercontinental
777-300ER	Boeing 777-300 aircraft – extended range variant
A321neo	Airbus A321 new engine option aircraft
A350XWB	Airbus A350 "eXtra widebody" aircraft
A350XWB-900	Airbus A350 "eXtra widebody" aircraft – 900 seat capacity (baseline) variant
A350XWB-1000	Airbus A350 "eXtra widebody" aircraft – 1000 seat capacity variant
BCI	Business Confidential Information
BFE	buyer-furnished equipment
CA	Civil Aircraft
CCPs	Counter-cyclical Payments
CMO	Collective Management Organizations
COO	Chief Operating Officer
CPI	Consumer Price Index
DCF	Discounted Cash Flow
DSB	Dispute Settlement Body
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes (Dispute Settlement Understanding)
EC	European Communities
EEC	European Economic Community
EU	European Union
FDE	flight deck equipment
FOB	free on board
FSC	Foreign Sales Corporation
GATS	General Agreement on Trade in Services
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product
HSBI	Highly Sensitive Business Information
LA/MSF	Launch Aid/Member State Financing
LCA	large civil aircraft
ML	Marketing Loans
MSF	Member State Financing
MTOW	maximum take-off weight
MY	Marketing Year
NPV	net-present-value
PA	Purchase Agreement
PDP	pre-delivery payment
PPI for CA Manufacturing	United States Producer Price Index for Aircraft Manufacturing of Civilian Aircraft
RfP	Request for Proposal
RPT	Reasonable Period of Time
[[***]]	[[***]]
SCM Agreement	Agreement on Subsidies and Countervailing Measures
UAE	United Arab Emirates
UK	United Kingdom
US	United States
USA	United States of America
USD	United States dollar
VLA	Very Large Aircraft
WACC	weighted average cost of capital
WTO	World Trade Organization

1 INTRODUCTION

1.1 Original proceedings and compliance proceedings

1.1. The present arbitration proceeding arises in the dispute initiated by the United States concerning certain measures by the European Union¹ and certain member States affecting trade in large civil aircraft (LCA).

1.2. On 1 June 2011, the Dispute Settlement Body (DSB) of the World Trade Organization (WTO) adopted the Appellate Body report in this dispute, together with the report of the original panel as modified by the Appellate Body.² The original panel and the Appellate Body found that certain subsidies provided by the European Union and certain member States to the European LCA manufacturer Airbus³ caused displacement and significant lost sales within the meaning of Article 6.3(a)-(c) of the Agreement on Subsidies and Countervailing Measures (SCM Agreement) which constitutes serious prejudice under Article 5(c).⁴

1.3. According to Articles 7.8 and 7.9 of the SCM Agreement, the European Union and certain member States had six months from the date of adoption of the panel report or the Appellate Body report to take appropriate steps to remove the adverse effects of, or withdraw, the relevant subsidies. This six-month period expired on 1 December 2011. On that date, the European Union notified the DSB that it had taken appropriate steps to bring its measures fully into conformity with its WTO obligations, and to comply with the DSB's recommendations and rulings.⁵ The United States considered that these steps failed to bring the European Union and certain member States into compliance with the DSB recommendations and rulings.⁶ On 12 January 2012, the European Union and the United States informed the DSB of their Agreed Procedures under Articles 21 and 22 of the DSU (the Sequencing Agreement).⁷ On 13 April 2012, the DSB, at the United States' request, established the compliance panel under Article 21.5 of the DSU.⁸

1.4. On 22 September 2016, the compliance panel found that the European Union and certain member States had "failed to comply with the DSB recommendations and rulings and, in particular, the obligation under Article 7.8 of the SCM Agreement 'to take appropriate steps to remove the adverse effects or ... withdraw the subsidy'".⁹ The Appellate Body reached the same conclusion, albeit generally on the basis of different reasoning.¹⁰ Significantly, the Appellate Body based its reasoning solely on the effects of the following measures: (a) Launch Aid/Member State Financing (LA/MSF) subsidies for the A380 aircraft in the very large aircraft (VLA) product market; and (b)

¹ This dispute contains the name "European Communities" rather than "European Union". The European Union effectively succeeded and replaced the European Communities for purposes of this dispute following the entry into force of the Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community on 1 December 2009. (See Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, fn 1). For ease of reference, we refer to the "European Union" whether discussing events that occurred before or after the entry into force of the Treaty of Lisbon.

² Appellate Body Report and Panel Report, *Action by the Dispute Settlement Body*, WT/DS316/16.

³ For further background on the history and corporate structure of Airbus, see Panel Reports *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.946-6.957, and *EC and certain member States – Large Civil Aircraft*, pp. 359-363.

⁴ See Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, paras. 1299-1300 and 1412; and Panel Report, *EC and certain member States – Large Civil Aircraft*, paras. 7.2025 and 8.2.

⁵ Communication by the European Union, WT/DS316/17 (First Compliance Communication), para. 1.

⁶ DSB, Minutes of the meeting held on 19 December 2011, WT/DSB/M/308, para. 55.

⁷ Communication by the parties, WT/DS316/21 (Understanding between the European Union and the United States Regarding Procedures under Articles 21 and 22 of the DSU). The parties agreed, *inter alia*, to request suspension of arbitration under Article 22.6 of the DSU pending completion of the compliance panel proceeding under Article 21.5 of the DSU and any appeal thereof. The parties also agreed that in the event that the DSB, following a proceeding under Article 21.5 of the DSU, ruled that a measure taken to comply does not exist or is inconsistent with a covered agreement, either party may request the Article 22.6 arbitrator to resume its work.

⁸ DSB, Minutes of the meeting held on 13 April 2012, WT/DSB/M/314, para. 10.

⁹ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 7.2.

¹⁰ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 6.

LA/MSF subsidies for the A350XWB aircraft in the twin-aisle product market.¹¹ The compliance panel had based its conclusions on a broader set of subsidy measures.¹² Based on the effects of those measures, the Appellate Body confirmed certain of the compliance panel's findings with respect to impedance and significant lost sales within the meaning of Article 6.3(a)-(c) of the SCM Agreement. More specifically, and as explained in more detail in sections 6.3.4.3 and 6.3.4.4 below, the Appellate Body confirmed that A380 and A350XWB LA/MSF caused five lost sales as well as impedance in six different geographic markets in the relevant reference period, i.e. the 2011-2013 reference period ("2011-2013 Reference Period"). On 28 May 2018, the DSB adopted the Appellate Body report and the report of the compliance panel, as modified by the Appellate Body report.¹³

1.2 Request for arbitration and arbitration proceeding

1.5. On 9 December 2011, the United States requested DSB authorization to "take countermeasures with respect to the European Union at an annual level commensurate with the degree and nature of the adverse effects caused to the interests of the United States by the failure of the European Union and certain member States to withdraw subsidies or remove their adverse effects in compliance with the recommendations and rulings of the DSB". In its request, the United States "estimate[d] this figure to be between \$7 and \$10 billion per year".¹⁴

1.6. The United States' request seeks authorization to suspend concessions or other obligations under the General Agreement on Tariffs and Trade (GATT) 1994 as well as the General Agreement on Trade in Services (GATS). According to the United States' request, it is neither practicable nor effective for the United States to suspend concessions or other obligations only on imports of goods from the European Union up to a value of approximately USD 10,000 million. The United States' request also states that, given the degree and nature of the adverse effects, the circumstances are "serious enough" within the meaning of Article 22.3(c) of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU) to impose countermeasures consisting of one or more of the following:

1. suspension of tariff concessions and related obligations (including most-favoured nation obligations) under the GATT 1994 on a list of products from the European Union and certain member States to be drawn from the United States' Harmonized Tariff Schedule; and
2. suspension of horizontal or sectoral concessions and obligations contained in the United States' Schedule of Specific Commitments with regard to all services defined in the Services Sectoral Classification List, except for financial services (sector 7).¹⁵

1.7. At the DSB meeting on 22 December 2011, the European Union objected to the United States' proposed level of countermeasures, and claimed that the United States had not followed the principles and procedures set forth in Article 22.3 of the DSU. At the same meeting, the DSB agreed that the matter raised by the European Union in its statement had been referred to arbitration, as required by Article 22.6 of the DSU.¹⁶ The Arbitrator was constituted on 13 January 2012¹⁷ and was composed of the original panelists:

¹¹ See e.g. Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.412 and section 6. See also Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 6.5.2.3.1 (describing A350XWB LA/MSF measures); and *EC and certain member States – Large Civil Aircraft*, paras. 7.367-7.381 and Table 1 (describing A380 LA/MSF measures).

¹² Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 7.

¹³ Appellate Body Report and Panel Report pursuant to Article 21.5 of the DSU, *Action by the Dispute Settlement Body*, WT/DS316/35.

¹⁴ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18.

¹⁵ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18.

¹⁶ DSB, Minutes of the meeting held on 22 December 2011, WT/DSB/M/309, para. 4.

¹⁷ Constitution note of the Arbitrator, WT/DS316/20.

Chairperson: Mr Carlos Pérez del Castillo

Members: Mr John Adank
Mr Thinus Jacobsz

1.8. In accordance with the terms of the parties' Sequencing Agreement, and upon a joint request from the parties, the Arbitrator suspended arbitration proceedings from 20 January 2012 until either party requested the resumption of its work.¹⁸ On 13 July 2018 (i.e. just over six weeks following the adoption of the Appellate Body and panel reports in the compliance proceedings on 28 May 2018) the United States made such a request, and the Arbitrator resumed its work on that day.¹⁹ Due to the prior resignation of the Chairperson of the Arbitrator, Mr Carlos Pérez del Castillo, on 17 February 2016, and given the unavailability of Mr John Adank to serve as a member of the Arbitrator, the Director-General appointed a new Chairperson and a new member of the Arbitrator on 9 July 2018, pursuant to a request from the United States on 28 June 2018.²⁰ Accordingly, the new composition of the Arbitrator was as follows:

Chairperson: Mr Faizullah Khilji

Members: Mr Scott Gallacher
Mr Thinus Jacobsz

1.9. An organizational meeting was held on 14 August 2018 to discuss procedural aspects of the arbitration proceeding. After consulting with the parties, the Arbitrator adopted its Working Procedures and a timetable on 17 August 2018.²¹ The Arbitrator adopted Additional Working Procedures Concerning Protection of Business Confidential Information (BCI) and Highly Sensitive Business Information (HSBI) on 31 August 2018. They were amended on 23 October 2018 and on 27 September 2019 (see section 2.2 below).²² On 6 December 2018, the Arbitrator also adopted Additional Working Procedures concerning the recording, and delayed public presentation, of the opening oral statements of the parties at the substantive meeting, (see section 2.3 below).²³

1.10. In accordance with the timetable and Working Procedures adopted by the Arbitrator, the United States on 11 September 2018 submitted a communication explaining its methodology for calculating the proposed level of countermeasures (United States' methodology paper). The European Union filed its written submission, including a separate request for a preliminary ruling, on 15 October 2018. The United States filed its written submission, including its response to the preliminary ruling request, on 9 November 2018. The Arbitrator sent questions to the parties for written responses on 16 November 2018, to which the parties responded on 30 November 2018. The Arbitrator sent additional questions to the parties for written responses on 30 November 2018, to which the parties responded on 14 December 2018.

1.11. The Arbitrator held its substantive meeting with the parties on 11 and 12 February 2019. The Arbitrator issued its conclusions on the European Union's request for a preliminary ruling on 18 February 2019.²⁴ The conclusions and the reasons underpinning them are set out in section 2.4 below.

1.12. On 19 February 2019, the Arbitrator sent additional questions to the parties for written responses. The parties responded to these questions on 15 March 2019, and provided comments on each other's responses on 8 April 2019. The Arbitrator sent further questions to the parties for written responses on 28 February 2019. The parties responded to these questions on 22 March 2019 and provided comments on each other's responses on 12 April 2019. The Arbitrator sent additional questions to the parties for written responses on 24 May 2019. The parties responded to these questions on 7 June 2019 and provided comments on each other's responses on 21 June 2019. In total, the parties responded to 175 questions, many with sub-parts, from the Arbitrator. The record

¹⁸ Communication from the Arbitrator, WT/DS316/22 (Suspension of the Work of the Arbitrator).

¹⁹ Communication from the Arbitrator, WT/DS316/38 (Resumption of the Work of the Arbitrator).

²⁰ Replacement of two members of the Arbitrator, WT/DS316/37.

²¹ See Working Procedures of the Arbitrator, Annex A-1.

²² See Additional Working Procedures for the Protection of Business Confidential Information and Highly Sensitive Business Information, Annex A-2.

²³ See Additional Working Procedures for the Substantive Meeting with the Arbitrator, Annex A-3.

²⁴ See Preliminary Ruling by the Arbitrator (Conclusions), Annex B-1.

of this proceeding thus encompasses hundreds of pages of submissions and thousands of pages of exhibits. Much of this information is either BCI or HSBI.

1.13. The Arbitrator submitted its Decision for translation on 30 August 2019 and notified the parties of this transmission. The Arbitrator on 13 September 2019 issued to the parties a version of its Decision containing BCI and a redacted version intended for public circulation. The parties returned with requests for additional redactions on 19 September 2019. The Arbitrator provided its HSBI calculations underlying the number in the bottom right corner of Table 21 of this Decision on 24 September 2019. The Decision of the Arbitrator was circulated to WTO Members on 2 October 2019.

1.3 Second compliance proceedings

1.14. On 17 May 2018, the European Union communicated to the DSB that it had taken appropriate steps to bring its measures fully into conformity with its WTO obligations, and to comply with the DSB's recommendations and rulings.²⁵ At the DSB meeting of 28 May 2018, the United States noted that "based on the [United States'] review [of the communication from the European Union dated 17 May 2018], the EU document did not reflect new developments that might somehow resolve this long-standing dispute".²⁶ Subsequently, on 27 August 2018, at the European Union's request, the DSB established a second panel under Article 21.5 of the DSU.²⁷ This second compliance panel had not yet issued its report at the time the Arbitrator issued this Decision.

2 PROCEDURAL MATTERS

2.1. In section 2, the Arbitrator addresses four procedural matters arising in these proceedings. First, we briefly describe procedures related to page limits on the parties' written submissions. Second, we explain our treatment of BCI and HSBI. Third, we address the parties' request that portions of the substantive meeting be recorded for a later presentation to the public. Finally, we discuss the European Union's request for a preliminary ruling.

2.1 Page limits on parties' written submissions

2.2. Mindful of the length of the prior proceedings and volume of the parties' submissions in this dispute, and the expedited nature of Article 22.6 proceedings, the Arbitrator, ahead of the organizational meeting, proposed to introduce page limits on the parties' written submissions to facilitate the efficient conduct of this arbitration. The European Union commented that while it agreed with the need for efficient and speedy proceedings, imposing a page limit on written submissions would not be conducive either to efficient proceedings or to the protection of the parties' due process rights.²⁸ The United States considered that the page limit proposed by the Arbitrator should be included in the Working Procedures and noted that the European Union's objection to this provision "hint[ed] at an intent to cause delay".²⁹ After having considered the views of the parties, the Arbitrator decided to increase the previously specified page limit on the parties' written submissions and included it in its Working Procedures. No time limits were imposed on the parties' oral statements.

2.3. The Arbitrator's Working Procedures provide that the written submissions of the parties and the methodology paper of the United States are not to exceed 125 pages (single-spaced, font size 10) each, excluding any exhibits accompanying such submissions. Moreover, the specified page limit was not absolute, as the procedures provide for the possibility to grant an extension upon timely request by a party and subject to an explanation by that party of the circumstances that in its view warrant exceeding the page limit.³⁰ Neither requested an extension of the page limit.

²⁵ Communication by the European Union, WT/DS316/34 (Second Compliance Communication), para. 1.

²⁶ DSB, Minutes of the meeting held on 28 May 2018, WT/DSB/M/413, para. 3.3.

²⁷ DSB, Minutes of the meeting held on 27 August 2018, WT/DSB/M/417, para. 5.5.

²⁸ European Union's communication (14 August 2018), para. 2.

²⁹ United States' communication (16 August 2018), para. 10.

³⁰ For the full text of the adopted procedure on page limits, see Working Procedures of the Arbitrator, Annex A-1, para. 3.2.

2.2 Treatment of BCI and HSBI

2.4. At the organizational meeting, both parties requested the Arbitrator to adopt additional working procedures to protect BCI and HSBI submitted in the course of the proceeding. As indicated in the preceding section, the Arbitrator adopted such additional working procedures on 31 August 2018, as amended on 23 October 2018 and 27 September 2019.³¹

2.5. The Additional Working Procedures, *inter alia*, (a) define BCI and HSBI for the purposes of these proceedings, (b) limit access to, and permissible use of, BCI and HSBI submitted during the proceedings to certain pre-designated persons and at certain designated secure locations where applicable, (c) provide for the treatment and handling of BCI and HSBI in a party's submissions to the Arbitrator, and (d) provide for the return and destruction of BCI and HSBI after the conclusion of the arbitration proceeding.

2.6. Additionally, paragraphs 40 and 51 of the Additional Working Procedures provide that the Arbitrator shall not disclose BCI and HSBI in its Decision but may make statements or draw conclusions that are based on the information drawn from BCI and HSBI. Importantly, it also provides that, prior to circulating the Decision of the Arbitrator to the WTO membership, the parties shall be given an opportunity to ensure that the Decision does not contain any BCI or HSBI. These paragraphs form the "legal basis"³² on which the Arbitrator has redacted words or statements that are BCI or HSBI from the public version of this Decision. Accordingly, the text of the version circulated to Members is identical to the text of the confidential version issued to the parties, with the exception of passages that are redacted to protect BCI and HSBI. Such passages have been replaced by "[**]" and "[HSBI]".

2.7. In the adoption and application of the additional procedures to protect BCI and HSBI, the Arbitrator has strived to "ensure that an appropriate balance is struck between the need to guard against the risk of harm that could result from the disclosure of particularly sensitive information, on the one hand, and the integrity of the adjudication process ... and the rights of and systemic interests of the WTO membership at large, on the other hand".³³ We have also tried to "ensure that the public version of [the Decision] circulated to all Members of the WTO is understandable".³⁴ Having said that, it is also important to note that a substantial portion of evidence submitted by the parties in this proceeding is protected under the BCI and HSBI procedures and therefore the Arbitrator has had to have reference to information classified as BCI or HSBI more frequently than may be usual in previous arbitration decisions.

2.8. In accordance with the Additional Working Procedures, the parties on 19 September 2019 submitted specific requests regarding the redaction of BCI from the public version of this Decision and on 23 September 2019 submitted comments on each other's requests. In response to these communications, we made appropriate changes to the public version of our Decision.

2.3 Public presentation of the parties' opening statements

2.9. At the organizational meeting, both parties agreed that the substantive meeting of the Arbitrator with the parties should be made public insofar as it was reasonable to do so, particularly given the significant presence of confidential information in the proceeding. In this context, recognizing the need to protect the confidentiality of BCI and HSBI that could be referred to at the substantive meeting, both parties also agreed that additional working procedures should be adopted for the substantive meeting of the parties with the Arbitrator. On 6 December 2018, and pursuant to a joint proposal made by the parties, the Arbitrator adopted Additional Working Procedures for the Substantive Meeting with the Arbitrator.³⁵ These procedures addressed issues pertaining to the treatment of BCI and HSBI during the meeting, generally, as well as issues more specifically pertaining to the parts of the meeting intended to be made available to the public.

³¹ See Additional Working Procedures for the Protection of Business Confidential Information and Highly Sensitive Business Information, Annex A-2.

³² Appellate Body Report, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.4.

³³ Appellate Body Reports, *US – Tuna II (Mexico) (Article 21.5 – Mexico)*, para. 5.3; and *EC and certain member States – Large Civil Aircraft*, Annex III, Procedural Ruling of 10 August 2010, para. 15.

³⁴ Appellate Body Report, *Japan – DRAMS (Korea)*, para. 279.

³⁵ See Additional Working Procedures for the Substantive Meeting with the Arbitrator, Annex A-3.

2.10. The substantive meeting of the Arbitrator with the parties was held on 11-12 February 2019, during which the parties' opening oral statements were recorded for a later presentation to the public in accordance with the terms of the Additional Working Procedures. A preview of the recording for the parties was held on 8 March 2019, which both the parties attended and at which the parties identified utterances of BCI during the opening oral statements that were later deleted before the public presentation. The public presentation of the redacted recording of the parties' opening oral statements took place on 30 April 2019 at the WTO.

2.4 The European Union's request for a preliminary ruling

2.11. As noted at paragraph 1.10 above, when the European Union filed its written submission, it also filed a separate request that the Arbitrator issue a preliminary ruling at the earliest stage possible. The United States responded to that request in its written submission. Soon after the meeting of the Arbitrator with the parties, the Arbitrator issued its conclusions on the preliminary ruling request. In this section, the Arbitrator restates its conclusions and provides the reasons supporting them.

2.12. In its preliminary ruling request, the European Union requests that the Arbitrator await the outcome of the second compliance panel proceeding³⁶ before completing the arbitration proceeding. In the European Union's view, the Arbitrator and the second compliance panel should find a "logical way forward"³⁷ and coordinate their work. The European Union submits that there is a unique interdependence between the mandates of an Article 22.6 arbitrator and a compliance panel in a dispute involving Part III of the SCM Agreement concerning actionable subsidies. According to the European Union, the Arbitrator cannot properly fulfil its task without consideration of whether the European Union has brought itself into conformity (which the European Union has asserted to be the case in its most recent communication on compliance³⁸), and the result of the compliance panel proceeding which has a bearing on the arbitration proceeding. The European Union considers that there is a risk of serious and irreparable harm to the European Union if countermeasures were imposed despite it having now complied with the DSB's recommendations and rulings.³⁹

2.13. The European Union submits that a proper interpretation of Articles 7.9 and 7.10 of the SCM Agreement is that the DSB can authorize countermeasures only if no compliance has been achieved. The European Union recalls in this respect that the question whether the European Union has achieved substantive compliance in this dispute is currently before the second compliance panel. In the European Union's view, the logical way forward is therefore for the Arbitrator to wait for the outcome of "multilateral review" before determining whether the United States can receive authorization to take countermeasures.⁴⁰

2.14. The United States responds that the preliminary ruling request provides no valid reason, and the DSU and SCM Agreement do not require, that the Arbitrator halt the proceeding to allow the European Union to litigate its latest claims of compliance. In the United States' view, it is not justified to halt an arbitrator's decision in circumstances where the responding party's initial claim of compliance has failed, the DSB has adopted findings of WTO-inconsistency in the post-implementation period, and the responding party has commenced a second compliance proceeding. The United States notes that the arbitration addresses the level of suspension commensurate with adverse effects already identified in the first compliance panel and Appellate Body reports, whereas the second compliance panel will address allegations that a new set of measures have modified the European Union's subsidies so that they no longer cause adverse effects. The United States further points out that slowing down the arbitration would be inconsistent with the parties' joint commitment in their bilateral sequencing agreement "'to cooperate to enable the Arbitrator to circulate its decision within 60 days".⁴¹

³⁶ See paragraph 1.14 above.

³⁷ European Union's request for a preliminary ruling, para. 3 (referring to Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.9).

³⁸ Communication by the European Union, WT/DS316/34 (Second Compliance Communication).

³⁹ European Union's request for a preliminary ruling, paras. 3-4, 7-9, 23-24, 52, and 74; communication to the Arbitrator (22 October 2018), p. 2; and response to Arbitrator question No. 50, paras. 21 and 28.

⁴⁰ European Union's request for a preliminary ruling, paras. 5, 7, 34, and 37.

⁴¹ United States' written submission, para. 34 (quoting the Sequencing Agreement, para. 7). See also United States' written submission, paras. 21, 31, 34-35, 60, and 69; and communication to the Arbitrator (25 October 2018), p. 2.

2.15. The United States argues that according to the European Union, if the second compliance proceeding found against it, the European Union would be free to assert new claims of compliance that would again halt the arbitration until a third compliance proceeding has been completed. In the United States' view, such a result would negate its right to take countermeasures in response to the European Union's failure to comply. The United States further observes that it strongly disagrees that the European Union has achieved compliance. The United States points out in this respect that the European Union and the United States disagree on which party should bear the risk of uncertainty as to whether the European Union is in compliance. The United States considers that it bore the risk of uncertainty through the end of the first compliance proceeding. In the United States' view, now it is the European Union that should bear the uncertainty in that it will remain subject to countermeasures until claims of compliance have been resolved. The United States also observes that the European Union did not argue that the first compliance proceedings should have moved quickly because the adverse effects caused by its subsidies were irreparable.⁴²

2.16. The Arbitrator, after careful consideration of the parties' arguments, transmitted to the parties its conclusion on the European Union's preliminary ruling request and indicated that it would provide the supporting reasons in its Decision.⁴³ We concluded that it was neither necessary nor appropriate to await the outcome of the second compliance proceedings before proceeding to determine the maximum level of countermeasures that the United States could be authorized to impose. We therefore declined the European Union's request that we coordinate our work with the second compliance panel and decided to proceed with our work.

2.17. In this section, we provide the reasons supporting our conclusion. Before doing so, it is useful to clarify the nature and practical implications of the European Union's request. Regarding the nature of the request, the European Union asks that we delay the completion of our work to allow for the question of the European Union's compliance to be resolved in the second compliance proceeding. In other words, the European Union does not request that we resolve the compliance issue ourselves.

2.18. Regarding practical implications, the European Union states that we should coordinate our work with the second compliance panel, and that we should await the outcome of "multilateral review"⁴⁴ of the European Union's claim of substantive compliance. As the report of the second compliance panel is subject to appeal, the "multilateral review" would not be complete and final until after any appeal that either party might initiate. The delay requested by the European Union would thus potentially have been substantial. We note in this connection that in accordance with Article 22.6 of the DSU, arbitrations are to be completed on an expedited basis, within 60 days after the referral of the matter to arbitration. If the parties had wished that we not proceed, they could have jointly requested a further suspension of this arbitration proceeding.⁴⁵ The parties clearly did not agree, however, that the kind of coordination with the second compliance panel that the European Union proposed would be appropriate.⁴⁶

2.19. The European Union nevertheless asks, in effect, that irrespective of the fact that the United States does not agree to delay the arbitration proceeding, we impose timetable coordination with the second compliance panel. The European Union presents three main arguments in support of its request: (a) an argument concerning Article 22.8 of the DSU, (b) an argument concerning non-retroactivity of WTO remedies, and (c) an argument based on prior arbitration decisions. We address each in turn below.

2.4.1 The European Union's argument concerning Article 22.8 of the DSU

2.20. According to the European Union, the right to request countermeasures under Article 7.9 of the SCM Agreement arises in case of non-compliance at the end of the implementation period, but

⁴² United States' written submission, paras. 23, 26-27, 29-30, and 57; and communication to the Arbitrator (25 October 2018), pp. 2-3.

⁴³ Arbitrator communication to the parties, Annex C-1, (18 February 2019) (containing the Arbitrator's conclusions on the European Union's preliminary ruling request, which form an integral part of the Arbitrator's Decision).

⁴⁴ European Union's request for a preliminary ruling, para. 37.

⁴⁵ As noted at paragraph 1.8 above, at the request of the parties, the present arbitration proceeding was suspended from January 2012 to July 2018.

⁴⁶ According to the United States, the "only proper action at this stage is to move forward expeditiously with this arbitration". (United States' written submission, para. 21).

Article 7.9 does not stipulate whether countermeasures may be requested, and authorized, in circumstances where the responding Member has asserted compliance after the end of the implementation period and a compliance panel has been established to determine whether compliance has been achieved. However, in the European Union's view, Article 22.8 of the DSU means that no countermeasures can be authorized if substantive compliance has been achieved. The European Union submits that we should therefore await the outcome of a multilateral review of the European Union's claim of substantive compliance.⁴⁷

2.21. The United States notes that the DSB has found that the European Union has failed to comply with the DSB recommendations and rulings, and that the DSU provides that the DSB must authorize countermeasures at the level determined by the Arbitrator. The United States considers that Article 22.8 does not preclude the application of countermeasures in the present dispute and that any countermeasures authorized by the DSB could properly continue until the DSB adopts a finding of compliance (or the parties agree that a solution has been found). According to the United States, what matters under Article 22.8 is not the assertion of compliance, but a finding of compliance adopted by the DSB (which the European Union has not obtained).⁴⁸

2.22. The Arbitrator first notes the text of Article 22.8, which states in relevant part that the suspension of concessions or other obligations "shall only be applied until such time as the measure found to be inconsistent with a covered agreement has been removed".⁴⁹ Thus, Article 22.8, by its terms, is concerned with the "application" of the suspension of concessions or other obligations. Article 22.7 precedes and is part of the immediate context of Article 22.8. The last sentence of Article 22.7 stipulates that the DSB upon request must grant "authorization" to suspend concessions or other obligations where the request is consistent with the decision of the Article 22.6 arbitrator (and there is no negative consensus in the DSB against granting the request). Accordingly, Article 22.7 is concerned with "authorization", where Article 22.8 is concerned with "application" of a suspension of concessions or other obligations. It is clear to us from these elements that Article 22.8 addresses a post-authorization situation – a situation in which the suspension of concessions or other obligations has already been authorized by the DSB – and not a pre-authorization situation.⁵⁰

2.23. We therefore do not agree that Article 22.8 prevents the DSB from "authorizing" countermeasures in a pre-authorization scenario such as ours, where the DSB has ruled after compliance proceedings that the responding party has not brought itself into conformity by the end of the implementation period and the complaining party requests that the DSB grant it authorization to take countermeasures on the basis of the DSB's prior compliance ruling.⁵¹

2.24. In fact, the *US – Tuna II (Mexico)* dispute is a case in point. The DSB ruled that the United States had failed to bring itself into conformity by the end of the reasonable period of time. Mexico then requested authorization to suspend concessions and the matter was referred to an Article 22.6 arbitrator. At around the same time, however, a revised United States' measure taken to comply entered into force, which the United States claimed achieved compliance.⁵² A compliance panel was subsequently established following separate requests from the United States and Mexico. The arbitrator completed its work before the second compliance panel, and the DSB authorized Mexico to retaliate. Months later, the second compliance panel found that the revised United States' tuna measure brought the United States into conformity, and the panel was later upheld by the Appellate Body. Thus, even though the United States was claiming to be in compliance when Mexico

⁴⁷ European Union's request for a preliminary ruling, paras. 38-39; and response to Arbitrator question No. 50, paras. 9 and 18.

⁴⁸ United States' written submission, paras. 28, 48, and 50.

⁴⁹ Appellate Body Report, *US – Continued Suspension*, para. 306 (stating that "the application of the suspension of concessions may continue until the removal of the measure found by the DSB to be inconsistent results in substantive compliance").

⁵⁰ See also Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US I)*, para. 3.45.

⁵¹ Article 22.8 would, however, prevent the complaining party from continuing to apply any DSB-authorized countermeasures if any subsequently completed compliance proceedings established that the responding party has substantively complied.

⁵² The parties in *US – Tuna II (Mexico) (Article 22.6 – US)* disagreed about the date on which the 2016 tuna measure entered into force and the arbitrator did not find it necessary to resolve that issue. (Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 3.64-3.65).

sought DSB authorization to suspend concessions or other obligations, the DSB granted Mexico the authorization.

2.4.2 The European Union's argument concerning non-retroactivity of WTO remedies

2.25. The European Union further argues that if the Arbitrator were to authorize the United States to impose countermeasures to respond to a past breach of the SCM Agreement instead of any current inconsistency with the SCM Agreement, this would give the United States a retroactive remedy. The European Union submits that this would go against the principle that countermeasures are prospective in nature rather than retroactive.⁵³

2.26. In the United States' view, if the European Union's recent steps achieved compliance (as the European Union claims) this would not mean that the United States would be granted a retrospective remedy for past adverse effects inflicted by the European Union, rather than a remedy for ongoing effects. According to the United States, the European Union's argument ignores that the converse would also be true. The United States submits that if the Arbitrator were to stop the proceeding and the second compliance proceeding rejects the European Union's claims of compliance, the Arbitrator would deny the United States' right to suspend concessions to restore the balance of rights and obligations upset by the European Union's ongoing WTO-inconsistent subsidization.⁵⁴

2.27. The Arbitrator observes that the DSB would authorize the United States to take countermeasures prospectively (i.e. from the date of the DSB authorization going forward) to respond to a continuing multilaterally determined breach of WTO obligations.⁵⁵ Moreover, consistent with Article 22.8, any such countermeasures could remain in place until there is a new multilateral determination by the DSB to the effect that there no longer is a breach (or the parties have reached a mutually agreed solution). It is only if countermeasures remained in place even after the DSB has determined that there no longer is a breach that such countermeasures could be said to "respond to a past breach" (i.e. a breach that has ceased). In contrast, a unilateral declaration of compliance by the responding party does not turn multilaterally authorized countermeasures that either begin or continue to be implemented after the date of such a declaration into countermeasures that "respond to a past breach" from the date of their first implementation (where countermeasures begin to be implemented after the declaration) or the date of the declaration (where countermeasures continue to be implemented), going forward. Finally, we note that in the *US – Tuna II (Mexico)* dispute, the DSB granted Mexico the right to suspend concessions or other obligations to respond to a prior multilateral DSB determination of non-compliance despite the United States' claim that it had in the meantime brought itself into compliance.⁵⁶

2.28. In the light of the foregoing considerations, we are unable to accept the European Union's argument that authorizing the United States to take countermeasures before the completion of the second compliance panel proceeding would amount to granting a retroactive remedy.

2.4.3 Prior arbitration decisions referred to by the European Union

2.29. The European Union submits that three prior arbitration decisions under Article 22.6 support its position that there is no basis to authorize countermeasures if compliance has been achieved. First, the European Union points out that the arbitrator in *EC – Bananas III (US) (Article 22.6 – EC)* assessed whether the European Union had achieved compliance through the measures it had taken after the original proceedings. Second, the European Union points to the arbitration decision in *US – Upland Cotton (Article 22.6 – US I)*, in which the arbitrator did not include in its valuation a subsidy programme that had been found WTO-inconsistent by the original panel, but that the parties agreed had been withdrawn after the end of the implementation period. Third, the European Union notes

⁵³ European Union's request for a preliminary ruling, paras. 56-58.

⁵⁴ United States' written submission, paras. 54-55.

⁵⁵ In *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, the Appellate Body referred to the "prospective nature of remedies in WTO dispute settlement" and observed that, under Article 7.8 of the SCM Agreement, a complaining Member can "obtain relief in the form of a prospective remedy". (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.374). (emphasis original)

⁵⁶ DSB, Minutes of the meeting held on 22 May 2017, WT/DSB/M/397, para. 7.24; and request for the establishment of a panel by the United States, WT/DS381/32 (12 April 2016).

that the arbitrator in *Brazil – Aircraft (Article 22.6 – Brazil)* decided that it would wait for the results of the compliance proceeding before the Appellate Body before reaching a conclusion under Article 22.6. The European Union notes that only one arbitrator, the arbitrator in *US – Tuna II (Mexico) (Article 22.6 – US)*, took a different approach outlined in a preliminary ruling (*US – Tuna II Arbitrator's Preliminary Ruling*). The European Union considers that the circumstances of the present dispute are different, because this dispute concerns countermeasures in response to DSB recommendations concerning actionable subsidies. For the European Union, the premise of an arbitrator's work in this context is the existence of adverse effects. In the European Union's view, this difference dictates a different approach.⁵⁷

2.30. The United States responds that past arbitration decisions do not support halting an Article 22.6 arbitration to await the outcome of a second compliance panel proceeding. The United States submits that the most recent relevant decision, the decision in the *US – Tuna II (Mexico) (Article 22.6 – US)* dispute, is also the most analogous to this proceeding and confirms that the Arbitrator should not halt its work to await the final results of the second compliance proceeding. The United States considers that the reasoning developed by that arbitrator applies, with even greater force, in a proceeding under Part III of the SCM Agreement. According to the United States, in accordance with Article 7.10, the countermeasures must relate to the adverse effects determined in the most recent proceeding to be inconsistent with the SCM Agreement, and not an alleged more recent version of the relevant measure. Regarding the other arbitration decisions cited by the European Union, the United States argues that they do not support the European Union's views.⁵⁸

2.31. The Arbitrator notes that the three arbitration decisions on which the European Union relies were all raised and addressed in some detail in the *US – Tuna II Arbitrator's Preliminary Ruling*.⁵⁹ We concur with the analysis in that ruling and thus consider that these arbitration decisions do not support the European Union's position. In *EC – Bananas III (US) (Article 22.6 – EC)*, the complaining party sought authorization to retaliate without first completing a compliance proceeding. The arbitrator determined that the most logical way forward was for it to undertake its own examination of the WTO-consistency of the European Union's measure taken to comply.⁶⁰ In the present proceeding, there is a prior DSB determination of non-compliance from the first compliance proceedings. In *US – Upland Cotton (Article 22.6 – US I)*, the arbitrator excluded from its valuation a previously WTO-inconsistent United States measure that the parties agreed had been withdrawn prior to the compliance panel and arbitration proceedings, and on which the DSB after the compliance proceedings did not make a determination of non-compliance.⁶¹ In the present proceeding, there is no multilateral determination that the European Union has achieved compliance, nor do the parties agree that the European Union has achieved compliance, and there thus is no reason to "decline[] to authorise countermeasures"⁶² regarding the WTO-inconsistent adverse effects determined to exist in the prior compliance proceedings. Finally, in *Brazil – Aircraft (Article 22.6 – Brazil)*, there was no DSB determination of non-compliance from prior compliance proceedings when the arbitration proceeding commenced. The arbitrator therefore decided to wait for the result of the appeal in the compliance proceedings (which were expected to become available less than two months after the commencement of the arbitration proceeding) to allow the parties to take it into account in the context of the arbitration proceeding, since "[t]he decision of the Appellate Body could influence the extent to which Brazil may be considered to have brought its legislation into conformity with its WTO obligations".⁶³ In the present proceeding, there already is a DSB determination of non-compliance from prior compliance proceedings. There consequently is no need to await the final results of the second compliance proceeding that the European Union subsequently initiated.

2.32. As concerns the factual circumstances underlying the *US – Tuna II Arbitrator's Preliminary Ruling*, we consider that they are substantially similar to ours. As in the present proceeding, when that arbitration began, there was a DSB determination of non-compliance from prior compliance proceedings. A second round of compliance proceedings was likewise initiated shortly after the arbitration proceeding had been initiated. Nevertheless, the arbitrator did not wait for the final

⁵⁷ European Union's request for a preliminary ruling, paras. 59-61 and 63-73.

⁵⁸ United States' written submission, paras. 61-69.

⁵⁹ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 3.29-3.47.

⁶⁰ Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 4.9.

⁶¹ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US I)*, paras. 3.21 and 3.50.

⁶² European Union's request for a preliminary ruling, para. 63.

⁶³ Decision by the Arbitrator, *Brazil – Aircraft (Article 22.6 – Brazil)*, para. 2.1.

results of the second compliance proceedings and conducted the arbitration proceeding on the basis of the prior DSB determination. According to the arbitrator, this was justified because, in its view, the text of Article 22.6 "mandates an arbitrator to assess the level of nullification or impairment caused by the WTO-inconsistent original measure (where no compliance measure was subsequently taken), or a subsequent WTO-inconsistent compliance measure, that was in existence at the time of expiry of the RPT [i.e. reasonable period of time]".⁶⁴ The arbitrator further observed that this measure "may or may not be the most recent version of the relevant measure".⁶⁵ We have carefully considered the reasoning that the arbitrator provided in support of these statements⁶⁶ and find it persuasive.

2.33. Applying this reasoning to the present proceeding, *mutatis mutandis*, we reach two provisional conclusions. First, we consider that it is our mandate to determine the level of countermeasures based on the adverse effects determined to exist in the prior compliance proceedings and not by reference to the current situation, which the European Union claims is one where there no longer exist any adverse effects or the relevant subsidies have been withdrawn. We recall in this connection that in our view the reference in Article 7.10 of the SCM Agreement to the adverse effects "determined to exist" should be construed as a reference to any adverse effects determined to exist by the panel and Appellate Body in their reports.⁶⁷ The most recent of such reports adopted by the DSB are those circulated at the end of the first compliance proceedings. We note that fulfilling our mandate in this manner draws a clear line of separation between the scope of our inquiry and that of the second compliance panel. Our inquiry focuses on the facts determined to exist during the 2011-2013 Reference Period, whereas the second compliance panel focuses on the facts as they existed years later, in 2018, on the date of establishment of the second compliance panel. As there thus is no apparent risk that our Decision would contradict or be inconsistent with the second compliance report(s), it is not apparent to us that we should engage in the kind of "coordination" with the second compliance panel that the European Union is seeking.

2.34. Second, even disregarding our mandate to complete this arbitration proceeding expeditiously, we see no reason to wait for the final results of the second compliance proceedings. This arbitration proceeding serves to determine the maximum level of countermeasures that the DSB may authorize the United States to impose in response to the European Union's failure to comply by the end of the implementation period in 2011. The legal basis for any such authorization is the prior DSB determination of non-compliance resulting from the first compliance proceedings. There has been no intervening DSB determination since that establishes that the European Union has achieved compliance. Therefore, this arbitration proceeding can and should in our view proceed without delay. We observe in this respect that even if the DSB authorizes the United States to impose countermeasures following the end of this proceeding, the United States is under no obligation to implement any such measures immediately or at all.⁶⁸ Moreover, as was similarly noted in the *US – Tuna II* Arbitrator's Preliminary Ruling⁶⁹, it is conceivable that after any DSB authorization to impose countermeasures, the final results to emerge from the second compliance proceedings are that the European Union has achieved compliance. If so, and if the DSB were to adopt these results, the United States pursuant to Article 22.8 of the DSU would have to promptly terminate any countermeasures that it might have imposed after having been granted DSB authorization.⁷⁰

⁶⁴ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.24.

⁶⁵ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.24.

⁶⁶ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 3.7-3.23 and 3.49-3.55.

⁶⁷ See paragraph 5.5 below. We agree with the United States that the text of Article 7.10, when read together with Article 7.8 of the SCM Agreement, is even clearer than Article 22.4 of the DSU, read together with Article 22.2 of the DSU, on which the *US – Tuna II (Mexico) Arbitrator's Preliminary Ruling* relies, in linking an arbitration proceeding to the WTO-inconsistent original measure or a subsequent WTO-inconsistent compliance measure that was in existence at the time of the expiry of the implementation period. (United States' written submission, para. 66; and Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.21).

⁶⁸ We recall that in the *US – Tuna II (Mexico)* dispute, the DSB in May 2017 authorized Mexico to suspend concessions or other obligations. To our knowledge, Mexico did not apply any suspension of concessions or other obligations and waited instead for the final results of the second compliance panel proceedings, which the DSB adopted in January 2019. (Action by the Dispute Settlement Body, WT/DS381/49/Rev.1).

⁶⁹ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.60.

⁷⁰ Appellate Body Report, *US – Continued Suspension*, para. 306 (stating that "[i]f, by recourse to a multilateral dispute settlement process, the implementing measure is found to bring about substantive

2.35. Notwithstanding the foregoing, the European Union submits that the circumstances in the present proceeding dictate a different approach from that adopted in the *US – Tuna II* Arbitrator's Preliminary Ruling. According to the European Union, this is because in this proceeding the requested countermeasures concern actionable subsidies under Part III of the SCM Agreement. We recall that the *US – Tuna II* Arbitrator's Preliminary Ruling addressed a requested suspension of concessions or other obligations that concerned a measure in breach of different types of provisions of different covered agreements, i.e. the GATT 1994 and the TBT Agreement. We address the European Union's argument in the next section.

2.4.4 The European Union's argument concerning the uniqueness of actionable subsidies disputes

2.36. The European Union argues that when actionable subsidies under Part III of the SCM Agreement are at issue, there is a unique interdependence between the mandates of arbitrators and the mandates of compliance panels. In the European Union's view, their mandates are complementary, with the result that the second compliance proceedings have a direct bearing on the arbitration proceeding. The European Union observes that the premise for an arbitrator's work in actionable subsidies cases is the existence of adverse effects and that in the present dispute the question whether adverse effects exist is pending multilateral review before a compliance panel. In the European Union's view, the arbitrator thus does not have exclusive jurisdiction on the existence of adverse effects and the Arbitrator in the present proceeding should therefore coordinate its work with the second compliance panel. The European Union contends that the *US – Tuna II* Arbitrator's Preliminary Ruling concerned a dispute where no such close connection existed between the arbitration proceeding and the second compliance proceedings. According to the European Union, this is because the second compliance panel in that dispute did not have to demonstrate the existence of harm (nullification or impairment) to determine whether compliance had been achieved.⁷¹

2.37. The United States argues that Article 7.10 of the SCM Agreement explicitly envisages an arbitration decision based on adverse effects "determined" to exist in a prior report adopted by the DSB. The United States infers from this that Article 7.10 instructs an arbitrator to rely on adverse effects determined in the past to set the level of countermeasures in the present. To the United States, this indicates that the possibility that the situation evolved after that determination does not preclude the arbitrator from completing its work. In the United States' view, this holds true even if it were assumed that Part III of the SCM Agreement differed from other WTO disciplines in the ways alleged by the European Union. The United States further contends that the European Union's premise, under which an evaluation of the negative effects of a measure play no role outside of Part III of the SCM Agreement is incorrect. The United States cites as examples the national treatment obligations under the GATT 1994 and the GATS, which require a showing that the challenged measure modify the conditions of competition to the detriment of goods or services of another Member.⁷²

2.38. The Arbitrator notes that actionable subsidies disputes are indeed different from many other WTO disputes in that they involve effects-based disciplines. Under such disciplines, the complaining party must demonstrate the existence of adverse effects to sustain a claim of violation. It is therefore correct that in this dispute both the Arbitrator and the second compliance panel are concerned with adverse effects: We must quantify the adverse effects previously determined to exist, whereas the second compliance panel must determine whether, in the light of the European Union's claim of compliance, adverse effects still existed (i.e. had not been removed through measures taken to comply) when the panel was established.

compliance, the suspension of concessions may no longer be applied ... and cessation of the suspension is required"). The United States does not dispute that it would no longer be entitled to apply countermeasures in this dispute if the European Union were at some point found by the DSB to be in compliance with its obligations. (United States' written submission, para. 23).

⁷¹ European Union's request for a preliminary ruling, paras. 4, 7-8, 24, 46-47, 50-51, 71, and 74; and response to Arbitrator question No. 50, para. 28.

⁷² United States' written submission, paras. 39, 44, and 51-53.

2.39. However, we do not agree with the European Union that the second compliance panel proceeding has a "direct bearing" on this arbitration proceeding.⁷³ Rather, as will be evidenced throughout our Decision, it is the first compliance proceedings that have a direct bearing on this arbitration proceeding, because it is in those proceedings that the adverse effects with which the United States' countermeasures must be commensurate were determined to exist. Moreover, we focus our inquiry on the adverse effects determined to exist during the 2011-2013 Reference Period, i.e. *in the past*, whereas the second compliance panel focuses its inquiry on whether there were still adverse effects *more recently*, on the date of establishment of that panel. We thus perceive neither a "complementary" relationship nor a relationship of "interdependence" between the mandates of these two separate WTO adjudicators.

2.40. We are thus unable to accept the European Union's claim that there is a "unique interdependence" between this arbitration proceeding and the second compliance panel proceeding. We consequently also disagree with the European Union that the circumstances of the present proceeding dictate an approach that is different from the approach taken in the *US – Tuna II* Arbitrator's Preliminary Ruling. The two provisional conclusions that we have reached in the section immediately above therefore stand, as does our overall conclusion on the European Union's preliminary ruling request.

3 MANDATE OF THE ARBITRATOR

3.1. In having recourse to arbitration under Article 22.6 of the DSU, the European Union objected to the level of countermeasures contained in the United States' request for authorization to take countermeasures under Article 22.2 of the DSU and Article 7.9 of the SCM Agreement. The European Union also claimed that the principles and procedures set forth in Article 22.3 of the DSU had not been followed, and that the United States' proposal was not allowed under the covered agreements.⁷⁴

3.2. Article 7.9 of the SCM Agreement provides that if certain conditions are met, "the DSB shall grant authorization to the complaining Member to take countermeasures, commensurate with the degree and nature of the adverse effects determined to exist, unless the DSB decides by consensus to reject the request". Article 7.10 of the SCM Agreement stipulates that "[i]n the event that a party to the dispute requests arbitration under paragraph 6 of Article 22 of the DSU, the arbitrator shall determine whether the countermeasures are commensurate with the degree and nature of the adverse effects determined to exist".

3.3. Articles 7.9 and 7.10 constitute "special or additional rules and procedures" under Appendix 2 of the DSU. According to Article 1.2 of the DSU, "[t]o the extent that there is a difference between the rules and procedures of this Understanding and the special or additional rules and procedures set forth in Appendix 2, the special or additional rules and procedures in Appendix 2 shall prevail".

3.4. This arbitration is governed by both Article 7.10 and Article 22.6. Article 22.7 of the DSU defines the mandate for an arbitrator acting exclusively under Article 22.6. That is, the arbitrator "shall determine whether the level of suspension is equivalent to the level of nullification or impairment". Article 7.10 of the SCM Agreement defines the mandate of an arbitrator somewhat differently. It states that in the event that a party to a dispute requests arbitration under Article 22.6, the arbitrator "shall determine whether the countermeasures are commensurate with the degree and nature of the adverse effects determined to exist". In accordance with the status of Article 7.10 as one of the "special or additional rules and procedures" listed in Appendix 2 of the DSU, we conduct this arbitration with reference to the mandate as set out in Article 7.10.⁷⁵ As indicated in Article 7.10, our mandate in this arbitration proceeding is to determine whether the countermeasures proposed

⁷³ For clarity, we note, however, that the final results of the second compliance proceedings may have a direct bearing on the United States' right under Article 22.8 of the DSU to continue to maintain any DSB-authorized countermeasures that it may have imposed before the adoption of the final results of the second compliance proceedings.

⁷⁴ See section 1.2 above.

⁷⁵ Article 4.11 of the SCM Agreement cross-references Article 22.6 of the DSU in much the same way that Article 7.10 does. We thus note that no previous arbitrator acting under either Article 4.11 or 7.10 has, in addition to determining a level of countermeasures that were consistent with the legal standard contained in either of those two provisions, also considered it necessary to ensure that the level of countermeasures was consistent with the standard referenced above in Article 22.7 of the DSU.

by the United States are "commensurate with the degree and nature of the adverse effects determined to exist". However, should we find that the level of countermeasures proposed by the United States is not commensurate, we must go on to make our own determination of the level of countermeasures that is commensurate with the degree and nature of the adverse effects determined to exist.⁷⁶ Similarly, should we determine that the methodology proposed by the United States for calculating the level of countermeasures, or any alternative methodology proposed by the European Union, has shortcomings and is not appropriate, as presented, we could either make appropriate adjustments or develop another, appropriate, methodology ourselves.⁷⁷

3.5. In making these determinations, we will refer to prior arbitration decisions. Although many of these arbitration decisions were conducted exclusively under Article 22.6, it is in our view appropriate to refer to these prior decisions in our own Decision, as and where relevant. To the extent that our mandate is governed by Article 7.10 of the SCM Agreement, we note that Article 7.10 explicitly refers to a request for arbitration under Article 22.6, thereby confirming that arbitrations governed by Article 7.10 are, at the same time, governed by Article 22.6. The same is true where we refer to arbitration decisions under Article 4.11 of the SCM Agreement concerning prohibited rather than actionable subsidies. Article 4.11 likewise confirms that arbitrations under Article 4.11 are, at the same time, arbitrations under Article 22.6.⁷⁸

3.6. The general provisions of Article 22.7 of the DSU are also relevant to our mandate. They specify that "if the matter referred to arbitration includes a claim that the principles and procedures set forth in [Article 22.3 of the DSU] have not been followed, the arbitrator shall examine that claim". They further state that the arbitrator "may also determine if the proposed suspension of concessions or other obligations is allowed under the covered agreement". It is, therefore, also within our mandate to examine the European Union's claim that the United States did not follow the principles and procedures set forth in Article 22.3 and that the United States' proposed countermeasures are not allowed under the covered agreements.

4 BURDEN OF PROOF AND DUTY TO PRODUCE EVIDENCE

4.1. As indicated, the European Union in having recourse to arbitration under Article 22.6 (a) objected to the level of countermeasures proposed by the United States, (b) claimed that the principles and procedures set forth in Article 22.3 of the DSU have not been followed by the United States in considering what countermeasures to take, and (c) claimed that the United States' proposal is not allowed under the covered agreements.

4.2. It is clear from previous arbitrations under Article 22.6, and the parties do not dispute⁷⁹, that the party challenging the proposed countermeasures bears the burden of establishing a *prima facie* case that such countermeasures are inconsistent with the relevant requirements of the SCM Agreement and/or the DSU.⁸⁰ Thereafter, the burden shifts to the party proposing the countermeasures to rebut such *prima facie* case.⁸¹ According to the arbitrator in *US – Upland Cotton (Article 22.6 – US II)*, this allocation of the burden of proof applies to an objection based on

⁷⁶ Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, para. 1.15 (quoting Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 12 (explaining that "estimat[ing] the level of suspension we consider to be equivalent to the impairment suffered ... is the essential task and responsibility conferred on the arbitrators in order to settle the dispute"); and *US – Upland Cotton (Article 22.6 – US II)*, para. 4.16.

⁷⁷ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 5.152 (noting that "in assessing the level of nullification or impairment ... , we are not bound to base our calculation on either Mexico's or the United States' model. We could, in principle, attempt to develop an alternative model that would more accurately represent our understanding of the relevant counterfactual").

⁷⁸ Article 4.11 begins with an introductory clause that states: "In the event a party to the dispute requests arbitration under paragraph 6 of Article 22 of the [DSU]".

⁷⁹ European Union's written submission, para. 49; and United States' written submission, para. 15.

⁸⁰ We note that a "*prima facie* case" has been understood in WTO dispute settlement practice to mean "one which, in the absence of effective refutation by the defending party, requires a panel, as a matter of law, to rule in favour of the complaining party presenting the *prima facie* case". (Appellate Body Report, *EC – Hormones*, para. 104 (referring to Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14)). In our view, this definition is equally applicable to arbitrations under Article 22.6.

⁸¹ Decisions by the Arbitrators, *US – Upland Cotton (Article 22.6 – US I)*, para. 4.22; *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 2.5; *US – FSC (Article 22.6 – US)*, para. 2.8; and *Brazil – Aircraft (Article 22.6 – Brazil)*, para. 2.8.

Article 7.9 to the proposed level of countermeasures as well as to claims based on Article 22.3.⁸² We consider that the same allocation is appropriate also in the case of a claim that the proposed countermeasures are not allowed under the covered agreements.

4.3. In the present proceeding, therefore, the European Union bears the burden to submit arguments and evidence sufficient to establish a *prima facie* case that the countermeasures proposed by the United States are not "commensurate with the degree and nature of the adverse effects determined to exist" and are, consequently, inconsistent with Article 7.9. To satisfy its burden of proof, the European Union must engage with the methodology used by the United States to arrive at the proposed level of countermeasures, and it is "not sufficient merely to assert that another methodology is more appropriate".⁸³ If the European Union meets its burden, it is for the United States, thereafter, to submit arguments and evidence sufficient to rebut the *prima facie* case established by the European Union. Similarly, the European Union bears the burden to submit arguments and evidence sufficient to establish a *prima facie* case that the United States did not follow the principles and procedures contained in Article 22.3 of the DSU in considering what countermeasures to take, and that the proposed countermeasures are not allowed under the covered agreements. If the European Union satisfies this burden, the burden shifts to the United States to submit arguments and evidence sufficient to rebut the *prima facie* case established by the European Union.

4.4. Furthermore, each party has the duty to produce evidence in support of its assertions of fact and to collaborate with an Article 22.6 arbitrator in presenting evidence.⁸⁴ Consistent with this duty and prior arbitrations, we requested that, as a first step in the proceeding, the United States as the party seeking authorization to take countermeasures submit a methodology paper substantiating how it arrived at the proposed countermeasures.⁸⁵

5 ARTICLE 7.10 OF THE SCM AGREEMENT

5.1. As noted, our mandate in this proceeding is to determine the level of "countermeasures ... commensurate with the degree and nature of the adverse effects determined to exist" within the meaning of Article 7.10 of the SCM Agreement. This standard has three basic elements: (a) "countermeasures", which defines the type of measures that the United States may take, (b) "commensurate with", which defines the relationship that must exist between the level of countermeasures and the degree and nature of adverse effects determined to exist, and (c) "the degree and nature of the adverse effects determined to exist", which is the metric for determining the permissible level of countermeasures. We note that these terms have been previously interpreted by other arbitrators, and in particular the arbitrator in *US – Upland Cotton (Article 22.6 – US II)*. As we agree with many aspects of these interpretations, we draw on them below and add our own observations as appropriate.

5.2. According to a prior arbitrator, "'countermeasures' are, in essence, measures taken to 'counteract' something, and specifically, in the context of Article 7.9, measures taken to act against, or in response to, a failure to remove the adverse effects of, or withdraw, an actionable subsidy within the required time period".⁸⁶ We note that, functionally speaking and in the context of this proceeding, which is conducted at the same time under Article 22.6 of the DSU, we understand the term "countermeasures" to effectively designate a temporary "suspension of concessions or other

⁸² Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.13 and 5.55.

⁸³ Decisions by the Arbitrator, *US – COOL (Article 22.6 – United States)*, para. 4.14.

⁸⁴ Decisions by the Arbitrators, *US – COOL (Article 22.6 – United States)*, para. 4.9; *US – Gambling (Article 22.6 – US)*, paras. 2.24 and 2.25; *US – 1916 Act (EC) (Article 22.6 – US)*, para. 3.2; *US – FSC (Article 22.6 – US)*, para. 2.11; and *EC – Hormones (US) (Article 22.6 – EC)*, para. 11.

⁸⁵ Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 11.

⁸⁶ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.26.

obligations" as that term is used in Article 22.6.⁸⁷ We further note that a complaining party's impetus to request authorization to take countermeasures or suspend concessions or other obligations is triggered by a responding party's failure to bring its measures into compliance with its relevant WTO obligations after being recommended to do so by the DSB.⁸⁸ Arbitrators have further observed that the purpose of authorized countermeasures and suspension of concessions or other obligations is to induce a responding party's compliance.⁸⁹

5.3. Moreover, we note that countermeasures and suspension of concessions or other obligations are prospective remedies addressing a responding party's non-compliance going forward from the date on which authorization to take countermeasures or suspend concessions is granted.⁹⁰

5.4. Turning to the next element of Article 7.10 – the term "commensurate with" – this connotes a "correspondence" between the "countermeasures" proposed and "the degree and nature of the adverse effect determined to exist". It is a "less precise degree of equivalence than exact numerical correspondence", but it nonetheless indicates a "relationship of correspondence and proportionality between the two elements", which may be "qualitative as well as quantitative".⁹¹ We further observe that it is generally recognized that WTO remedies are not intended to be "punitive".⁹² Accordingly, while the phrase "commensurate with" does not require exact numerical correspondence, this does not imply that countermeasures commensurate with the adverse effects determined to exist may or should incorporate any punitive element.

5.5. Regarding the last element of Article 7.10 – the term "adverse effects determined to exist" – we note that this term "sends the treaty interpreter back to the precise findings on adverse effects made by the panels and the Appellate Body as these constitute the 'adverse effects determined to exist'".⁹³ That is, it refers "to the specific 'adverse effects' within the meaning of Articles 5 and 6 of the SCM Agreement that form the basis of the underlying findings in the case at hand".⁹⁴ The term "degree" corresponds to a quantitative element whereas the reference to the "nature" of adverse effects relates to a qualitative element.⁹⁵ Thus, Article 7.9 seeks "to closely tailor ... the countermeasures to the legal basis for the underlying findings", and therefore potential countermeasures are "limited in scope, to the 'degree and nature' of those effects of the subsid[ies]

⁸⁷ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18, fifth paragraph (requesting "suspensions" of "concessions" and "obligations" under the GATT 1994 and the GATS). See also Decisions by the Arbitrators, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.24 (noting that "it is not argued by either party in these proceedings that the term 'countermeasures' would designate, in the SCM Agreement, anything other than a temporary suspension of certain obligations, and this is what we understand this term to refer to"); and *Brazil – Aircraft (Article 22.6 – Brazil)*, para. 3.29 (agreeing with the parties' common position "that the term 'countermeasures', as used in Article 4 of the SCM Agreement, may include suspension of concessions or other obligations"). We make no judgments as to whether "countermeasures" under the SCM Agreement may take forms other than suspensions of concessions or other obligations.

⁸⁸ Articles 22.2 and 22.6 of the DSU; Article 7.9 of the SCM Agreement; and Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.20.

⁸⁹ Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, para. 1.17; and *US – Upland Cotton (Article 22.6 – US II)*, para. 4.58.

⁹⁰ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.374 (referring to the "prospective nature of remedies in WTO dispute settlement").

⁹¹ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.35-4.39. (emphasis omitted)

⁹² Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, para. 1.17 (citing Decisions by the Arbitrators, *US – Upland Cotton (Article 22.6 – US I)*, para. 4.109); *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.8; and *US – FSC (Article 22.6 – US)*, para. 5.62 (noting that even though in prohibited subsidies disputes Article 4.10 of the SCM Agreement authorizes "appropriate" countermeasures that are not "disproportionate", there is nothing in that Article or its context "which suggests an entitlement to manifestly punitive [counter]measures"). See also Decision by the Arbitrator, *Brazil – Aircraft (Article 22.6 – Brazil)*, para. 3.55 (explaining that "[a] countermeasure becomes punitive when it is not only intended to ensure that the [WTO Member] in breach of its obligations bring its conduct into conformity with its international obligations, but contains an additional dimension meant to sanction the action of that [WTO Member]").

⁹³ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.49.

⁹⁴ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.50.

⁹⁵ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.41. See also Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.43 (indicating that the "nature" of the adverse effects may be understood to refer to the different types of adverse effects that are foreseen in Articles 5 and 6 of the SCM Agreement, thus inviting a consideration of the specific type of adverse effects that have been determined to exist).

that are the basis for the successful challenge".⁹⁶ We therefore underline that the "adverse effects determined to exist" are those that were identified in a previous adopted panel or Appellate Body report.⁹⁷ We consider that for purposes of the present arbitration proceeding, the relevant panel and Appellate Body reports are the compliance reports (rather than the original panel and Appellate Body reports). It is the findings from the compliance proceedings, by establishing that the European Union "has not taken appropriate steps to remove the adverse effects of the subsidy or withdraw the subsidy within six months" (Article 7.9 of the SCM Agreement), which provide the basis for the DSB to grant authorization to the United States to take countermeasures.

6 THE EUROPEAN UNION'S OBJECTION TO THE LEVEL OF COUNTERMEASURES

6.1 Overview of the parties' approaches and order of analysis

6.1. As already noted further above, this arbitration was triggered by the European Union's objection to the United States' request under Article 22.2 of the DSU and Article 7.9 of the SCM Agreement for authorization to impose countermeasures (hereafter, for simplicity, the "Article 22.2 request"). Having addressed introductory, procedural, and other preliminary matters in the above sections of this Decision, we now turn to address the European Union's objections to the United States' proposed level of countermeasures in more detail. In doing so, we find it helpful first to provide an overview of the parties' approaches in this respect and, in the light of those approaches, set out the framework that we will use to evaluate the European Union's objections.

6.2. In this proceeding, the United States sets out a proposed methodology for determining a level of countermeasures in its methodology paper. In that methodology, the United States recalls that, in the compliance proceedings, the panel and Appellate Body found that certain LA/MSF measures caused adverse effects in the forms of lost sales and impedance within the meaning of Article 6.3(a)-(c) of the SCM Agreement in the 2011-2013 Reference Period. The United States proposes that the Arbitrator calculate the value of the lost sales and impedance associated with those findings, and assign those values to the 2011-2013 Reference Period. The United States then sums up these individual instances of lost sales and impedance and annualizes the total value. The United States proposes that the United States be authorized to take "countermeasures", within the meaning of Article 7.9 of the SCM Agreement, up to that annualized amount every year going forward, adjusted for inflation, until the authority to impose countermeasures ends under the terms of Article 22.8 of the DSU.

6.3. The Arbitrator notes at this point that the structure proposed by the United States for its countermeasures bears similarities to what previous arbitrators have accepted. In particular, multiple previous arbitrators have established a single, maximum level of countermeasures or suspension of concessions or other obligations that the complaining party was then authorized to impose annually.⁹⁸ For ease of reference, we will refer to this structure as "Annual Suspension". In addition to proposing Annual Suspension, the United States requests that the level of Annual Suspension be allowed to vary over time to take into account inflation.

6.4. In response to the United States' proposed methodology, the European Union has proceeded along two related tracks. First, the European Union offers numerous criticisms of the United States' methodology, both procedural and substantive. In offering such criticisms, the European Union often proposes an alternative, or various alternatives, to specific steps that the United States' methodology contemplates. Second, and based on certain principles that underlie some of the criticisms that the European Union makes with respect to the United States' methodology, the

⁹⁶ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.55. In the words of that arbitrator, an arbitrator is therefore "entitled to take into account fully the 'degree and nature' of these adverse effects as they present themselves in the case at hand, but [is] not permitted to do more than that". (Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.47).

⁹⁷ Article 7.8 of the SCM Agreement forms part of the immediate context of Article 7.10. It refers to "a panel report or an Appellate Body report" that has been "adopted" and in which "it is determined that any subsidy has resulted in adverse effects". Article 7.8 thus makes clear that the adverse effects determined to exist are adverse effects determined to exist in a prior adopted panel or Appellate Body report concerning the same dispute.

⁹⁸ This issue is discussed in more detail in section 6.3.1 below.

European Union sketches out an alternative methodology. This description occupies about two pages in the European Union's written submission, and is summarized as follows:

[A]ny amount of countermeasures authorised by the Arbitration Panel must respect the following principles: (i) [it must be for] a *non-recurring* countermeasure; (ii) [it must be] calculated based on adverse effects that *have not ceased to exist*; (iii) [it must be] *distributed over time based on deliveries* resulting from, and constituting, the adverse effects determined to exist; and (iv) [it must not be] inflated by the *numerous technical errors* made by the United States.⁹⁹

6.5. In the light of the foregoing, section 6 on the European Union's objections to the level of countermeasures proceeds in four basic parts:

- a. *First*, we examine a procedural objection by the European Union to the effect that the United States cannot be authorized to take countermeasures in respect of the DSB-adopted findings on impedance (section 6.2);
- b. *Second*, we examine substantive and technical aspects of the United States' methodology. This part will address: (a) the appropriate reference period, (b) the appropriate counterfactual, (c) general European Union arguments against the United States' methodology, and (d) technical European Union arguments against the United States' methodology (section 6.3);
- c. *Third*, and based on conclusions reached in the prior sections, we explain how we calculate the actual level of countermeasures that the United States may be allowed to impose (section 6.4); and
- d. *Finally*, we examine a procedural objection by the European Union regarding the level of countermeasures that, according to the European Union, the Arbitrator's determination may not exceed in view of the United States' Article 22.2 request (section 6.5).

6.6. We address each in turn below.

6.2 Absence of a reference to impedance in the United States' request for countermeasures

6.7. The European Union submits that the United States' request under Article 22.2 of the DSU provides no basis for authorizing countermeasures in response to the DSB's 2018 recommendations and rulings concerning adverse effects in the form of impedance. The European Union notes that the United States in its request asked for countermeasures corresponding to adverse effects in the forms of lost sales and displacement, but not impedance. According to the European Union, countermeasures cannot be authorized in respect of the DSB-adopted findings on impedance because in respect of those findings the United States request does not meet the specificity requirements contained in Article 22.2.¹⁰⁰

6.8. The United States responds that there is no basis for the European Union's request that the Arbitrator exclude from its quantification the DSB-adopted findings on impedance. The United States notes that, as a factual matter, its request is to take countermeasures commensurate with the

⁹⁹ European Union's written submission, para. 365. (emphasis original) To implement item (iii), the European Union has explained that the Arbitrator should:

[D]etermine ... the counterfactual delivery year and number of aircraft delivered, and multiply this number by the counterfactual per-unit LCA delivery price. The result would be the annual lost revenue for deliveries that would have occurred under the lost sale, and therefore the appropriate value of trade effects (and hence countermeasures) for that campaign and that year. Summing the annual lost revenue across the lost sales campaigns would yield the total annual lost revenue, and therefore the "commensurate" value of countermeasures for that year.

(European Union's response to Arbitrator question No. 25, para. 393). The European Union does not materially expound on the implementation or quantification of its proposed methodology, beyond its criticisms of the United States' methodology.

¹⁰⁰ European Union's opening statement at the meeting of the Arbitrator, para. 18.

adverse effects reflected in the DSB recommendations and rulings. In the United States' view, the statement in its request referring to lost sales and displacement explains how the United States valued those adverse effects at the time that it filed its request. The United States submits that this statement does not limit the adverse effects to those particular market phenomena or to those that had been determined to exist as of that time.¹⁰¹

6.9. The United States also considers that its request can only be understood to refer to the adverse effects found to exist in the compliance panel and Appellate Body reports. In support of this argument, the United States points to the parties' bilateral Sequencing Agreement. Under that Agreement, either party could recommence the present arbitration proceeding, which had been suspended in 2012, if the DSB, following compliance proceedings under Article 21.5 of the DSU, ruled that a measure taken to comply did not exist or was inconsistent with a covered agreement.¹⁰²

6.10. The United States further contends that the European Union is wrong to claim that, as a matter of law, the United States' request lacks specificity. According to the United States, its request identifies the level of countermeasures in functional terms, as the annual level of adverse effects determined to exist, and the request then goes on to estimate that, as of the time that it was filed, that level was between USD 7,000 and 10,000 million per year. Additionally, the United States notes that its request refers to Article 7.9 of the SCM Agreement, which authorizes countermeasures commensurate with the adverse effects determined to exist. The United States observes that both parties agree that the relevant determinations appear in the compliance panel and Appellate Body reports. In the United States' view, the reference in its request to Article 7.9 thus encompasses the findings on impedance contained in those reports.¹⁰³

6.11. The European Union counters that the functional description advanced by the United States merely paraphrases the language of Article 7.9 and does not provide any specificity regarding the level of countermeasures. The European Union submits that the functional description provides no specificity in terms of the amount requested by the United States and the types of adverse effects. The European Union argues that under the United States' reading of its request, that request does not specify a maximum level of countermeasures in numerical terms and could cover any type of adverse effects. According to the European Union, if the overly broad reading suggested by the United States is the proper construction of the request, it does not support the authorization of any countermeasures. The European Union notes that the references in the request to the specific types of adverse effects (lost sales and displacement) and to the amount of adverse effects are not part of the functional description.¹⁰⁴

6.12. In the European Union's view, the factually correct reading of the request is that it defines the level of countermeasures by reference to two specific types of adverse effects (lost sales and displacement), while excluding a reference to additional types of adverse effects (impedance). The European Union contends that the findings in the compliance proceedings cannot bring the impedance findings within the terms of reference of this arbitration proceeding. The European Union argues that if the United States had wished to request countermeasures in respect of the impedance findings, it should have included those findings in its request under Article 22.2.¹⁰⁵

6.13. The Arbitrator begins by setting out in full the relevant portions of the opening paragraph of the United States' request under Article 22.2 and Article 7.9 (hereafter, for simplicity, the "Article 22.2 request"). The passage in question consists of the following four sentences:

Pursuant to Article 22.2 of [the DSU] and Article 7.9 of [the SCM Agreement], the United States requests authorization from the [DSB] to take countermeasures with respect to the European Union ... at an annual level commensurate with the degree and nature of the adverse effects caused to the interests of the United States by the failure

¹⁰¹ United States' response to Arbitrator question No. 133, paras. 143 and 146.

¹⁰² United States' response to Arbitrator question No. 133, para. 147.

¹⁰³ United States' response to Arbitrator question No. 133, paras. 149-150.

¹⁰⁴ European Union's comments on the United States' response to Arbitrator question No. 133, paras. 332 and 334-335.

¹⁰⁵ European Union's comments on the United States' response to Arbitrator question No. 133, paras. 320, 329, 336-337 (referring to Decision by the Arbitrator, *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, para. 24) and 340.

of the EU and certain member States to withdraw subsidies or remove their adverse effects in compliance with the recommendations and rulings of the DSB. This amount corresponds to the annual value of lost sales, of imports of US large civil aircraft displaced from the EU market, and of exports of US large civil aircraft displaced from third country markets. The amount will be updated annually using the most recent publicly available data. Based on currently available data in a recent period, the United States estimates this figure to be between \$7 and \$10 billion per year.¹⁰⁶

6.14. Also relevant is the fourth paragraph of the United States' request, which states in its second sentence that, "[a]s required by Article 7.9 of the SCM Agreement, the countermeasures are commensurate on an annual basis with the degree and nature of the adverse effects determined to exist".¹⁰⁷

6.2.1 Coverage of the United States' Article 22.2 request

6.15. The central question presented by the European Union's arguments is whether the United States Article 22.2 request permits the United States to include in its proposed level of countermeasures adverse effects in the form of impedance that were first determined to exist in the compliance reports adopted by the DSB in 2018. In approaching this question, we note at the outset that Article 22.2 requests are comparable to requests for establishment of a panel under Article 6.2 of the DSU: both are requests for action from the DSB, and both define the terms of reference in any ensuing WTO dispute settlement proceedings.¹⁰⁸ We further note that the Appellate Body has stated in respect of panel requests that they must comply with the applicable requirements "on their face", that their texts must be examined, "as a whole, and in the light of attendant circumstances" and that analyses of panel requests must be made "on the merits of each case".¹⁰⁹ We find the same to be appropriate in the case of Article 22.2 requests.

6.16. In the present proceeding, it is useful to look at attendant circumstances before parsing the text of the Article 22.2 request, since this also assists in understanding certain aspects of that text.

6.17. The first point to be noted is that the United States submitted its Article 22.2 request on 9 December 2011 after the DSB had adopted the original recommendations and rulings on 1 June 2011 and the European Union's implementation period had expired on 1 December 2011. The 2011 DSB recommendations and rulings reflected findings of violation on lost sales and displacement, but not impedance.¹¹⁰

6.18. The present arbitration proceeding was suspended on 20 January 2012 and recommenced on 13 July 2018 after the compliance proceedings under Article 21.5 of the DSU had been completed and the DSB had adopted the compliance recommendations and rulings on 28 May 2018.¹¹¹ The resumption of the arbitration proceeding was in accordance with the parties' bilateral Sequencing Agreement, pursuant to which either party could recommence the arbitration proceeding "[i]n the event that the DSB following a proceeding under Article 21.5 of the DSU rules that a measure taken to comply does not exist or is inconsistent with a covered agreement".¹¹² Both parties thus formally agreed that the outcome of any compliance proceedings must be taken into account in determining whether to recommence the arbitration proceeding.

6.19. In the light of these attendant circumstances, it was appropriate that the United States sought countermeasures based on the 2011 DSB recommendations and rulings concerning findings on lost

¹⁰⁶ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18, first paragraph.

¹⁰⁷ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18, fourth paragraph.

¹⁰⁸ See Decision by the Arbitrator, *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, para. 20 (stating also that both types of requests serve similar due process objectives).

¹⁰⁹ Appellate Body Report, *US – Carbon Steel*, para. 127.

¹¹⁰ See paragraphs 1.2 and 1.5 above.

¹¹¹ See paragraphs 1.4 and 1.8 above.

¹¹² Communication by the parties, WT/DS316/21 (Understanding between the European Union and the United States Regarding Procedures under Articles 21 and 22 of the DSU), para. 6.

sales and displacement.¹¹³ Indeed, those were the only recommendations and rulings that could justify countermeasures at the time that the United States submitted its Article 22.2 request. In the words of the arbitrator in *US – Tuna II (Mexico) (Article 22.6 – US)*, "arbitration proceedings under Article 22.6 can be traced back to a WTO-inconsistent measure that existed when the RPT expired, which is either the same original measure that has previously been found to be WTO-inconsistent [as in the present proceeding] or a WTO-inconsistent compliance measure taken subsequently (but prior to the expiry of the RPT)".¹¹⁴ We therefore disagree with the European Union that the United States could properly have included in its 2011 request a proposed level of countermeasures that corresponded not just to lost sales and displacement, but also impedance. There were no DSB-adopted findings of violation with regard to impedance at that time. There thus was no justification for the United States to include the value of the claimed impedance in its proposed level of countermeasures. As the European Union correctly notes, the United States, a few months after submitting its Article 22.2 request, filed a request for establishment of an Article 21.5 panel. In that request for panel establishment, which the United States filed after the European Union had submitted a notification claiming to have implemented the 2011 DSB recommendations and rulings, the United States claimed the existence of adverse effects in the form of impedance.¹¹⁵ However, the United States at that time was merely claiming the existence of impedance. The DSB did not adopt findings of violation with regard to impedance until 2018.

6.20. With these attendant circumstances in mind, we turn to examine the text of the Article 22.2 request on its face. We begin with the reference in the first sentence of the opening paragraph to the taking of countermeasures in response to "the failure of the EU and certain member States to withdraw subsidies or remove their adverse effects in compliance with the recommendations and rulings of the DSB". We consider that this reference points the reader to the most recent available DSB recommendations and rulings. It is the most recent DSB recommendations and rulings that determine whether there still is any failure to comply on the part of the European Union that provides a legal basis for the United States to request authorization to take any countermeasures, and if so, whether any such failure is more or less extensive than before, which in turn will impact on the level of countermeasure that can be authorized. Applying this interpretation at the time of our review of the matter, the first sentence thus refers us to the 2018 recommendations and rulings that reflect the adverse findings contained in the compliance reports. In our view, considered on its own and applied at the time of our review, the first sentence should therefore be interpreted to set out a request by the United States for countermeasures at an annual level commensurate with the degree and nature of the adverse effects determined to exist in the compliance reports adopted by the DSB in 2018. Both parties agree that those adverse effects are in the form of lost sales and impedance and that those are the relevant adverse effects for purposes of this proceeding.¹¹⁶

6.21. We next consider the second sentence of the opening paragraph. That sentence expresses in more concrete terms than the first sentence that the level of countermeasures sought by the United States corresponds to the annual value of lost sales and displaced LCA imports and exports. It is uncontested that the second sentence does not refer to adverse effects in the form of impedance. As noted, however, in 2011 the United States could only describe the level of countermeasures as reflecting the adverse effects that had been determined to exist at that time (lost sales and displacement). At the time of our review of the matter, which follows the 2018 DSB recommendations and rulings, the United States, in keeping with the contents of the first sentence, is still seeking countermeasures commensurate with the adverse effects determined to exist, only now the relevant adverse effects are those determined to exist in the compliance reports adopted by the DSB in 2018. The above-quoted second sentence of the fourth paragraph of the Article 22.2 request also supports this view. We consequently do not consider that the second sentence can properly be construed to limit the United States' ability to seek countermeasures, based on the first

¹¹³ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18, first paragraph (first and second sentences) and fourth paragraph (second sentence).

¹¹⁴ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.20. That arbitrator further stated that it is "the continued WTO-inconsistency of the original or a compliance measure (where a compliance measure was taken within the RPT) at the time the RPT expires that forms the basis for any [Article 22.2] request". (Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 3.24).

¹¹⁵ Recourse to Article 21.5 of the DSU by the United States, WT/DS316/23, para. 8.

¹¹⁶ United States' response to Arbitrator question No. 133, para. 147; and European Union's comments on the United States' response to Arbitrator question No. 133, para. 336.

sentence of the opening paragraph and the fourth paragraph, in response to the 2018 DSB recommendations and rulings concerning lost sales and impedance.¹¹⁷

6.22. In sum, the first and second sentences of the first paragraph as well as the second sentence of the fourth paragraph, read together, and the attendant circumstances, which include the compliance reports adopted by the DSB in 2018 and the fact that the United States in 2011 could not seek countermeasures against adverse effects in the form of impedance that had not been determined to exist, in our view support the conclusion that the annual amount of countermeasures that the United States can seek in this proceeding can properly correspond to the annual value of (a) lost sales, (b) imports of United States LCA impeded from the European Union market, and (c) exports of United States LCA impeded from third country markets.

6.23. The European Union argues that the compliance reports adopted by the DSB cannot modify, *ex post*, the terms of reference of the Arbitrator.¹¹⁸ However, under our interpretation of the Article 22.2 request, the compliance reports did not modify our terms of reference. Rather, the terms of the Article 22.2 request, when applied at the time of our review, cover countermeasures in respect of the impedance findings contained in the compliance reports.

6.2.2 Specificity of the United States' Article 22.2 request

6.24. The European Union further contends that the United States' request is inconsistent with the specificity requirements flowing from Article 22.2. The European Union refers in this respect to prior arbitrators who found that Article 22.2 contains minimum specificity standards for Article 22.2 requests, including a requirement that such requests set out the specific level of suspension (i.e. a level deemed equivalent to the nullification or impairment caused by the WTO-inconsistent measure).¹¹⁹ According to the European Union, an inconsistency with this specificity requirement arises because the level of suspension specified in the United States' request does not include impedance and the request thus is not sufficiently specific in terms of that type of adverse effect. The European Union also argues that if the Article 22.2 request were not understood to define the adverse effects at issue as comprising only lost sales and displacement, the first sentence of the opening paragraph of the United States' request could cover any form of adverse effects identified in Articles 5 and 6.3 of the SCM Agreement, including for instance injury to the domestic industry of another Member.

6.25. To determine whether the level of countermeasures specified in the United States' Article 22.2 request meets the minimum specificity requirement identified by prior arbitrators, the Arbitrator deems it once again necessary to consider the attendant circumstances. As detailed above, it would not have been legally appropriate in 2011 for the United States to have included in its request a reference to adverse effects in the form of impedance since no such effects had been determined to exist in the original reports adopted by the DSB.

6.26. Regarding the European Union's point concerning the broad reference to "adverse effects" in the first sentence of the opening paragraph, we observe that that sentence concerns the adverse effects caused by the failure of the European Union to implement prior DSB recommendations and rulings. These DSB recommendations and rulings permit precise identification of the specific adverse effects at issue.¹²⁰ Moreover, the second sentence, by referring to lost sales and displacement (as opposed to any other types of adverse effects), confirms the intention of the United States to seek

¹¹⁷ This interpretation of the Article 22.2 request also ensures a harmonious approach to, on the one hand, the Article 22.2 request and, on the other, the Sequencing Agreement concluded between the parties. As mentioned, the Sequencing Agreement contemplates that depending on the outcome of the compliance proceedings the suspended arbitration proceeding could be recommended or not. It would seem to us to be incongruous to adopt an approach under which the outcome of compliance proceedings was determinative of whether the Arbitrator could be asked to resume its work, but under which that same outcome is deliberately disregarded when determining what level of countermeasures the United States may propose, despite an unqualified reference to DSB recommendations and rulings in the Article 22.2 request.

¹¹⁸ European Union's comments on the United States' response to Arbitrator question No. 133, para. 336.

¹¹⁹ Decisions by the Arbitrators, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 2.18; and *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, paras. 20 and 21 (quoting *EC – Hormones (Canada) (Article 22.6 – EC)*, para. 16).

¹²⁰ As noted above, both parties agree, for example, that the 2018 DSB recommendations and rulings concern adverse effects in the form of lost sales and impedance.

countermeasures for adverse effects that have been determined to exist in prior reports adopted by the DSB.

6.27. Thus, reading the Article 22.2 request as a whole and bearing in mind the 2018 DSB recommendations and rulings, it can in our view be reliably inferred that at the time of our review the specific proposed amount of countermeasures that the United States is seeking through its request corresponds to the annual level of lost sales and impedance from the European Union and certain third country markets.

6.28. In the light of the foregoing considerations, we conclude that, in the circumstances of the present proceeding, the Article 22.2 request provides minimum specificity regarding the inclusion by the United States in the proposed level of countermeasures of adverse effects in the form of impedance that were determined to exist in the compliance reports. We consequently reject the European Union's contention that the United States' request for countermeasures in relation to impedance is not consistent with the specificity requirements for an Article 22.2 request.

6.29. In summing up, for all the above reasons we disagree with the European Union's argument that the United States cannot be authorized to take countermeasures in respect of the DSB-adopted findings on impedance. We will thus proceed to quantify the DSB-adopted findings on impedance in the remainder of section 6 of this Decision.¹²¹

6.3 Assessment of the United States proposed methodology

6.30. Having rejected the European Union's procedural objection that the United States cannot be authorized to take countermeasures in respect of the DSB-adopted findings on impedance, section 6.3 turns to assess more substantive and technical aspects of the United States' methodology. This section will therefore address: (a) the appropriate reference period, (b) the appropriate counterfactual, (c) the European Union's general arguments against the United States' methodology, and (d) the European Union's technical arguments against the United States' methodology.

6.3.1 Appropriateness of using the 2011-2013 Reference Period and accepting Annual Suspension of concessions

6.31. The parties dedicated significant portions of their submissions to debating whether it is permissible for the Arbitrator to determine the maximum level of countermeasures in the form of Annual Suspension¹²² based on the value of the adverse effects determined to exist in the 2011-2013 Reference Period, as the United States proposes.¹²³

6.32. This appears to be the first time in an Article 22.6 arbitration proceeding that a responding party has challenged a complaining party's request that it be authorized to implement Annual Suspension. Previous arbitrators have granted Annual Suspension, including the only other arbitrator to have thus far performed an arbitration under Article 7.10 of the SCM Agreement, i.e. the arbitrator in *US – Upland Cotton (Article 22.6 – US II)*. However, these arbitrators have not elucidated the rationale for doing so. This section accordingly needs to examine in more detail the rationale for doing so and resolve the parties' disagreement in this context.

6.33. As noted in section 6.1, in its methodology paper the United States asks the Arbitrator to grant the United States countermeasures in the form of Annual Suspension. The United States determines the proposed level of Annual Suspension by calculating the value of the five lost sales and six instances of impedance that were found in the previous compliance proceedings to have

¹²¹ We note in passing that disputes about whether the terms of the complaining party's Article 22.2 request constitute an impediment to the Article 22.6 arbitrator proceeding as the complaining party proposes could be prevented if the parties included in any bilateral sequencing agreement a specific procedure for updating the complaining party's Article 22.2 request, and the responding party's Article 22.6 referral, following adoption by the DSB of any adverse compliance findings. We note in this context that Article 22.7 of the DSU in effect already permits the modification of original Article 22.2 requests.

¹²² The term "Annual Suspension" is described in paragraph 6.3 above.

¹²³ We address the separate issue of the representativeness of the 2011-2013 Reference Period in sections 6.3.4.3.1 and 6.3.4.4.1 below.

existed during the 2011-2013 Reference Period, and then annualizing that amount. That annualized amount is the basis for the proposed level of the Annual Suspension.¹²⁴

6.34. The European Union argues that the adverse effects determined to exist during the 2011-2013 Reference Period, i.e. the five lost sales and six instances of impedance, cannot be used to grant a level of countermeasures in the form of Annual Suspension.¹²⁵ According to the European Union, the basic rationale for using the effects of a measure in a past reference period to determine a level of Annual Suspension is that a measure continues to have similar effects beyond that reference period, a result that generally follows only if a measure is "recurring". More specifically, the European Union submits that "to authorise [countermeasures in the form of Annual Suspension] ... , the [Arbitrator] must ensure that the adverse effects determined to exist in the December 2011 to 2013 reference period provide a reasonable estimation of – i.e., are representative of – adverse effects today, and in the future".¹²⁶ The European Union asserts that the United States has not demonstrated that the 2011-2013 Reference Period provides this "reasonable estimation", and that, in the European Union's view, the 2011-2013 Reference Period does not in fact provide it.¹²⁷

6.35. The European Union further underlines that the compliance panel and Appellate Body made no findings that adverse effects caused by challenged subsidies would continue after 2013, and, in fact, found that the non-recurring nature of LA/MSF for the A380 and A350XWB programmes would result in those subsidies causing fewer, if any, adverse effects after 2013. Further to this latter point, the European Union argues that no arbitrator has granted Annual Suspension in an arbitration proceeding involving a "non-recurring" measure. The European Union submits that such considerations distinguish this proceeding from prior arbitrations in which Annual Suspension was granted, including *US – Upland Cotton (Article 22.6 – US II)*.¹²⁸ Thus, according to the European Union, because "[t]he adopted findings [in the present dispute] simply offer no basis for the Arbitrat[or] ... to authorize [Annual Suspension]", the Arbitrator can grant the United States only "an absolute maximum amount of countermeasures commensurate with the degree and nature of the adverse effects actually determined to exist" in the 2011-2013 Reference Period¹²⁹, adhering to the structure proposed in the European Union's written submission, referenced in paragraph 6.4 above and described in more detail in section 6.3.3.4 below.¹³⁰

6.36. Moreover, the European Union suggests that the United States' request for Annual Suspension is inconsistent with its Article 22.2 request because the request states that the United States will adjust the annual level of countermeasures as determined based on "the most recent publicly

¹²⁴ The United States further asks the Arbitrator to adjust that level for inflation that occurred after the 2011-2013 Reference Period and that will occur in future years when the United States may apply countermeasures. We discuss that request in sections 6.4.5.2 and 6.4.5.3 below.

¹²⁵ We note that the European Union has raised certain other arguments against the United States' methodology that appear to relate to the different issue of what adverse effects Annual Suspension may take into account. We therefore address those arguments separately in section 6.3.3 below.

¹²⁶ European Union's response to Arbitrator question No. 104, para. 134 (fns and quotation marks omitted). See also European Union's response to Arbitrator question No. 99, paras. 84-85; and comments on the United States' responses to Arbitrator question Nos. 99 and 103.

¹²⁷ European Union's written submission, paras. 74-76, 79, 80-81, 90, 98, 100, 105-108, 118-123, 128-129, 146, and 160; responses to first set of Arbitrator questions, paras. 18-19, 27-29, 30-38, 45, and 50; responses to Arbitrator question No. 4, No. 10, para. 218, No. 11, No. 12, No. 14, No. 21, No. 22, No. 56, paras. 34-102, No. 57, No. 99, para. 79, No. 101, No. 104, No. 107, No. 108, and No. 147; comments on the United States' responses to Arbitrator question Nos. 99, 101, 103, and 108; and comments on the United States' response to European Union question No. 1. In making these arguments, the European Union emphasizes that, mainly due to the non-recurring nature of A380 and A350XWB LA/MSF, the lives of these subsidies are "finite" and thus the adverse effects caused by these subsidies are also "finite" and cannot be assumed to continue indefinitely.

¹²⁸ The European Union notes that the only arbitrator who addressed a non-recurring subsidy granted a one-time lump-sum to the complaining party to be used as countermeasures. (European Union's written submission, para. 110 (citing Decision by the Arbitrator, *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*)).

¹²⁹ European Union's response to Arbitrator question No. 8, para. 177.

¹³⁰ European Union's written submission, paras. 125-127; responses to first set of Arbitrator questions, paras. 20-21, 42, and 46-47; and responses to Arbitrator question No. 10(b), No. 12, para. 262, No. 21, No. 25, No. 56, paras. 79-91, and No. 108. In this context, the European Union emphasizes that sales of A380 aircraft have decreased over recent years and that, in fact, Airbus is terminating the A380 programme in the foreseeable future. (European Union's response to Arbitrator question No. 47, paras. 291-303).

available data". However, according to the European Union, doing so would involve adjusting the level of countermeasures in the light of data regarding what adverse effects A380 and A350XWB LA/MSF have caused after 2013, including at the present day, an exercise that the United States does not perform.¹³¹

6.37. Finally, the European Union argues that Annual Suspension in this dispute is inconsistent with the "temporary" nature of countermeasures – which must only apply "pending full compliance" – as in this dispute compliance will occur with the passage of time owing to the non-recurring nature of the subsidies in question.¹³²

6.38. The United States appears to offer two rationales as to why it would be appropriate to determine the maximum level of countermeasures in the form of Annual Suspension by using the 2011-2013 Reference Period to determine that maximum level: (a) "the United States is entitled to ongoing countermeasures because the EU remains out of compliance with its WTO obligations, as confirmed in the compliance reports adopted by the DSB and in the absence of any subsequent adopted finding to the contrary"¹³³, i.e. Annual Suspension is appropriate owing to the European Union's ongoing status of non-compliance, and/or (b) the challenged subsidies have continued to cause adverse effects beyond the 2011-2013 Reference Period and the adverse effects determined to exist in the 2011-2013 Reference Period provide a reasonable estimate of those ongoing adverse effects, i.e. Annual Suspension is appropriate in view of the ongoing effects of the measures in question.¹³⁴

6.39. The United States asserts that determining a level of Annual Suspension in the manner that it proposes is further consistent with the text of the SCM Agreement and the DSU because the level of countermeasures would be determined with reference to "the adverse effects determined to exist" in the compliance proceedings, and because Article 22.8 of the DSU requires no pre-determined end-date to countermeasures.¹³⁵ The United States further argues that determining a level of Annual Suspension by valuing the relevant effects of a measure found to be WTO-inconsistent during a past reference period is consistent with how previous arbitrators determined levels of Annual Suspension. Moreover, the United States submits that many of the European Union's arguments relating to the post-2013 adverse effects caused by A380 and A350XWB LA/MSF are compliance-related and thus are properly directed to a compliance panel, are unsupported by the previous findings in this dispute, and/or are factually unsound. Additionally, according to the United States, selecting a reference period other than the 2011-2013 Reference Period to determine a level of Annual Suspension would improperly render the compliance proceedings meaningless because it would be tantamount to asking the United States to re-litigate its compliance case, i.e. demonstrate the presence of adverse effects in that new time-period.¹³⁶

6.40. Also, in response to the European Union's argument on this subject, the United States contends that its request to "update [the level of countermeasures] annually using the most recent publicly available data"¹³⁷ does not mean that the United States intended to alter the value of

¹³¹ European Union's written submission, para. 119.

¹³² European Union's written submission, paras. 99 and 131-136.

¹³³ United States' comments on the European Union's response to Arbitrator question No. 101, para. 106.

¹³⁴ United States' written submission, paras. 77, 81-83, 86, 105, 114, 116, 119, and 123-138; responses to Arbitrator question No. 17, No. 19(b), No. 20, No. 22, para. 49, No. 47, and No. 101, para. 22; and comments on the European Union's responses to Arbitrator question No. 101, paras. 106-108, and No. 104, paras. 128-131.

¹³⁵ We note that, at times, the United States has appeared to characterize "the adverse effects determined to exist" as the five specific lost sales and six instances of impedance found within the 2011-2013 Reference Period (United States' methodology paper, para. 29) and at other times appeared to characterize them as, or as including, adverse effects that have continued beyond 2013 (United States' written submission, para. 138). As reflected in paragraphs 6.43-6.46 below, the former appears to be the most appropriate formulation for purposes of this arbitration.

¹³⁶ United States' written submission, paras. 77, 89-98, 100-106, 108-113, and 132; responses to Arbitrator question No. 17, No. 18, No. 19, paras. 32-33, No. 21, para. 45, No. 22, and No. 59; and comments on the European Union's responses to Arbitrator question No. 104, paras. 133-134, and No. 108.

¹³⁷ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18.

countermeasures according to the value of adverse effects occurring after the 2011-2013 Reference Period.¹³⁸

6.41. Finally, the United States asserts that Annual Suspension is "temporary" because it will be removed once the DSB adopts a decision from a WTO adjudicator finding the European Union to be in compliance. The United States emphasizes, however, that because the time at which compliance will be achieved is uncertain, the United States should be able to impose Annual Suspension up until that point is reached.¹³⁹

6.42. The Arbitrator recalls that the issue is whether it may accept countermeasures in the form of Annual Suspension at a level that reflects the level of the adverse effects determined to exist in the 2011-2013 Reference Period. In assessing this issue, we will initially examine whether we may determine the maximum level of countermeasures by reference to a past reference period, i.e. the 2011-2013 Reference Period. Subsequently, we will examine whether the countermeasures may take the form of Annual Suspension. After examining these aspects by reference to our mandate and the text and object and purpose of the DSU¹⁴⁰, we will review prior arbitration decisions to see whether they shed useful light on the issue before us.

6.43. We first address the issue of what determines the level of countermeasures that may be granted. Under Article 7.9 of the SCM Agreement, the DSB may authorize the United States to take countermeasures commensurate with the degree and nature of the adverse effects determined to exist. Our mandate under Article 7.10 is to determine whether the proposed "countermeasures" are "commensurate with the degree and nature of the adverse effects determined to exist". As noted in section 5, in the context of the present dispute the phrase "adverse effects determined to exist" sends us back to the findings on adverse effects made in the compliance proceedings that provide the basis for the DSB to authorize the United States to take countermeasures.¹⁴¹ More specifically, the compliance panel and Appellate Body found that A380 and A350XWB LA/MSF caused adverse effects in the forms of significant lost sales within the meaning of Article 6.3(c) of the SCM Agreement and impedance within the meaning of Article 6.3(a) and (b) of the SCM Agreement.

6.44. These findings were based on specific LCA order and delivery data contained in the 2011-2013 Reference Period, and were identified as adverse effects only after, *inter alia*, fact-intensive analyses pertaining to circumstances existing in the 2011-2013 Reference Period (e.g. product markets, conditions of competition, and non-attribution factors). These analyses demonstrated the presence of five lost sales and impedance in six geographic markets in the 2011-2013 Reference Period. As these analyses did not cover the time-period after 2013, no determination was made regarding the existence of adverse effects after the 2011-2013 Reference Period. It is thus consistent with the mandate set out in Article 7.10 to determine the maximum level of countermeasures based on the five lost sales and six instances of impedance that were determined to exist in the 2011-2013 Reference Period and to consider these as "the adverse effects determined to exist" for purposes of this proceeding.¹⁴²

6.45. Article 7.10 further clarifies that we must determine whether the proposed countermeasures are "commensurate with" the "degree and nature" of the five lost sales and six instances of impedance. It will be recalled that the term "degree" corresponds to a quantitative element whereas the reference to the "nature" of adverse effects relates to a qualitative element.¹⁴³ We consider that, functionally speaking and in the context of this proceeding, the quantitative element, i.e. "degree", corresponds to the monetary value of the adverse effects determined to exist, whereas the

¹³⁸ United States' written submission, paras. 124-125; and response to Arbitrator question No. 19(b), para. 31. Rather, this updating pertains to using the PPI for CA Manufacturing to adjust the countermeasures for inflation, an issue discussed in sections 6.4.5.2 and 6.4.5.3 below. (United States' written submission, para. 124).

¹³⁹ United States' written submission, paras. 111-113.

¹⁴⁰ We recall that this proceeding is conducted under both the SCM Agreement and the DSU. (See paragraph 3.4 above).

¹⁴¹ See paragraph 5.5 above.

¹⁴² We note that in this proceeding the United States has not proposed any formula that would operate on a prospective basis and that would somehow seek to take into account instances of lost sales and/or impedance that were not the subject of specific findings in the compliance proceedings.

¹⁴³ See paragraph 5.5 above.

qualitative elements, i.e. "nature", corresponds to the type of adverse effects determined to exist – in this case significant lost sales and impedance.

6.46. In sum, Article 7.10 supports the view that, in this proceeding, we may determine whether the proposed countermeasures are commensurate with the value of the lost sales and impedance determined to exist in the 2011-2013 Reference Period. As a corollary, the level of countermeasures that the DSB may authorize the United States to take under Article 7.9 is a function of adverse effects that occurred and were determined to exist in the past during that temporally circumscribed reference period. The issue thus becomes whether it would be appropriate to grant Annual Suspension based on the value of the adverse effects determined to exist when that value is temporally circumscribed to a past time-period.

6.47. We further recall the European Union's suggestion that the United States' request for Annual Suspension is inconsistent with its Article 22.2 request. This argument is based on the fact that the request states that the United States will adjust the annual level of countermeasures as determined based on "the most recent publicly available data", but the United States does not do so because it does not adjust countermeasures in the light of levels of post-2013 adverse effects.¹⁴⁴ We consider that the reference to "updat[ing the level of countermeasures] annually using the most recent publicly available data" in the United States Article 22.2 request pertains to the United States proposal to use the US Producer Price Index for Aircraft Manufacturing of Civilian Aircraft (PPI for CA Manufacturing) to adjust the level of countermeasures annually and does not amount to an intention to base the countermeasures on calculations of post-2013 adverse effects.¹⁴⁵

6.48. With this initial result of our analysis in mind, we now examine whether it is permissible to authorize temporally indefinite¹⁴⁶ countermeasures in the form of Annual Suspension at a level that reflects the value of adverse effects that were determined to exist in a temporally circumscribed past reference period (*in casu*, December 2011-2013). We thus shift our attention from the question of what determines the maximum permissible level of the countermeasures that can be authorized to the question of the time-period during which countermeasures may be imposed at that level.

6.49. Neither Article 7.9 nor Article 7.10 provides specific answers to this question. We therefore look to the DSU for relevant guidance. Under the DSU, a complaining party's right to request and maintain, and the obligation to remove, countermeasures is controlled by the responding party's compliance status.¹⁴⁷ This suggests to us that the maximum permissible duration of countermeasures is controlled not by the ongoing effects of a measure that was found to be WTO-inconsistent, but by the responding party's compliance status. The Appellate Body has indicated that this aspect of Annual Suspension, i.e. that it may remain in force pending confirmation of a responding party's substantive compliance, is consistent with the object and purpose of the DSU. In *US – Continued Suspension*, the Appellate Body addressed, *inter alia*, the circumstances under which Annual Suspension previously authorized should be removed. In doing so, the Appellate Body stressed the importance of a responding party achieving substantive compliance¹⁴⁸, noted that the suspension of concessions is the "last resort" in securing that substantive compliance, and thus recognized that "[t]o require the termination of suspension of concessions before substantive compliance is achieved would significantly weaken the effectiveness of the WTO dispute settlement mechanism".¹⁴⁹

¹⁴⁴ European Union's written submission, para. 119.

¹⁴⁵ See sections 6.4.5.2 and 6.4.5.3 below.

¹⁴⁶ According to Article 22.1 of the DSU, the suspension of concessions or other obligations is intended as a "temporary" measure. However, pursuant to Article 22.8 of the DSU, the suspension of concessions or other obligations may be applied until the WTO-inconsistent measure has been removed or a mutually agreed solution is reached. In that sense, the suspension of concessions or other obligations is a temporally indefinite measure.

¹⁴⁷ See Article 22.2, 22.6 and 22.8 of the DSU. Regarding Article 22.8, see also section 2.4.1 above.

¹⁴⁸ The term "substantive compliance" refers to the fact that a responding party's compliance is evaluated not only with respect to the original measures that were found to be WTO-inconsistent, but also with respect to any "measures taken to comply" within the meaning of Article 21.5 of the DSU. (Appellate Body Reports, *US – Large Civil Aircraft (2nd complaint) (Article 21.5 – EU)*, para. 5.328; and *US – Continued Suspension*, paras. 305-309).

¹⁴⁹ Appellate Body Report, *US – Continued Suspension*, para. 308.

6.50. In *US – Continued Suspension*, the Appellate Body was addressing the issue of when DSB authorization to suspend concessions, previously granted, would terminate. In the present dispute, no DSB authorization has been granted yet. Nevertheless, it is plain to us that if an arbitrator were to structure countermeasures in such a way that they would effectively "terminat[e] ... before substantive compliance is achieved[, it] would [similarly and] significantly weaken the effectiveness of the WTO dispute settlement mechanism", and thus be contrary to "the DSU's objective of providing security and predictability to the multilateral trading system".¹⁵⁰ The structure of Annual Suspension avoids this concern because it may remain in place until a WTO adjudicator finds the responding party to have achieved substantive compliance or a mutually agreed solution has been found.¹⁵¹

6.51. We make one additional observation about the Appellate Body's report in *US – Continued Suspension*. The Appellate Body in that report made clear that the authorization to maintain the Annual Suspension at issue would only lapse following confirmation, through WTO dispute settlement proceedings or a mutually agreed solution, of the responding party's substantive compliance.¹⁵² The Appellate Body thus well understood that the Annual Suspension could temporarily remain in force even in cases where the responding party in fact has already achieved substantive compliance, but this has not yet been multilaterally confirmed. In other words, it is understood that, pending such confirmation, the Annual Suspension may continue in place for a certain period of time, even though the relevant effects of the latest measures taken to comply would, in fact, be valued at zero given that substantive compliance was achieved. This, in our view, further supports that it is the formal multilateral compliance status of the responding party that justifies the maintenance of Annual Suspension at the previously authorized level, not the notion that the authorized level correctly reflects the relevant effects of the responding party's measures over time.

6.52. The European Union argues that Annual Suspension has so far only been granted in arbitrations addressing "recurring" measures. The European Union has not defined this term. Presumably, the European Union was using the term in a broad sense to refer to measures that would be expected to produce relevant effects on an ongoing basis. As we see it, however, "recurrence" of a measure found to be WTO-inconsistent, however one defines that concept, is not a prerequisite to granting Annual Suspension. Countermeasures serve to induce compliance¹⁵³ in respect of all manner of measures found to be WTO-inconsistent, whether they are "recurring" or "non-recurring".¹⁵⁴ Until and unless substantive compliance has been achieved and is multilaterally confirmed or a mutually agreed solution has been reached, there remains a valid rationale for granting Annual Suspension and maintaining it at the authorized level.¹⁵⁵

6.53. In this proceeding, the European Union also advocates a structure of countermeasures that would lead to countermeasures terminating at the time of the final counterfactual delivery of an LCA ordered pursuant to the five lost sales in the 2011-2013 Reference Period had Boeing won the sales.¹⁵⁶ In short, under the European Union's approach, after a certain date, although no multilateral confirmation of substantive compliance would exist, the level of countermeasures would need to drop to zero. As we have explained above, in our view Annual Suspension may remain in

¹⁵⁰ Appellate Body Report, *US – Continued Suspension*, para. 309.

¹⁵¹ We note that the level of countermeasures or suspension of concessions or other obligations may, of course, vary over time in cases in which arbitrators use other structures for countermeasures, e.g. formulae that apply on prospective bases.

¹⁵² Appellate Body Report, *US – Continued Suspension*, section IV.E.

¹⁵³ See paragraph 5.2 above.

¹⁵⁴ We note the European Union's assertion that there was one arbitration decision that relied on the non-recurring nature of the relevant subsidy "to reject the higher countermeasures Brazil had proposed to deter future subsidisation". (European Union's written submission, para. 110 (citing Decision by the Arbitrator, *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 3.111)). We note that in that decision the arbitrator rejected a request by Brazil to upwardly adjust a proposed lump-sum of countermeasures, not a request to determine a level of Annual Suspension. That arbitration decision is, therefore, distinguishable and unpersuasive in the context of the present proceeding.

¹⁵⁵ We note that there is no multilateral finding at this time that specifies the time at which the European Union will no longer be granting or maintaining A380 or A350XWB LA/MSF, when these measures will have been withdrawn, or when these measures' adverse effects will have been removed. (See Article 7.8 of the SCM Agreement). There is furthermore no agreement between the parties as to when any of these events will occur. We thus make no judgments as to whether the presence of any such finding or agreement, if it existed, may be taken into account in an arbitration proceeding.

¹⁵⁶ See paragraph 6.4 above and section 6.3.3.4 below.

place at the authorized level until a WTO adjudicator finds the responding party to have achieved substantive compliance or the parties have found another solution. We are therefore unable to accept the European Union's preferred approach, which, in our view, could significantly dilute the effectiveness of countermeasures and undermine the DSU's objective of providing security and predictability to the multilateral trading system.¹⁵⁷

6.54. Finally, the European Union argues that Annual Suspension is inconsistent with the "temporary" nature of countermeasures, which it says must only apply "pending full compliance". We fail to see any inconsistency in this regard. Pursuant to Article 22.8 of the DSU, the Annual Suspension must cease once the DSB adopts a decision by a WTO adjudicator finding that the European Union has brought itself into substantive compliance with its relevant WTO obligations (or the parties agree that a solution has been found).

6.55. We now turn to examine relevant prior arbitration decisions to see whether they shed useful light on whether in this proceeding it is appropriate to calculate the level of countermeasures by reference to a past reference period and to grant countermeasures in the form of Annual Suspension.¹⁵⁸ We consider four related aspects of prior arbitration practice most relevant to the issue at hand. First, most disputes in which arbitrations have occurred resulted in the complaining party being granted Annual Suspension.¹⁵⁹ These include arbitrations conducted under Articles 4.11 and 7.10 of the SCM Agreement, and Article 22.6 of the DSU. We note, therefore, that Annual Suspension has been granted by arbitrators consistently over time and in a variety of legal and factual contexts, including under the mandate under which we operate.

6.56. Second, the levels of such Annual Suspension have generally been determined based on the trade effects of relevant measures during past time-periods¹⁶⁰ by applying counterfactuals to those periods. The past time-periods selected were usually short-term periods immediately following or

¹⁵⁷ "A Member authorized by the DSB to suspend concessions enjoys the assurance under Article 22.8 [of the DSU] that, until substantive compliance is achieved or, in case of disagreement, multilaterally-confirmed, the suspension of concessions continues to be permitted under the DSU". (Appellate Body Report, *US – Continued Suspension*, para. 308).

¹⁵⁸ In this section we discuss certain arbitrations conducted exclusively under Article 22.6 of the DSU. These are nonetheless relevant in this context for two reasons. First, and as noted previously, arbitrations governed by Article 7.10 are, at the same time, governed by Article 22.6. (See paragraph 3.4 above). Second, the mandate of an arbitrator acting under Article 22.6 is to "determine whether the level of ... *suspension is equivalent to the level of the nullification or impairment*". (Article 22.7 of the DSU). (emphasis added) This is similar in structure to our mandate, i.e. to determine whether the *countermeasures* are *commensurate* with the *degree and nature of the adverse effects determined to exist*. (Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 5.21 (recognizing this structural similarity)). Thus, the circumstances under which such arbitrators granted Annual Suspension under their mandate may be instructive for us.

¹⁵⁹ Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, section 3.6 (determining further that the level of Annual Suspension could vary over time with inflation); *US – Tuna II (Mexico) (Article 22.6 – US)*; *US – COOL (Article 22.6 – United States)*; *US – Upland Cotton (Article 22.6 – US II)*; *US – Gambling (Article 22.6 – US)*; *US – FSC (Article 22.6 – US)*; *Brazil – Aircraft (Article 22.6 – Brazil)*; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*; *EC – Hormones (Canada) (Article 22.6 – EC)*; *EC – Hormones (US) (Article 22.6 – EC)*; and *EC – Bananas III (US) (Article 22.6 – EC)*. Other arbitrators granted lump-sum amounts and/or used formulae of varying complexity. (Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, para. 5.2; *US – Upland Cotton (Article 22.6 – US I)*, para. 6.5; *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*; *US – 1916 Act (EC) (Article 22.6 – US)*; and *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*). None of the latter group of arbitrators, however, refused a request by a complaining party for Annual Suspension. We specifically note that the arbitrator in *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, a proceeding in which "the measure at issue ... relate[d] to a finite amount of subsidy", granted a lump-sum amount, which was the structure that the complaining party requested. (Decision by the Arbitrator, *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, para. 3.45).

¹⁶⁰ We note that in *Brazil – Aircraft (Article 22.6 – Brazil)*, the arbitrator authorized Annual Suspension under Article 4.11 of the SCM Agreement based on the projected annualized value of the subsidy between 2000-2005, although the arbitrator's decision was circulated in August 2000. This approach appeared to flow from the unusual facts of the case, and in particular the following elements: (a) Brazil's continued non-compliance was based on its continued issuance of bonds in the post-implementation period pursuant to commitments Brazil previously undertook, and (b) the bonds were only issued upon delivery of aircraft. (Decision by the Arbitrator, *Brazil – Aircraft (Article 22.6 – Brazil)*, paras. 3.64-3.65).

including the time at which the responding party should have come into compliance.¹⁶¹ Arbitrators – including the arbitrator in *US – Upland Cotton (Article 22.6 – US II)* – have commented on the appropriateness of determining levels of Annual Suspension by measuring the relevant effects of a measure when or shortly after the responding party should have come into compliance, observing that the basic purpose of an arbitration proceeding is to determine the harm to the complaining party caused by that precise failure.¹⁶² We consider this rationale sound, including in the circumstances of this proceeding. We further observe that the suspension of concessions or other obligations and countermeasures are intended as temporary rather than long-term measures by the complaining party. The assumption must therefore properly be that the responding party will in good faith take appropriate corrective action in the short term to come into compliance promptly after suspension of concessions or countermeasures have been authorized. It thus seems appropriate to us to assess the short-term effects of a WTO-inconsistent measure rather than its effects in the long term when the responding party should be in compliance.

6.57. We thus consider that the 2011-2013 Reference Period is appropriate for determining the permissible level of Annual Suspension, not just because it is the time-period that was used in the compliance proceedings and provides us with the "adverse effects determined to exist" to which our mandate refers us, but because this period occurred immediately after the end of the implementation period in this dispute.

6.58. Third, uncertainty surrounding the relevant effects of measures occurring beyond the end of the reference periods used to determine a level of Annual Suspension has not prevented any arbitrator from determining such a level. Indeed, at least two relatively recent arbitrators have expressly dismissed the relevance of such uncertainties. The arbitrator in *US – Tuna II (Mexico) (Article 22.6 – US)* dismissed as irrelevant an alleged long-term trend of declining US tuna consumption in determining a level of Annual Suspension based on a short-term past reference period, i.e. a trend that suggested that a lower level of nullification or impairment existed at the time of the arbitration proceeding and moving into the future.¹⁶³ The arbitrator in *US – Upland Cotton (Article 22.6 – US II)* expressly stated that "[i]n a situation where a fixed annual amount of countermeasures is determined, that will be applied in the future and for an undetermined period of time [i.e. Annual Suspension], there is necessarily an inherent uncertainty as to how closely the said amount will represent the actual continued adverse effects of the measure over time".¹⁶⁴ The arbitrator nonetheless determined a level of Annual Suspension based on a short-term past reference period.

6.59. We agree that there is inherent uncertainty about how well levels of Annual Suspension will reflect the value of effects of relevant measures over time, especially if the Annual Suspension needs to remain in place for an extended period of time. Indeed, we consider that, in years following their application, it will in fact rarely be the case that levels of Annual Suspension will be exactly equivalent to, or in some cases maybe even closely approximate, the value of relevant effects of the measures in any such year. This is so not only because of the dynamic nature of markets in which the effects of measures occur, but also because private market actors will adjust their behaviour over time to the continued application of the WTO-inconsistent measures or because responding parties may

¹⁶¹ See, e.g. Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, section 3.2 (determining Annual Suspension by applying counterfactual to the year in which the RPT expired); *US – Tuna II (Mexico) (Article 22.6 – US)*, section 4 (determining Annual Suspension by applying counterfactual to first full year following expiry of RPT); *US – COOL (Article 22.6 – United States)*, section 3.2 and para. 6.32 (determining Annual Suspension by applying counterfactual to "the baseline year" following the end of the RPT); and *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.115-4.119 (determining Annual Suspension by applying counterfactual to the year straddling the expiry of the implementation period). See also Decision by the Arbitrator, *US – FSC (Article 22.6 – US)*, para. 2.15 (acting under Article 4.11 of the SCM Agreement and determining Annual Suspension by calculating the amount of the subsidy for the year in which the implementation period expired).

¹⁶² Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.14; *US – Upland Cotton (Article 22.6 – US II)*, para. 4.118; *US – Gambling (Article 22.6 – US)*, para. 3.143; and *US – FSC (Article 22.6 – US)*, paras. 2.14(a) and 2.15. See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 4.19 (explaining that "[u]nlike Article 22.6, which closely relates to compliance (or absence thereof) at the end of the reasonable period of time, Article 25 is silent as to the date on which a matter referred to arbitration should be assessed"). (emphasis added)

¹⁶³ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.18.

¹⁶⁴ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.117.

adopt new "measures taken to comply" that can themselves significantly change the relevant effects of measures at issue even assuming static market conditions.¹⁶⁵

6.60. If such uncertainties could make Annual Suspension not "equivalent to the level of nullification or impairment" or not "commensurate with the degree and nature of the adverse effects determined to exist" under Article 22.6 of the DSU or Article 7.10 of the SCM Agreement, Annual Suspension might need to be continually adjusted after its authorization by the DSB (either downward or upward to the authorized maximum level following a downward adjustment). It is our understanding that this has not been the practice of complaining parties that were granted a fixed amount for Annual Suspension. This is consistent with our view that under the SCM Agreement and the DSU the maximum *level* of countermeasures or suspension of concessions that may be granted is a function of the effects of relevant measures during a past reference period, while the *maintenance* of a suspension of concessions at that level is predicated not on the magnitude of ongoing effects of relevant measures, but on continued non-compliance of the responding party with its WTO obligations.¹⁶⁶

6.61. Fourth and finally, we note that one arbitrator has cautioned against basing levels of Annual Suspension on forecast effects of measures. In *US – Gambling (Article 22.6 – US)*, the arbitrator rejected the use of forecasts of future market behaviour as a basis upon which to determine a level of Annual Suspension. That arbitrator explained that "different time horizons [of such forecasts] would result in different levels of nullification or impairment that bear no relation to questions of actual compliance".¹⁶⁷ We agree that determining a level of Annual Suspension with respect to essentially a future reference period of debatable duration might lead to varying results, not just because of the uncertainty of future market developments and the lack of actual data, but also the chosen length of the reference period. This further supports using the effects of measures in short-term past reference periods occurring at or shortly after the time by when the responding party should have come into compliance as a basis on which to determine the maximum level of Annual Suspension.¹⁶⁸

6.62. Bearing in mind the discussion thus far, we recall the European Union's position that "to authorise [countermeasures in the form of Annual Suspension] under Article 7.10 of the SCM Agreement, the [Arbitrator] must ensure that the adverse effects determined to exist in the December 2011 to 2013 reference period provide a reasonable estimation of – i.e., are representative of – adverse effects today, and in the future".¹⁶⁹ The European Union refers to this

¹⁶⁵ This, of course, assumes that considering the effects of "measures taken to comply" that were not the subject of findings in compliance proceedings underlying an arbitration proceeding to set a level of countermeasures or suspension of concessions would even be legally appropriate. The validity of this assumption is in doubt. (See Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, section 3 (refusing to consider, in setting a level of Annual Suspension, the effects of a recent amended version of the measure found to be WTO non-compliant in the underlying compliance proceeding because the amended measure had not been considered in the compliance proceeding)). Insofar as it would be inappropriate, this would provide more reason to decline to discern the effects of any measures taken to comply that were not subject to prior findings in a compliance proceeding.

¹⁶⁶ See Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, para. 3.150 (noting that a coefficient to be used in a formula governing the future levels of suspension of concessions was calculated based on data from a past time-period and would likely prove inaccurate in the future. The arbitrator considered that "this approach is consistent with past arbitrations where representative periods were used to determine volumes and prices of exports in order to calculate levels of nullification or impairment and levels of suspension fixed once and for all"). (fn omitted)

¹⁶⁷ Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.144. See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 4.20 (expressing reservations about calculating the level of nullification or impairment with reference to a date in the future, which was itself not yet known for sure, because such an approach would "add uncertainty to the [arbitrator's] estimate by [requiring] additional assumptions").

¹⁶⁸ We note that the arbitrator in *EC – Hormones (US) (Article 22.6 – EC)* likewise assessed the effects of the relevant measures in a short-term reference period occurring at or shortly after the time by when the responding party should have come into compliance. We note, however, that the circumstances of that proceeding appeared to require the arbitrator to conduct, in part, a prospective analysis. (Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – EC)*, para. 41). The circumstances of our proceeding do not require any prospective analysis as we are dealing with a short-term *past* reference period occurring immediately following the expiry of the implementation period.

¹⁶⁹ European Union's response to Arbitrator question No. 104, para. 134. (fns and quotation marks omitted)

as the applicable "legal standard", derived from the arbitration decision in *US – Upland Cotton (Article 22.6 – US II)*. This legal standard would have us determine the maximum level of Annual Suspension that is "representative" of the value of adverse effects caused by relevant subsidies at present and in the future. To apply this legal standard, we would, of course, have to know or determine those until-now unidentified adverse effects.

6.63. Drawing on our considerations above, we find ourselves unable to accept the European Union's proposed legal standard.¹⁷⁰ As noted above, our mandate does not require us to determine the level of countermeasures *vis-à-vis* until-now unidentified adverse effects. As we have explained, in this proceeding, it is appropriate to consider that the relevant effects are the specific lost sales and instances of impedance arising in the 2011-2013 Reference Period.

6.64. Moreover, as far as future adverse effects are concerned, it is unclear to us what our time-frame would be, and in particular how far into the future we should attempt to identify relevant adverse effects. This would invite contestable results. Additionally, any such predictions about the future occurrence of adverse effects would be speculative owing to the lack of actual data.¹⁷¹ We discern no way in which we could confidently predict the future evolution of complex and dynamic LCA markets, the effects of relevant measures within those markets, and the future compliance steps of the European Union, all of which must be considered to determine the future occurrence of relevant adverse effects.¹⁷²

6.65. Furthermore, even if we therefore were to determine only present adverse effects, this would conflate our role with that of a compliance panel established under Article 21.5 of the DSU. Indeed, one of the main European Union claims before the second compliance panel is that the European Union has "remove[d] the adverse effects" within the meaning of Article 7.8 of the SCM Agreement.¹⁷³ To address that claim, the compliance panel will most likely have to similarly analyse the existence of adverse effects. Moreover, no adverse effects have been multilaterally "determined to exist" post-2013. Determining the existence of relevant present adverse effects would effectively require the United States to re-litigate at least a significant part of the first compliance proceedings.¹⁷⁴ We recall in this connection that the results of the first compliance proceedings provide the basis for this arbitration, which was recommenced after several years of suspension. There would also be a risk of creating conflicting findings between this proceeding and the second compliance panel proceeding currently under way that is considering the European Union's present compliance status.¹⁷⁵ Additionally, as we have noted¹⁷⁶, an inquiry into the existence of adverse effects requires fact-intensive analyses. Engaging in such analyses would therefore substantially lengthen the duration of this expedited proceeding.

6.66. Finally, we turn to the arbitrator's decision in *US – Upland Cotton (Article 22.6 – US II)*, from which the European Union derives the legal standard that it advocates. That arbitrator accepted the complaining party's proposed reference period (marketing year (MY) 2005) and rejected the responding party's preferred reference period (MY 2005-2007) as the basis to determine a level of

¹⁷⁰ See paragraph 6.75 below.

¹⁷¹ See also Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 1625 (noting that "[t]he original panel observed that the parties had described the development of LCA as an endeavour ... in the face of a business environment that is shaped by factors whose very foreseeability is impossible by definition").

¹⁷² We note that the European Union itself argues that the Arbitrator would have to consider the European Union's compliance steps when assessing what adverse effects are being caused today and in the future. (See section 2.4 above).

¹⁷³ Communication by the European Union, WT/DS316/34 (Second Compliance Communication), para. 13. Previous arbitrators have advised against conflating their mandates with those of compliance panels and refused to make findings with respect to compliance-related issues. (Decisions by the Arbitrators, *US – Washing Machines (Article 22.6 – US)*, para. 3.29; *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 3.52-3.53; and *US – Upland Cotton (Article 22.6 – US II)*, paras. 3.14-3.17). (See also section 2.4 above, discussing this topic.)

¹⁷⁴ See Appellate Body Report, *US – Continued Suspension*, para. 317 (observing that "authorization to suspend concessions is ... granted following a long process of multilateral dispute settlement in which relevant adjudicative bodies, as well as the DSB, render multilateral decisions at key stages of the process").

¹⁷⁵ Communication by the European Union, WT/DS316/34 (Second Compliance Communication), para. 43 ("[T]he European Union notifies the DSB that *it has achieved* full compliance with the recommendations and rulings in the present dispute"). (emphasis added)

¹⁷⁶ See paragraph 6.44 above.

Annual Suspension. It thus determined a level of Annual Suspension that was based on the adverse effects of the United States' subsidies in MY 2005. The arbitrator circulated its decision in August 2009, three years after the end of MY 2005.

6.67. The arbitrator in *US – Upland Cotton (Article 22.6 – US II)* did not make specific findings regarding whether the United States' measures caused then-present-day adverse effects or then-future adverse effects. Moreover, the arbitrator also stated that uncertainty about the future effects of the subsidies at issue should not prevent it from determining the maximum level of Annual Suspension based on the effects of the subsidies in a past reference period¹⁷⁷, even when that uncertainty was significant.¹⁷⁸

6.68. We further note that the arbitrator made the following statement:

We recognize that price fluctuations on the world upland cotton market may affect the calculation of the adverse effects of the ML and CCP subsidies at issue over time. Indeed, there may be a number of economic or other factors that would affect the evolution over time of the impact of the subsidies at issue, and we do not exclude that there may have been different permissible approaches to the choice of period of reference for the purposes of such calculations. In a situation where a fixed annual amount of countermeasures is determined, that will be applied in the future and for an undetermined period of time, there is necessarily an inherent uncertainty as to how closely the said amount will represent the actual continued adverse effects of the measure over time. What we must ensure, however, is that there is a legitimate basis for assuming that the chosen period of reference may lead to a reasonable estimation of these effects.¹⁷⁹

6.69. The arbitrator did not explain why, in its view, an arbitrator "must" ensure that there is a legitimate basis for assuming that the chosen period of reference "may" lead to a reasonable estimation of "these effects". It looks as though by "these effects", the arbitrator meant "the actual continued adverse effects of the measure over time" that are referred to earlier in the quoted paragraph.

6.70. We recall our own view, which is based on our mandate as set out in Article 7.10, that in the circumstances of our proceeding we should quantify the adverse effects determined to exist in the compliance panel and Appellate Body reports, and not any "actual continued adverse effects". The compliance reports in this dispute contain determinations concerning the 2011-2013 Reference Period. That period occurred at the same time as the period immediately following the end of the implementation period. It is noteworthy that the arbitrator in *US – Upland Cotton (Article 22.6 – US II)* similarly justified its choice of MY 2005 as the appropriate reference period on the basis that it "represent[ed] the first moment at which the United States should have come into compliance with the recommendations and rulings at issue".¹⁸⁰ Thus, it would in our view have been relevant and correct if the arbitrator in *US – Upland Cotton (Article 22.6 – US II)* had said that the chosen period of reference should lead to a reasonable estimation of the adverse effects in the short term, i.e. the

¹⁷⁷ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, fn 44 (explaining that "[t]he fact that the actual level of future payments under the [subsidy] program [which cause the adverse effects] may be uncertain to date *cannot in itself be an obstacle to calculating a level of countermeasures to be applied*"). (emphasis added) This footnote accompanied the following body text: "Nor can any uncertainty about what might happen in the future dissuade this Arbitrator from assessing the adverse effects determined to exist in relation to a measure which did exist and which, on the facts, continues to exist". (Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 3.28). We note that there is no DSB-adopted finding in this dispute that the A380 or A350XWB LA/MSF measures have ceased to exist.

¹⁷⁸ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.117-4.118 (noting that "price fluctuations on the world upland cotton market may affect the calculation of the adverse effects of the ... subsidies at issue over time", that cotton prices "vary considerably from year to year" and that "there may be a number of economic or other factors that would affect the evolution over time of the impact of the subsidies at issue").

¹⁷⁹ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.117.

¹⁸⁰ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.118.

adverse effects occurring at or shortly after the date by which the responding party should have come into compliance.¹⁸¹

6.71. The arbitrator in *US – Upland Cotton (Article 22.6 – US II)* also examined but rejected the United States' claim that MY 2005 was an "unrepresentative" reference period, finding that the average price of cotton during MY 2005 was closer to the historic nine-year average of cotton prices (beginning with MY 1999) than was the average price of cotton during the United States' proposed reference period of MY 2005-2007. The arbitrator further found that recent increases in cotton prices were not indicative of a change in medium- to long-term price trends.¹⁸²

6.72. As the arbitrator ultimately made no finding that MY 2005 did not provide a reasonable estimation of the actual continued adverse effects of the measure over time, it remains unclear what the arbitrator would have done if it had so found.¹⁸³ The arbitrator did say in the excerpt above that using different cotton prices would likely affect the calculation of the adverse effects of the subsidies at issue. Also, it seems that the arbitrator was able to reach a conclusion on the issue of the appropriate reference period after having considered only the evolution of cotton prices in reviewing the issue of the appropriate reference period, although it had said that there were "a number of economic or other factors"¹⁸⁴ that affected the extent of any adverse effects of the subsidies at issue. It is thus unclear whether the arbitrator would have proceeded to examine also any factors other than price that affected the situation in any post-MY 2005 time-period if it had accepted to choose a different reference period based on the evolution of cotton prices.

6.73. In this proceeding, there is no equivalent to a straightforward comparison of average prices for alternative reference periods that would allow us to reach conclusions regarding the 2011-2013 Reference Period. Indeed, we cannot simply assume that a certain percentage of all LCA orders that Boeing lost to Airbus in a given year after the 2011-2013 Reference Period were lost sales, for example. As mentioned above, it took the prior compliance panel extensive evidence-based analyses to reach its conclusions regarding the existence of adverse effects in the 2011-2013 Reference Period. We are aware of no shortcut in this regard for determining the existence of adverse effects in the post-2013 time-period. Also, the volumes of LCA sales during the 2011-2013 Reference Period will rarely coincide with such volumes in any other period of time. However, this is the basic nature of the LCA industry.¹⁸⁵ Finally, we discern no other evidence on the record pointing to any particular aspect or event that makes the 2011-2013 Reference Period unsuitable for purposes of this proceeding.¹⁸⁶

6.74. For these various reasons, we are not persuaded that the arbitrator's stated approach in *US – Upland Cotton (Article 22.6 – US II)* is appropriate in this proceeding. In particular, we see no

¹⁸¹ Indeed, the arbitrator in *US – Upland Cotton (Article 22.6 – US II)* itself said that once a countermeasure is in place, it may or may not reflect closely the actual continued adverse effects of the measure over time.

¹⁸² Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.118.

¹⁸³ For instance, we do not know whether the arbitrator would have accepted MY 2005-2007 or opted for some other alternative reference period.

¹⁸⁴ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.117.

¹⁸⁵ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1719 (observing that LCA "orders tend to be very large and sporadic").

¹⁸⁶ The parties have suggested that it may be possible for an arbitrator to adjust certain data in a chosen reference period if the data covered by the reference period were somehow "unrepresentative". However, the United States proposes no such changes and the European Union casts the "representativeness" issue as one pertaining to whether the *adverse effects* during the 2011-2013 Reference Period are "representative" of present and future adverse effects. (United States' responses to Arbitrator question Nos. 103 and 119; and European Union's comments on the United States' response to Arbitrator question No. 103 and to the United States' response to the European Union's question No. 1, para. 467). We will revert to the issue of whether we should base our calculation on data pertaining to the entire 2011-2013 Reference Period or data pertaining to a subperiod of that Reference Period in sections 6.3.4.3.1 and 6.3.4.4.1 below.

need to ensure that our "chosen period of reference", i.e. the 2011-2013 Reference Period, "may lead to a reasonable estimation" of any present and future adverse effects.¹⁸⁷

6.75. We accordingly also confirm that we cannot accept the European Union's proposed legal standard. Our mandate does not require it and adopting it would raise various systemic concerns as we have identified above.

6.76. Based on all of the foregoing elements, we consider it appropriate to determine the maximum level of Annual Suspension based on the value of the adverse effects determined to exist during the 2011-2013 Reference Period and to grant countermeasures in the form of Annual Suspension.¹⁸⁸ This approach is harmonious with our mandate as set out in Article 7.10, the text and object and purpose of the DSU, the adverse effects determined to exist and the reference period used in the prior compliance proceedings, the task of the second compliance panel proceeding currently under way, and, insofar as Annual Suspension with no specified end-date is concerned, with the approach followed in prior arbitration decisions.

6.3.2 The appropriate counterfactual

6.77. Previous arbitrators have noted that "in past arbitration proceedings, arbitrators have found it necessary to base their decisions on a so-called 'counterfactual' ... [which] refers to a hypothetical scenario that describes what would have happened in terms of trade flows had the responding party implemented the DSB recommendations and rulings".¹⁸⁹ According to one previous arbitrator, "the legal standard that a scenario must meet for it to constitute an appropriate counterfactual for purposes of Article 22.6 proceedings is that of plausibility and reasonability".¹⁹⁰ We note that the compliance panel and Appellate Body in the present dispute already used a counterfactual to identify the very adverse effects in the 2011-2013 Reference Period that we value here, i.e. one in which the European Union's relevant member States never granted A380 LA/MSF and A350XWB LA/MSF to Airbus.¹⁹¹ Thus, this counterfactual appears to suggest itself as the counterfactual under which we should value these adverse effects. The parties also predicate their arguments throughout this arbitration proceeding on that counterfactual.¹⁹² We agree that in this proceeding it is reasonable to

¹⁸⁷ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.117. We note that the level of adverse effects caused by LA/MSF going forward could be either above or below that of adverse effects caused in the 2011-2013 Reference Period. Regarding the latter possibility, we note that even if we accepted the European Union's argument that the A380 programme is winding down, deliveries would likely still occur going forward at least for a time. (European Union's response to Arbitrator question No. 147, para. 288 and Table 7). Ongoing sales of A350XWB aircraft may significantly increase and even replace sales of A380 aircraft. The "indirect effects" of A380 and A350XWB LA/MSF might affect future Airbus LCA programmes in ways that cause additional adverse effects. Moreover, the European Union might take "measures taken to comply" that increase the severity and/or duration of relevant adverse effects. (Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, fn 92 ("Article 21.5 proceedings could result in a finding that a new compliance measure causes more nullification or impairment")). We note that in the compliance proceedings A350XWB LA/MSF was found to be a "measure[] taken to comply" within the meaning of Article 21.5 of the DSU, and, together with A380 LA/MSF, caused lost sales in the twin-aisle LCA market that we value in this very proceeding.

¹⁸⁸ We recognize that there may be other permissible ways to structure countermeasures. We make no judgments as to the permissibility of other structures, whether in this dispute or others.

¹⁸⁹ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.4.

¹⁹⁰ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.5. (emphasis omitted) See also Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.10.

¹⁹¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.558 (describing counterfactual used by compliance panel) and section 6.7.4 (using counterfactual assuming the "absence" of A380 and A350XWB LA/MSF). It may be further noted that "a counterfactual does not necessarily need to reflect the most likely compliance scenario". (Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 4.5).

¹⁹² See, e.g. European Union's response to Arbitrator question No. 3, para. 79 (explaining that "there simply is no issue of the Arbitrat[or] using a 'new' counterfactual that deviates from the counterfactual adopted by the Appellate Body in the first compliance proceedings" if all the Arbitrator does is value the five lost sales and six instances of impedance found in the 2011-2013 Reference Period). (fn omitted) The United States never suggests that we use any counterfactual other than the counterfactual used in the compliance proceedings.

use the same counterfactual to value the adverse effects that was used in the prior compliance proceedings. We consequently adopt this particular counterfactual as the relevant counterfactual.¹⁹³

6.78. At this stage, we describe one specific element of the counterfactual adopted in the above paragraph, i.e. what United States LCA manufacturer(s) would have been present in the twin-aisle LCA and VLA product markets (the LCA product markets in which the adverse effects that we value in this proceeding occurred) in the years leading up to and during the 2011-2013 Reference Period.¹⁹⁴ Establishing this element will help frame our subsequent analyses. In this context, the European Union asserts that "the counterfactual that informed the adverse effects determination by the ... compliance panel and the Appellate Body is one in which, in the absence of A380 [LA/]MSF and A350XWB [LA/]MSF, Airbus and Boeing would compete in a duopoly".¹⁹⁵ The United States asserts that, in the absence of A380 and A350XWB LA/MSF, "the Appellate Body did not foreclose the possibility that ... there would have been another U.S. industry participant, [but] the findings of continuing adverse effects are focused on the impact the subsidies had on Boeing, which is understandable since Boeing was the only extant U.S. LCA producer during the period reviewed".¹⁹⁶ We further note that neither party's arguments in this proceeding appear to assume the presence of any non-Boeing United States LCA manufacturer in the LCA marketplace at any relevant point in time, including during the 2011-2013 Reference Period.

6.79. Consistent with the parties' positions in this context, we consider it reasonable to use a counterfactual in which Boeing was the sole United States LCA manufacturer in the years leading up to and during the 2011-2013 Reference Period. No LCA manufacturers in the United States other than Boeing in fact existed since 1997, when McDonnell Douglas merged with Boeing.¹⁹⁷ In our view, the structure of the counterfactual that the Appellate Body adopted (i.e. the absence of A380 and A350XWB LA/MSF), when considered in conjunction with other evidence on the record, indicates that it would have been unlikely for another United States LCA manufacturer to have entered the twin-aisle or VLA product markets after 1997 but before year-end 2013.¹⁹⁸ Furthermore, we note that the product markets used by the compliance panel and Appellate Body *vis-à-vis* the 2011-2013 Reference Period were defined with reference to Airbus and Boeing LCA only. Additionally, the Appellate Body made no mention of a non-Boeing LCA United States manufacturer present in the LCA market at any relevant time in the counterfactual. Thus, we consider that, in the relevant counterfactual, Boeing would have been the only United States LCA manufacturer in the years leading up to and during the 2011-2013 Reference Period, and consequently, in the counterfactual, it is Boeing that would have won the lost sales identified in the compliance proceedings and Boeing that would have increased its deliveries had the impedance identified in the compliance proceedings not occurred.

6.3.3 General European Union arguments against the United States methodology

6.80. In section 6.3.1 above, we concluded that we may determine the maximum permissible level of Annual Suspension using the value of the adverse effects determined to exist in the 2011-2013

¹⁹³ More specific aspects of this counterfactual will be discussed in later sections of this Decision as appropriate.

¹⁹⁴ The Appellate Body did not appear to explicitly specify this issue in its report in the compliance proceeding.

¹⁹⁵ European Union's response to Arbitrator question No. 7, para. 156.

¹⁹⁶ United States' response to Arbitrator question No. 7(a), para. 9.

¹⁹⁷ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1620.

¹⁹⁸ The Appellate Body found that only the effects of A380 and A350XWB LA/MSF (the two most recent sets of LA/MSF measures) could be considered when assessing the European Union's compliance under Article 7.8 of the SCM Agreement. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.553-5.555). The earliest grant of any such measure was in 2000. (Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.560, 6.1630, and fn 452; and *EC and certain member States – Large Civil Aircraft*, para. 7.290(vii)). It follows that the counterfactual world departs from actual historic events starting in 2000, during which the LCA industry was characterized by an Airbus-Boeing duopoly. (Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.368 (noting that the Airbus-Boeing "effective duopoly has existed since 1997 when Boeing merged with McDonnell Douglas")). We discern nothing on the record indicating that any non-Boeing United States LCA manufacturer would have entered the twin-aisle or VLA product markets since 2000 in the face of competition from Airbus and Boeing but in the absence of A380 and A350XWB LA/MSF. Indeed, the findings on the record stress how difficult it would have been for any new LCA manufacturer to enter the LCA market in these conditions. (See, e.g. Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1215, 6.1534, and 6.1787-6.1788).

Reference Period, i.e. the five lost sales and six instances of impedance. In connection with this issue the European Union raises several arguments concerning what adverse effects found to exist within the 2011-2013 Reference Period we may or may not include in our determination of the maximum level of Annual Suspension.

6.81. The European Union raises five such arguments. First, the European Union argues that the Arbitrator must exclude from the maximum level of Annual Suspension the value of adverse effects associated with the counterfactual sale of Boeing LCA that would have already been delivered in the counterfactual at the time of the conduct of this arbitration proceeding. We will refer to this as the argument concerning "past deliveries" for ease of reference. Second, the European Union argues that the Arbitrator can include in the maximum level of Annual Suspension either the value of impedance or lost sales, but not both, because it is inappropriate to temporally assign the value of both types of adverse effects to the 2011-2013 Reference Period. We will refer to this as the argument concerning "over-counting" for ease of reference. Third, the European Union argues that the Arbitrator can include in the maximum level of Annual Suspension either the value of impedance or lost sales, but not both, because doing so would lead to the Arbitrator counting the value of the same adverse effects twice. We will refer to this as the argument concerning "double-counting" for ease of reference. Fourth, and based on the validity of, *inter alia*, the previous three arguments, the European Union argues that countermeasures must end on a date that corresponds to the date of the final delivery related to the adverse effects determined to exist in the 2011-2013 Reference Period. Finally, the European Union argues that the Arbitrator must exclude the value of Boeing LCA components produced outside the United States. We address each of these arguments in turn.

6.3.3.1 Exclusion of the value of past deliveries from the level of Annual Suspension

6.82. The European Union argues that, in determining the maximum level of countermeasures, the Arbitrator cannot consider the value of the five lost sales and six instances of impedance insofar as these adverse effects involve Boeing LCA that would have already been delivered by the present day in the counterfactual. According to the European Union, the counterfactual deliveries of Boeing LCA associated with those adverse effects mean that those adverse effects have ceased to exist or come to an end (insofar as they involve previously delivered LCA in the counterfactual).¹⁹⁹ The European Union infers from this that associated countermeasures *vis-à-vis* those adverse effects, insofar as they involve previously delivered LCA in the counterfactual, must also come to an end. The European Union asserts that this approach is consistent with the prospective nature of WTO remedies. The European Union also submits that certain passages in the panel report in *US – Large Civil Aircraft (2nd complaint)* support its position in this context.²⁰⁰

6.83. The United States argues that the European Union's approach is (a) unacceptable because it would leave no remedy for impedance, which is based on past deliveries, (b) inapposite because it ignores that the countermeasures applied in any future year pertain to the adverse effects caused by LA/MSF in that year rather than those that occurred during the 2011-2013 Reference Period²⁰¹, and (c) unsupported by the text and purpose of the DSU and SCM Agreement. Also, the United States submits that the passages from the panel report in *US – Large Civil Aircraft (2nd complaint)* that the European Union cites in this context do not support the European Union's position.²⁰²

6.84. The Arbitrator notes the European Union's view that the Arbitrator should not determine the maximum level of Annual Suspension, in whole or in part, based on the value of adverse effects that already "ended" in the counterfactual, and that counterfactual deliveries of Boeing LCA related to those adverse effects bring about that "end". This would result in disregarding the six instances of impedance found in the 2011-2013 Reference Period (as they were based on counterfactual Boeing

¹⁹⁹ The European Union also makes this argument with reference to "lost sales" that involve cancelled orders. As explained in section 6.3.4.3.4.1 below, we exclude the value of cancelled orders from the level of countermeasures. Thus, we do not address that aspect of the European Union's argument here.

²⁰⁰ European Union's written submission, paras. 149-164 (citing Panel Report, *US – Large Civil Aircraft (2nd complaint)*, paras. 7.1685-7.1686).

²⁰¹ We note that this particular argument appears to assume that granting countermeasures in the form of Annual Suspension is predicated on the existence of ongoing adverse effects of the same magnitude as those found to exist in the 2011-2013 Reference Period. (See paragraph 6.38 above). We have rejected this rationale as the basis upon which we determine the maximum level of Annual Suspension above in section 6.3.1.

²⁰² United States' written submission, paras. 122 and 126-128.

LCA deliveries that would by now have already occurred) and the value of any Boeing LCA that would have been delivered by the present day pursuant to the five lost sales had Boeing won them.

6.85. Our mandate is to determine whether the proposed level of countermeasures is commensurate with "the degree and nature of the adverse effects determined to exist", i.e. the five lost sales and six instances of impedance in the 2011-2013 Reference Period. We therefore must establish the economic value of adverse effects that were determined to have existed in the 2011-2013 Reference Period. The parties do not agree on whether any of the adverse effects determined to exist have ceased to exist prior to this arbitration proceeding. Beyond this, we fail to see the materiality in considering when such adverse effects "ended" in the sense that the European Union uses this word. The five lost sales and six instances of impedance were "determined to exist" in the 2011-2013 Reference Period. Whether such adverse effect continued to exist in some subsequent time-period is an extraneous consideration in this arbitration proceeding. The question of the continued existence of adverse effects raises a compliance issue that in contentious cases should be addressed by a compliance panel under Article 21.5 of the DSU. We further note, as explained above, that many arbitrators, including the arbitrator in *US – Upland Cotton (Article 22.6 – US II)*, have determined maximum levels of Annual Suspension based on the effects of measures in past reference periods.²⁰³

6.86. Finally, the passages in the panel report in *US – Large Civil Aircraft (2nd complaint)* that the European Union cites in support of its argument are in our view unavailing and do not lead us to exclude the value of past deliveries. Those passages address, *inter alia*, the issues of when, conceptually, "lost sales" and "impedance", within the meaning of Article 6.3(a)-(c) of the SCM Agreement, can be said to exist and what data should properly evidence that existence. As explained in the paragraph immediately above, in the dispute before us, these issues have been resolved insofar as is relevant for present purposes, that is to say, the relevant adverse effects were found to exist in the 2011-2013 Reference Period based on evidence deemed appropriate for that purpose in the compliance proceedings.²⁰⁴

6.87. For all these reasons, we reject the European Union's argument regarding past deliveries.

6.3.3.2 Inclusion of both lost sales and impedance in determining the level of Annual Suspension: "Over-counting"

6.88. The European Union argues that the United States' methodology results in impermissible "over-counting", i.e. valuing economic harm to the United States on the basis of both orders (evidencing lost sales) and deliveries (evidencing impedance) in the 2011-2013 Reference Period. According to the European Union, doing so creates a "temporal mismatch in the allocation of harm", resulting in overstated damage amounts in the 2011-2013 Reference Period. The European Union asserts that private companies would assign the value of a goods sale to the time of the order or resulting delivery, but not both.²⁰⁵

6.89. The European Union asserts that because mixing an order-centric metric and delivery-centric metric is "inconsistent" and "nonsensical"²⁰⁶, the Arbitrator must choose either one or the other if it uses the 2011-2013 Reference Period to determine the level of Annual Suspension. However, in the European Union's view, under the circumstances of the present proceeding²⁰⁷, the Arbitrator "must opt for US impedance claims (*i.e.*, based on deliveries)" and "disregard in their entirety US lost sales

²⁰³ See section 6.3.1 above. We further recall that a maximum level of Annual Suspension determined based on a past reference period is still a prospective remedy. (See paragraphs 2.27 and 5.3 above).

²⁰⁴ Insofar as these passages raise issues that may bear upon the proper temporal allocation of the value of these adverse effects, we discuss that issue in the following section.

²⁰⁵ European Union's written submission, sections VIII.C and IX.A.1 and fn 185; responses to first set of Arbitrator questions, paras. 54-57 and fn 59; and responses to Arbitrator question No. 23, paras. 370-377, No. 62, paras. 191-192, and fn 256, and No. 107, paras. 182-198 and fn 208.

²⁰⁶ European Union's response to Arbitrator question No. 23, para. 368.

²⁰⁷ European Union's response to Arbitrator question No. 23, paras. 360-367 (identifying these circumstances as "*inter alia* the considerable time lag between order and delivery; the significant probability of order cancellations, rescheduling, and conversions; and, the particularly large-scale, infrequent nature of LCA sales").

claims".²⁰⁸ According to the European Union this is so because the Arbitrator should value the "trade effects" of LA/MSF, which in the case of orders arise only upon the deliveries of the ordered LCA. The European Union submits that because of the time lag between LCA orders and deliveries, if Boeing had won the five lost sales, counterfactual deliveries would have occurred only after 2013. Thus, the European Union contends that temporally assigning the value of lost sales to the times of the orders in the 2011-2013 Reference Period improperly includes therein adverse effects that arose after the Reference Period. The European Union emphasizes in this context that although lost sales may have been found to *exist* with reference to order data in the compliance proceedings, that does not necessarily mean that the Arbitrator should *quantify* the effects of the lost sales with specific reference to those orders.²⁰⁹

6.90. The European Union argues that prior arbitrators confirmed the primacy of the "trade effects metric" to determine levels of countermeasures and suspensions of concessions, and that arbitrators use other metrics only if trade effects are difficult to quantify or where measurable trade effects have not yet occurred. The European Union further states that using only impedance claims to determine the level of countermeasures is not inconsistent with the findings in the compliance proceedings because although panels and the Appellate Body may find the existence of lost sales with respect to order data, an arbitrator can and should quantify the adverse effects determined to exist using a delivery-centric metric. The European Union also asserts that both "lost sales" and "impedance" are focused on "volume effects" and "market shares", which correspond to using a delivery-centric metric.²¹⁰

6.91. Finally, the European Union argues that basing the value of orders representing lost sales on future counterfactual deliveries is overly speculative because LCA deliveries do not always occur as envisioned under the relevant preceding order, and may be cancelled, converted, or postponed. Thus, according to the European Union, the Arbitrator "must use the actual deliveries in the relevant years as the basis for quantifying trade effects from lost sales".²¹¹

6.92. The United States argues that no impermissible "over-counting", as the European Union uses that term, arises if the Arbitrator values both the five lost sales and six instances of impedance in the 2011-2013 Reference Period and determines the maximum level of Annual Suspension based on that combined, annualized amount. The United States argues that this approach simply implements the Arbitrator's mandate, i.e. valuing the "adverse effects determined to exist". According to the United States, "lost sales" under Article 6.3(c) of the SCM Agreement (identified based on LCA orders) and "impedance" under Article 6.3(a) and (b) of the SCM Agreement (identified based on LCA deliveries) are two distinct kinds of adverse effects. The United States further submits that both kinds of adverse effects were found to exist during the 2011-2013 Reference Period and thus the value of both can be temporally assigned thereto. Further, the United States asserts that no order representing a "lost sale" resulted in deliveries that underlie the impedance findings, and thus no LCA is being valued twice as a result of valuing both lost sales and impedance found to exist in the Reference Period.²¹²

6.93. The United States submits in addition that insofar as the European Union argues that the Arbitrator must apply a "trade effects metric" and that metric compels the Arbitrator to disregard

²⁰⁸ European Union's written submission, fn 185. See also European Union's responses to first set of Arbitrator questions, paras. 54-57; and response to Arbitrator question No. 107, para. 184.

²⁰⁹ European Union's written submission, para. 190; and responses to Arbitrator question Nos. 23 and 26. According to the European Union, "[t]he word 'trade' in 'trade effects' is to be interpreted in the broad sense as 'transaction', or 'transfer of goods and services', not in the narrow sense as 'cross-border transaction' (imports/exports)". (European Union's response to Arbitrator question No. 54, fn 20).

²¹⁰ European Union's responses to Arbitrator question No. 23, paras. 354-358, 364-367, and 383 (asserting that "these arbitrat[ors] ... based their findings on direct exports of goods and services that were affected by the WTO-inconsistent measures at issue"), No. 24, para. 387, No. 26, No. 54, and No. 62, fn 260.

²¹¹ European Union's written submission, paras. 178, 184-187, 188, and fns 179 and 181-183 (*inter alia* citing Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1724 (noting such uncertainties)).

²¹² United States' written submission, paras. 129, 131, 146-149, 156-157, and 160-161; and response to Arbitrator question No. 54.

lost sales claims, there is no textual basis for such an approach in the DSU or SCM Agreement, and that there has been no rigid "trade effects metric" used in prior arbitrations.²¹³

6.94. Finally, the United States rejects the European Union's argument that assigning the value of future counterfactual deliveries that would have followed from Boeing winning the five lost sales to the time of the lost sale (i.e. order) involves undue speculation, stating that the Arbitrator must assume that all Boeing LCA that would have been ordered pursuant to the lost sales would also have been delivered (i.e. there is no basis for considering the possibility of post-order developments such as cancellations, conversions, or delivery delays); and that the European Union's advocated methodology for valuing lost sales involves the same kinds of uncertainties as does the United States'.²¹⁴

6.95. The Arbitrator begins by noting that the European Union's overall argument in this context is that it is improper to temporally assign *both* the value of impedance and lost sales to the 2011-2013 Reference Period, as proposed by the United States. The European Union mainly believes this to be so because it is improper, in its view, to temporally assign the value of lost sales, specifically, to the 2011-2013 Reference Period. Thus, our analysis proceeds in three steps. First, we examine whether it is reasonable to temporally assign the value of lost sales, specifically and in isolation from the temporal assignment of the value of impedance, to the 2011-2013 Reference Period. Second, we examine whether it is reasonable to temporally assign the value of impedance, specifically and in isolation from the temporal assignment of the value of lost sales, to the 2011-2013 Reference Period. If we answer both questions in the affirmative, we then address the European Union's remaining arguments as to whether it would be improper to temporally assign the value of *both* impedance and lost sales, when considered together, to the 2011-2013 Reference Period.

6.3.3.2.1 Temporal assignment of the value of lost sales to the 2011-2013 Reference Period

6.96. In the compliance proceedings, the five lost sales were represented by orders for Airbus LCA placed in the 2011-2013 Reference Period.²¹⁵ Each order was for multiple Airbus aircraft. We agree with the European Union that, if Boeing had won the lost sales, the resulting counterfactual deliveries would all have occurred after the end of the 2011-2013 Reference Period.²¹⁶ The main issue is thus whether, under these circumstances, it is reasonable to temporally assign the value of the Boeing LCA that would have been sold pursuant to each counterfactual Boeing LCA order to the time of that counterfactual order (i.e. within the 2011-2013 Reference Period as the United States requests) rather than assign the value of each individual ordered Boeing LCA to the time of its counterfactual delivery (i.e. outside the 2011-2013 Reference Period, as the European Union requests).²¹⁷

6.97. In addressing this issue, we once again recall our mandate, which is to determine whether the proposed level of countermeasures is commensurate with "the degree and nature of the adverse effects determined to exist". We begin by examining the nature of lost sales. Lost sales are described in Article 6.3(c), which provides:

[T]he effect of the subsidy is a significant price undercutting by the subsidized product as compared with the price of a like product of another Member in the same market or significant price suppression, price depression or lost sales in the same market[.]

6.98. Regarding the term "lost sales", the word "sale" is defined as "[t]he action or an act of giving or agreeing to give something to a person in exchange for money".²¹⁸ This indicates that the event that defines a "lost sale", in the context of a sale of goods, may either occur at the time when an

²¹³ United States' written submission, paras. 133-136 and 148; and response to Arbitrator question No. 100, paras. 12-13 (citing Decision by the Arbitrator, *US – FSC (Article 22.6 – US)*, para. 6.40).

²¹⁴ United States' written submission, paras. 149, 158, and 163; response to Arbitrator question No. 58; and response to European Union's question No. 1, para. 242.

²¹⁵ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.716 and 5.731.

²¹⁶ See section 6.3.4.3.5 below.

²¹⁷ Under the United States' methodology, we recall that the United States considers that the value of a lost sale is the present value of the Boeing LCA that were expected to be delivered pursuant to the order.

²¹⁸ *Shorter Oxford English Dictionary*, 6th edn, A. Stevenson (ed.) (Oxford University Press, 2007), Vol. 2, p. 2652.

agreement to exchange goods for money is concluded or when the physical "act" of exchanging goods for money occurs. We consider it a reasonable proposition, therefore, that the economic value of such an agreement would be the value of the goods sold pursuant thereto. Put another way, the value of a "lost sale", when evidenced by an agreement constituting an order for subsequent delivery of the purchased goods and assessed at the time of that agreement, would be the expected value of the goods that would have been traded if the supplier that lost the sale had won the sale. In the light of that observation, we discern no reason to think that that monetary value could not be temporally assigned to the time of the agreement.²¹⁹

6.99. We also contrast the language of Article 6.3(c) with that of Article 6.3(a) and (b), which describe, *inter alia*, impedance and are part of the context of Article 6.3(c). The text of these provisions reads as follows:

- (a) the effect of the subsidy is to displace or impede the imports of a like product of another Member into the market of the subsidizing Member;
- (b) the effect of the subsidy is to displace or impede the exports of a like product of another Member from a third country market[.]

6.100. These provisions reference "imports" and "exports", respectively, suggesting that impedance is focused on physical movements of goods and arises at the time that "imports" or "exports" of the complaining party's goods are physically "impeded" from a relevant geographic market.²²⁰ Unlike Article 6.3(a) and (b), Article 6.3(c) nowhere mentions "imports" or "exports". The immediate context of Article 6.3(c) therefore indicates to us that the time at which lost sales can occur and temporally valued need not be the time of the resulting physical transfer of goods from the seller to the purchaser. Instead, the value of a lost sale can be determined at the time at which an agreement to transfer goods in exchange for money is reached. Thus, the economic value of that agreement can be reasonably characterized as the expected economic value of the goods that would have been traded if the supplier who lost the sale had won the sale.

6.101. The above observations are consistent with the manner in which lost sales were analytically determined to exist in prior proceedings in this dispute. In both the original and compliance proceedings, lost sales were determined to exist solely based on LCA order data, i.e. data pertaining to the time at which the agreements governing the eventual physical transfer of LCA were concluded.²²¹ In contrast, impedance was determined to exist solely based on LCA delivery data, i.e. data pertaining to the time of the physical transfer of LCA. The choice to identify these adverse effects in this manner was in large part based on the references in Article 6.3(a) and (b) to imports and exports.²²² It is thus clear that the five lost sales in this proceeding were found to have arisen within the 2011-2013 Reference Period. This suggests to us that the economic value of those orders, i.e. the expected value of the Boeing LCA that would have been traded had Boeing won the sale instead, could also be temporally assigned to the 2011-2013 Reference Period.

6.102. We further note that lost sales must also be "significant" under Article 6.3(c).²²³ The original panel identified certain factors that make lost sales significant, i.e. strategic importance, learning-

²¹⁹ See Appellate Body Report, *US – Large Civil Aircraft (2nd complaint) (Article 21.5 – EU)*, para. 5.331 (stating that "[i]n *EC and certain member States – Large Civil Aircraft*, the Appellate Body explained that 'lost sales' are sales that suppliers of the complaining Member 'failed to obtain' and that instead were won by suppliers of the respondent Member") (citing Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, para. 1220). (fn omitted)

²²⁰ See Panel Report, *US – Large Civil Aircraft (2nd complaint)*, para. 7.1685 (explaining that impedance "can ... only arise at the point at which LCA deliveries take place").

²²¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.716 and 5.731 (stating that the five relevant orders for Airbus LCA in the 2011-2013 Reference Period "represent" the lost sales). See also Appellate Body Report, *US – Large Civil Aircraft (2nd complaint) (Article 21.5 – EU)*, para. 5.338 (explaining that the existence of lost sales may be identified using "order data alone").

²²² Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, para. 1217 (noting that order data underlie the findings on lost sales); and Panel Report, *EC and certain member States – Large Civil Aircraft*, paras. 7.1747-7.1751, 7.1774, and 7.1777.

²²³ The Appellate Body has explained that "'significant' means 'important, notable or consequential', and that such a term, depending on the circumstances, could have both quantitative and qualitative aspects". (Appellate Body Report, *US – Large Civil Aircraft (2nd complaint) (Article 21.5 – EU)*, para. 5.332).

curve effects, incumbency, the number of LCA involved in a sale, and the "dollar amounts involved in those sales".²²⁴ The compliance panel considered that "this description regarding the significance of losing LCA sales to a rival LCA producer ... remains, on the whole, an accurate depiction of the significance of losing LCA sales to a rival LCA producer".²²⁵ On the basis of the same considerations enumerated by the original panel, the compliance panel confirmed that the five lost sales at issue in this proceeding were "significant".²²⁶ We thus note that the five significant lost sales at issue in this proceeding were determined to exist in the 2011-2013 Reference Period because, *inter alia*, the orders themselves involved large monetary amounts.²²⁷ This further suggests to us that the value of the five lost sales can reasonably be described as the expected value of the Boeing LCA that would have been traded had Boeing won the sales instead. It would therefore also appear reasonable to temporally assign that value to the time of the lost sale, i.e. the 2011-2013 Reference Period.

6.103. This interpretation finds further support in the original panel's descriptions regarding the relationship between LCA orders and resulting LCA deliveries, the validity of which have remained undisturbed during subsequent stages of this dispute. In these descriptions, the original panel emphasized that "[a]t the moment an order is placed, the terms and conditions of the delivery of aircraft pursuant to that order will in large part be set. Aircraft specification, net price, discounts, non-price concessions and financing arrangements will be determined at the time of order", including the delivery schedules.²²⁸ Thus, the original panel observed that "orders are to some extent a proxy for future deliveries", i.e. a proxy for expected resulting LCA trade flows.²²⁹ Moreover, the original panel indicated that rational economic actors would take such expectations arising from orders into account in making valuation decisions: "Boeing and Airbus undoubtedly make future plans taking into account their current order book, and ... market actors will take the future flows from those orders into account in evaluating each company".²³⁰

6.104. The foregoing discussion indicates that, in the particular context of our proceeding, the value of LCA to be traded pursuant to an LCA order could reasonably be assigned to the time of the order.²³¹ As described above, the lost sales in the present dispute were identified purely based on LCA order data, and any value ultimately realized from LCA deliveries is directly traceable and attributable to their associated order and the terms that were set therein. LCA orders further specify the amount of money that is to be exchanged in return for the ordered LCA, and a value can thus be placed upon the orders.²³² In other words, an LCA order contract is reasonably characterized as having an expected economic value such that when the order is lost, the supplier who would have won the sale in the relevant counterfactual (in this case, Boeing) can be said to have lost that expected value at the time of the lost sale.

²²⁴ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1845.

²²⁵ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1798.

²²⁶ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1798.

²²⁷ We note that this finding was made with the understanding that relatively [***] is actually transferred to the LCA manufacturer upon order, and instead "[i]t is at the time of delivery that a manufacturer receives the majority of proceeds from the sale of an aircraft". (Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1749).

²²⁸ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1750. See also Appellate Body Report, *US – Large Civil Aircraft (2nd complaint) (Article 21.5 – EU)*, paras. 5.335-5.336 (making similar observations); and Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1719 (same).

²²⁹ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1750.

²³⁰ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1749.

²³¹ We note that our valuation of the lost sales involves considerably more calculation than simply summing the value of deliveries resulting from the lost sales, however. (See section 6.4.2 below). We further note that the valuation involves discounting the delivery prices of Boeing LCA ordered in the counterfactual. According to the European Union, "the arbitration panel in *US – Gambling* explicitly rejected the requesting Member's request to include discounted future revenues in its award". (European Union's written submission, para. 188 (citing Decision by the Arbitrator, *US – Gambling (Article 22.6 – US)*, para. 3.144)). However, the passage that the European Union cites in that arbitration decision does not impugn the propriety of discounting as an economic tool that may be used in arbitration proceedings or suggest a different approach in this proceeding.

²³² We recognize, of course, that in this context we are actually valuing orders that do not exist, i.e. counterfactual Boeing orders. We note, however, that counterfactual Boeing orders would be structured so as to specify the amount of money to be exchanged for the LCA to be delivered pursuant to these orders. (See section 6.3.4.3.6 below).

6.105. Post-order developments may affect the ultimate value that an LCA manufacturer realizes from an LCA order.²³³ These include cancellations, delivery delays, or even re-negotiations of the terms of the sale.²³⁴ Such factors can be taken into account when assessing what ultimate value Boeing would have realized had it won the lost sales. As further discussed in section 6.3.4.3.2 below, the manner in which the five relevant Airbus sales have in fact evolved after 2013 can be taken into account in assessing how the counterfactual Boeing sales would have likely evolved had Boeing won the lost sales instead. It would further be possible to adjust the value of the lost sales in the light of the probability that certain other material changes would arise, such as the chance that future counterfactual deliveries would be cancelled.²³⁵ We briefly note in this context that, particularly in the light of the availability of such adjustments, we see no reason to think that the United States' methodology involves unacceptable speculation.²³⁶

6.106. Moreover, we do not consider that prior dispute settlement practice provides a persuasive reason to temporally assign the value of lost sales to the times of resulting deliveries rather than to the time of order. The European Union stresses that most previous arbitrators have used a "trade effects metric" in determining levels of countermeasures or suspension, a metric that the European Union argues we should adopt here and that favours temporally assigning the value of lost sales to the time of counterfactual deliveries rather than to the time of counterfactual order.²³⁷ The term "trade effects"²³⁸ appears neither in the SCM Agreement nor the DSU.

6.107. To clarify the relevance of a trade effects metric, therefore, we make two observations regarding the arbitration decisions that the European Union maintains used this metric and that support its argument. First, these arbitration decisions generally determined levels of countermeasures or suspension of concessions based on the increased value of counterfactual trade that the complaining party would have realized *vis-à-vis* a relevant good or service had the responding party achieved compliance. We note that the method of valuing lost sales described above is consistent with this in that it leads to an economic valuation of the additional Boeing LCA that would have been traded had Boeing won the lost sales. In this sense, we consider that by temporally assigning the value of counterfactual Boeing LCA deliveries to the time of the lost sale, we would be using a trade effects metric.²³⁹ Second, previous arbitrators appeared to temporally assign the increased value of counterfactual trade to the time-period in which that counterfactual

²³³ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1724 (explaining that there are "many factors that can intervene between order and actual delivery" that affect the ultimate value realized from an order).

²³⁴ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.2178.

²³⁵ See section 6.3.4.3.4.2 below.

²³⁶ Indeed, we note that under either the United States' or the European Union's approach, we would have to estimate the probability and timing of essentially the same counterfactual Boeing deliveries.

²³⁷ The European Union argues that the arbitrators in the following disputes used the "trade effects" metric: Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*; *US – COOL (Article 22.6 – United States)*; *US – Upland Cotton (Article 22.6 – US I)*; *US – Upland Cotton (Article 22.6 – US II)*; *US – Gambling (Article 22.6 – US)*; *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*; *EC – Hormones (US) (Article 22.6 – EC)*; *EC – Hormones (Canada) (Article 22.6 – EC)*; and *EC – Bananas III (US) (Article 22.6 – EC)*. (European Union's responses to Arbitrator question No. 23, para. 364, and No. 26, para. 406). We note that the recent decision by the arbitrator in the *US – Washing Machines* dispute also adopted a "trade effects" approach, i.e. measuring levels of nullification or impairment with respect to counterfactual imports of Korean products into the United States. (Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.7, 3.112-3.118, 4.57, 4.117, and 5.1-5.3).

²³⁸ The European Union cites certain arbitration decisions and panel reports using, *inter alia*, the terms "trade effects", "trade-distorting impact", and "volumes and prices and flows of such trade" when discussing the effects of subsidies and/or the character of adverse effects. (European Union's written submission, paras. 63 and 157; and response to Arbitrator question No. 26, paras. 399-402 and fn 433). No cited passage, however, specifically delineates the precise content of these phrases as used, and none addresses the kind of issue surrounding the temporal assignment of counterfactual trade flows that we address here. Thus, we consider that these terms and the passages in which they appear add little insight to our discussion here.

²³⁹ We note, however, that the term "trade effects" should not be understood to refer to only international trade. Such a narrow understanding would be neither legally appropriate nor workable in this proceeding where we must quantify certain identified "adverse effects" within the meaning of Article 5 of the SCM Agreement. Indeed, one "lost sale" finding at issue in this proceeding involved United Airlines, a United States airline customer. In the counterfactual, therefore, a United States supplier (Boeing) would have supplied LCA to a United States airline customer (United Airlines). This would have represented domestic, not international, trade. (See also footnote 35 of the SCM Agreement (envisioning countermeasures implemented under Part III of the SCM Agreement being applied *vis-à-vis* "the effects of a particular subsidy in the domestic market of the [implementing] Member")).

trade would have occurred (i.e. the time when the imports or exports of relevant goods or services occurred). We thus note that under the United States' approach – at least with respect to valuing lost sales – we would, somewhat differently, temporally assign the value of increased counterfactual trade in United States LCA to the time of the counterfactual order that would have given rise to, and specified the value of, the physical counterfactual trade (i.e. subsequent deliveries).

6.108. Regarding this limited difference between the United States' advocated approach and the approach of the arbitrators that the European Union cites, however, we make the following related observations.

6.109. To begin with, the European Union cites no prior arbitration decision that indicates that it would be improper to temporally assign the value of goods sales to a time other than the time of physical transfer of the goods, and we are aware of none that did so.

6.110. Moreover, the United States' approach appears consistent with what we consider to be the fundamental purpose of arbitrations conducted under Article 22.6 of the DSU. We note that the arbitrator in *US – Section 110(5) Copyright Act (Article 25)*²⁴⁰ stated that "for purposes of these arbitration proceedings, the relevant [lost] benefits [to be valued] are those which are *economic in nature*". This is consistent with previous decisions of arbitrators acting under Article 22.6 of the DSU.²⁴¹ A subsequent arbitrator acting under Article 22.6 cited this passage while discussing the valuation methods used by previous arbitrators, during which the arbitrator noted that such previous arbitrators did not exclusively use a trade effects approach to valuing the relevant economic impact of the measures in question.²⁴² We, too, agree with these general observations, i.e. that, fundamentally, arbitrators acting under Article 22.6 value economic effects of measures. Indeed, with the exception of certain arbitrations conducted under Article 4.11 of the SCM Agreement²⁴³, arbitrators acting under Article 22.6 of the DSU and Article 7.10 of the SCM Agreement have valued the economic impact of the measures at issue. This is so whether arbitrators employed a "trade effects" metric, as the European Union uses that term, or valued the relevant economic impact of the measures at issue in other ways.²⁴⁴ Therefore, we consider that, in keeping with our mandate, our task is to place an economic value on "the adverse effects determined to exist" in the Reference Period, i.e. the five lost sales and six instances of impedance to the United States.

6.111. Finally, we note that this proceeding involves novel legal and factual circumstances. No prior arbitrator has valued "lost sales" within the meaning of Article 6.3(c), let alone lost sales involving goods the sales of which display multi-year lag times between their order and delivery as LCA sales do. We further recall that the SCM Agreement directs us to value lost sales the existence of which was determined by assessing the facts at the time of the relevant sale rather than at the time of any deliveries. Thus, it seems to us only natural that certain differences in our valuation method and those of prior arbitrators might arise.

²⁴⁰ Although this arbitration was not conducted under Article 22.6 of the DSU, the arbitrator considered its task essentially was to quantify the level of "nullification or impairment" of the measure in question. (Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 2.7).

²⁴¹ Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 3.18 (citing Decisions by the Arbitrators, *EC – Bananas III (Ecuador) (Article 22.6 – EC)*; *EC – Hormones (Canada) (Article 22.6 – EC)*; *EC – Hormones (US) (Article 22.6 – EC)*; and *EC – Bananas III (US) (Article 22.6 – EC)*). (emphasis added) The arbitrator reasoned that this was so in view of "the object of the present proceedings, which is to quantify the *economic harm* suffered by the European Communities as a consequence of the continued application of [the measure at issue]". (Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, fn 38). (emphasis added)

²⁴² Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, paras. 3.38-3.40. That arbitrator emphasized that because "nullification or impairment is [not] limited in all instances to the direct trade loss resulting from the violation", "the 'trade effect' approach ... regularly applied in other Article 22.6 arbitrations ... seems to be generally accepted by Members as a [but not the only] correct application of Article 22 of the DSU". (Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, paras. 3.69 and 3.71). (emphasis original)

²⁴³ The arbitrators in *Canada – Aircraft Credits and Guarantees (Article 22.6 – Canada)*, *US – FSC (Article 22.6 – US)*, and *Brazil – Aircraft (Article 22.6 – Brazil)* used the value of the export subsidy to calculate their countermeasures.

²⁴⁴ The arbitrator in *US – 1916 Act (Article 22.6 – US)* based the maximum levels of suspension on the sum of future final monetary judgments awarded against EC companies under the 1916 Act and future settlement awards entered into by EC companies under the 1916 Act. (See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)* (royalty income lost by EC copyright holders)).

6.112. In sum, we thus do not consider that temporally assigning the value of lost sales to the time of the relevant orders is inconsistent with persuasive content of prior arbitrator decisions.

6.113. It emerges from the totality of the foregoing considerations that the operative question for us is whether the United States' approach reasonably captures the economic impact that A380 and A350XWB LA/MSF caused to the interests of the United States during the 2011-2013 Reference Period. In the case of lost sales, our legal and analytical task is to place an economic value on the five lost sales. We thus must determine in an economically appropriate manner the value of the associated lost orders during the Reference Period. As explained above, and consistent with statements by prior WTO adjudicators in this dispute, it is in our view an economically reasonable proposition that the economic value of the five lost sales, which occurred in the 2011-2013 Reference Period, is the expected value of the additional Boeing LCA that would have subsequently been traded had Boeing won those lost sales. Thus, we find it appropriate to temporally assign that value to the 2011-2013 Reference Period.

6.114. For all the foregoing reasons, we consider that in the circumstances of this proceeding we should place a value upon the orders that represent the lost sales, i.e. the value of the LCA expected to be delivered pursuant thereto, and assign that value to the time of the order, i.e. within the 2011-2013 Reference Period. Doing so is consistent with, and follows from, our legal mandate and proper economic valuation of LCA lost sales. Prior arbitration decisions provide no material reason to adopt a different approach. Any differences that arise between our valuation methodology and methodologies adopted in prior decisions are a function of the circumstances present in this proceeding, including with regard to what the underlying legal provisions require us to value in the context of the facts of this dispute.

6.3.3.2.2 Temporal assignment of the value of impedance to the 2011-2013 Reference Period

6.115. Turning to the issue of whether it is reasonable to temporally assign the value of impedance to the 2011-2013 Reference Period, we note as an initial matter that neither party argues that it is improper to temporally assign the value of the six instances of impedance to the 2011-2013 Reference Period (if impedance is considered in its own right and separately from the temporal allocation of the five lost sales). The six instances of impedance were found to exist in the 2011-2013 Reference Period based on LCA deliveries that occurred in that time-frame. This method of identifying impedance accords with the nature of impedance as described in Article 6.3(a) and (b). As already discussed above, these provisions refer to imports and exports, thus indicating that they are focused on the time at which physical transfers of goods occur.

6.116. All of the A380 deliveries upon which the impedance findings were based²⁴⁵ are the consequence of orders by the airlines concerned that were placed at an earlier point in time, which precedes the 2011-2013 Reference Period.²⁴⁶ These orders were not determined to constitute lost sales within the meaning of Article 6.3(c) in the prior compliance proceedings, however. There is therefore no legal basis on which we could properly determine the value of those orders in this proceeding. What we must value instead are the six instances of impedance that occurred during the 2011-2013 Reference Period. Those six instances of impedance caused identifiable economic harm to the United States between 2011 and 2013. As far as the quantification of that harm is concerned, it in our view corresponds to the value of the additional Boeing LCA that would have been delivered to the six geographic markets in question, during the 2011-2013 Reference Period, had no impedance occurred.

6.117. For these reasons, we agree with the parties and temporally assign the economic value of the six instances of impedance, and more concretely the value of the corresponding counterfactual Boeing LCA deliveries to the relevant geographic markets, to the 2011-2013 Reference Period, during which the deliveries would have occurred.

²⁴⁵ These deliveries are contained in Table 12 below.

²⁴⁶ This information regarding the times of the orders underlying the deliveries upon which the impedance findings were based is derived from Exhibits EU-79 and EU-125 (HSBI)-132 (HSBI).

6.3.3.2.3 Temporal assignment of the value of both lost sales and impedance to the 2011-2013 Reference Period

6.118. We recall that the European Union's overall argument is that the Arbitrator cannot temporally assign *both* the value of lost sales and impedance to the 2011-2013 Reference Period. Having determined above that it is reasonable to temporally assign the value of the five lost sales and the six instances of impedance to the 2011-2013 Reference Period, when considering each in isolation from the other, we thus proceed to consider whether it is permissible to assign the value of both the lost sales and impedance to the 2011-2013 Reference Period when considering them together.

6.119. At the outset, we note that Articles 5 and 6 of the SCM Agreement describe multiple kinds of adverse effects. Article 7.10 therefore clearly envisions that an arbitrator may assess multiple kinds of different adverse effects, the "degree and nature" of which may differ. While the Appellate Body has noted that there is potential overlap between the concepts of lost sales and impedance, "in that both phenomena relate to a firm's sales", it has "stressed the distinct features of market displacement and impedance claims, compared with significant lost sales, rejecting the notion of a 'dependent relationship' between them".²⁴⁷

6.120. We further note that there is no actual overlap between the five lost sales and six instances of impedances determined to exist in the 2011-2013 Reference Period. That is, the Arbitrator counts the value of no counterfactual Boeing LCA twice in determining the maximum level of Annual Suspension. This is so because none of Airbus LCA deliveries that occurred as a result of the five lost sales underlie any of the six instances of impedance. Moreover, we note that, following from this, none of the counterfactual Boeing LCA deliveries that would have occurred as a result of the five lost sales (had Boeing won them) are valued as counterfactual Boeing LCA deliveries that were impeded in the six relevant geographic markets.

6.121. We also consider the European Union's analogy to accounting practices in the private sector to be inapposite. It may be the case, as the European Union asserts, that companies in the private sector would assign the value of goods that they sell to the time of the order or the resulting deliveries, but not both. However, we operate under a legal framework that is different from the one applicable to such companies. Our mandate is to value the adverse effects determined to exist, which in this proceeding encompass both lost sales and impedance.

6.122. We thus see no reason to find that temporally assigning the value based on the time of order in the case of lost sales and based on the time of delivery in the case of impedance, is "inconsistent", as the European Union argues. Insofar as the temporal assignment of the value of these two types of adverse effects differs, this reflects their different nature. Consequently, the underlying findings that provide the basis for the United States Article 22.2 request and this arbitration proceeding lead us to value the five lost sales by reference to the time of order and the six instances of impedance by reference to the time of delivery. On that basis, we find that it is proper to assign both the value of lost sales (based on counterfactual Boeing orders) and impedance (based on counterfactual Boeing deliveries) to the 2011-2013 Reference Period.

6.3.3.3 Inclusion of both lost sales and impedance in determining the maximum level of Annual Suspension: "Double-counting"

6.123. The European Union argues that if the Arbitrator determines a level of Annual Suspension based on the value of both the lost sales and impedance determined to exist during the 2011-2013 Reference Period, this would result in impermissible "double-counting". That term, according to the European Union, refers to "the risk of counting the same lost sales transaction twice – once as a lost sale (in the form of orders), and once as an instance of impedance (in the form of deliveries)".²⁴⁸

²⁴⁷ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1808 (quoting Appellate Body Report, *US – Large Civil Aircraft (2nd complaint)*, para. 1240). (fn omitted) See also Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1807-6.1809 (rejecting European Union's argument that impedance and displacement must be predicated on findings of lost sales and quoting Appellate Body Report, *US – Large Civil Aircraft (2nd complaint)*, para. 1241 in support of its reasoning); and *EC and certain member States – Large Civil Aircraft*, para. 7.1751 (rejecting European Union's argument that displacement and impedance must be demonstrated "on a sale by sale basis").

²⁴⁸ European Union's response to Arbitrator question No. 56, fn 38.

The European Union asserts that this risk arises because "a given order in one year will turn into a delivery a few years later".²⁴⁹ Thus, the European Union asserts that Annual Suspension based on both lost sales and impedance would capture the value of a "lost sale" in the form of LCA orders in the year in which the order occurred, and then capture the value of the same transaction again when the deliveries resulting from the lost order occur as instances of impedance in the years in which the deliveries occur (usually a few years after the order). The European Union agrees with the United States, however, that there is no double-counting within the 2011-2013 Reference Period, i.e. none of the five lost sales resulted in any of the deliveries that occurred in the 2011-2013 Reference Period upon which the impedance findings were based.²⁵⁰

6.124. The United States argues that no impermissible double-counting, as the European Union uses that term, arises if the Arbitrator values both the five lost sales and six instances of impedance in the 2011-2013 Reference Period and determines a level of Annual Suspension based on that amount. In the United States' view, this is so because (a) none of the orders associated with the lost sales in the 2011-2013 Reference Period resulted in any of the deliveries evidencing impedance in the 2011-2013 Reference Period, (b) lost sales and impedance are distinct forms of adverse effects under Article 6 of the SCM Agreement, and (c) there is no textual basis in the SCM Agreement for offsetting one form of adverse effect against another in the manner the European Union advocates. The United States further notes that its methodology makes no assumptions about the geographic markets in which lost sales and impedance would occur in years after 2013, and thus there is no basis upon which to find that double-counting will arise even if the Arbitrator were to consider post-2013 adverse effects in determining the maximum level of countermeasures.²⁵¹

6.125. The Arbitrator notes that double-counting, as the European Union uses that term, could only arise if the Arbitrator's determination of the maximum level of Annual Suspension were to include both the value of an LCA order at issue that represents a lost sale and the value of an LCA delivery representing impedance and flowing from that same previous lost sale.²⁵² No such situation arises in this proceeding.

6.126. As explained above in section 6.3.1, we determine the maximum level of Annual Suspension with sole reference to the five lost sales and six instances of impedance determined to exist in the 2011-2013 Reference Period. Further, none of the orders associated with the five lost sales in the 2011-2013 Reference Period resulted in any of the deliveries evidencing the six instances of impedance in the 2011-2013 Reference Period.²⁵³ Thus, we do not determine the maximum level of Annual Suspension with respect to any LCA orders and deliveries with respect to which double-counting may arise. We accordingly reject the European Union's argument concerning the risk of double-counting.

6.3.3.4 Setting of an end-date for countermeasures based on counterfactual Boeing deliveries resulting from the adverse effects determined to exist

6.127. The European Union argues that countermeasures must have a pre-determined end-date that corresponds to the date of the final counterfactual Boeing LCA delivery related to the adverse effects determined to exist in the 2011-2013 Reference Period. Specifically, the European Union

²⁴⁹ European Union's written submission, paras. 191-195. See also European Union's responses to Arbitrator question No. 13, paras. 299-300, and No. 62, para. 188 (asserting that the United States' request for Annual Suspension is based on the notion that lost sales and impedance caused by subsidies continue after 2013).

²⁵⁰ European Union's responses to first set of Arbitrator questions, para. 53 and fn 58; and responses to Arbitrator question No. 13, No. 23, para. 380, No. 24, paras. 385 and 389, No. 57, paras. 123-132, and No. 107, paras. 190-192.

²⁵¹ United States' written submission, paras. 129-131 and 159-162; response to Arbitrator question No. 19, para. 29; and comments on the European Union's response to Arbitrator question No. 107, paras. 168-174.

²⁵² We note that "double-counting" is thus distinct from "over-counting". The former issue arises in this context only if the Arbitrator grants countermeasures in the form of *Annual Suspension* based on the value of both lost sales and impedance in the 2011-2013 Reference Period. The latter arises under *any structure of countermeasures* that is granted based on the value of both lost sales and impedance in the 2011-2013 Reference Period.

²⁵³ United States' written submission, para. 162; and European Union's response to Arbitrator question No. 24, para. 385. Our analysis of the data on the record provides no basis upon which to question the parties' shared position in this context.

notes that "final delivery of an aircraft related to the specific adverse effects determined to exist is expected for 2026. According to the European Union, this means that any authorization to impose countermeasures must also end no later than 2026".²⁵⁴

6.128. The United States argues that the European Union's argument fails because it "is based on the erroneous premise that the countermeasures in present and future years are meant to capture deliveries in those years of aircraft ordered in the specific 2012 and 2013 sales campaigns that provided the basis for the significant lost sales findings".²⁵⁵

6.129. The Arbitrator notes that the European Union's argument would have us set a firm end-date for countermeasures based on expected final counterfactual delivery dates. This argument rests on the validity of other European Union arguments that concern the appropriateness of granting countermeasures in the form of Annual Suspension and that we rejected in preceding sections. We also recall that we do not in this proceeding ultimately value the counterfactual deliveries of aircraft originating in lost sales found to exist in the 2011-2013 Reference Period at the time of their delivery. The date of the last counterfactual delivery of a relevant Boeing LCA that the European Union expects to take place therefore does not provide, under our valuation methodology, a relevant end-date. As explained, the specific end-date for any countermeasures that the United States imposes in the form of Annual Suspension will be determined by such possible developments as new DSB-adopted findings confirming that the European Union has brought itself into conformity or a mutually agreed solution reached by the parties. We accordingly reject the European Union's argument.

6.3.3.5 Exclusion of the value of Boeing LCA components produced outside the United States

6.130. As noted in section 6.1, the United States requests countermeasures in the form of Annual Suspension, the level of which is based on the value of the additional Boeing LCA that would have been (a) sold had Boeing won the lost sales and (b) delivered had Boeing not suffered impedance.

6.131. The European Union argues that the Arbitrator cannot consider the total value of such Boeing LCA in determining the maximum level of countermeasures. Rather, according to the European Union, the Arbitrator should exclude, from the value of any Boeing LCA that the Arbitrator includes in its calculation of the level of countermeasures, the value of components incorporated into those Boeing LCA provided by "suppliers from other Members".²⁵⁶ In support of this position, the European Union notes that the language contained in Article 5(c) of the SCM Agreement indicates that adverse effects in the form of "serious prejudice" are by definition tied to the manner in which they specifically "affect the interests of 'another Member', *rather than all Members*".²⁵⁷ Therefore, taking into consideration this language, the European Union asserts that the Arbitrator should exclude from the level of countermeasures the value of adverse effects to the interests of Members other than the United States, i.e. the value of components incorporated into those Boeing LCA added by "suppliers from other Members". According to the European Union, this is so even though the adverse effects findings in the prior compliance proceedings pertain to LCA, rather than components of LCA, because Members other than the United States suffered economic harm as a result of lost sales or impedance of Boeing aircraft.²⁵⁸

6.132. The European Union claims that the decision of the arbitrator in *US – Upland Cotton (Article 22.6 – US II)* supports its position. The European Union asserts that, in that dispute, the compliance panel and the Appellate Body determined that "the effect of the subsidies at issue was significant price suppression within the meaning of Article 6.3(c) of the SCM Agreement in the world

²⁵⁴ European Union's written submission, para. 148. (fn omitted) See also European Union's written submission, paras. 143-148 and 370-372.

²⁵⁵ United States' written submission, para. 139.

²⁵⁶ The European Union suggests that these are suppliers whose "locus of production activity and actual value creation" is outside the United States. (European Union's response to Arbitrator question No. 95, para. 18). Further, the European Union argues that neither the ownership structure of the firm producing the input nor the "origin" of the input as determined by a Member based on its own rules of origin can be used as metrics for determining whether the inputs are non-US inputs. (European Union's response to Arbitrator question No. 95, paras. 16-18).

²⁵⁷ European Union's written submission, para. 356 (citing Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, para. 4.75). (emphasis original)

²⁵⁸ European Union's response to Arbitrator question No. 49, para. 487.

market for upland cotton constituting 'present' serious prejudice to the interests of Brazil within the meaning of Article 5(c) of the SCM Agreement". The arbitrator, according to the European Union, in determining the level of countermeasures for Brazil, "limited the level of countermeasures to reflect only the extent to which Brazil was actually affected ... [and] determined that it would not consider adverse effects by worldwide cotton producers as a result of the [United States subsidies at issue]".²⁵⁹ The European Union submits that this Arbitrator should apply the same standard, i.e. limit the level of countermeasures to the adverse effects sustained by the United States and exclude from its calculation adverse effects sustained by other WTO Members.²⁶⁰

6.133. Additionally, the European Union argues that if the level of countermeasures that the United States will be authorized to take is not limited to the adverse effects sustained by the United States, this could result in double remedies against the European Union. The European Union asserts, for example, that Japan – a major supplier of fuselage and wing components for Boeing LCA – could bring a dispute against the European Union that it sustained adverse effects resulting from lost sales or impedance of Boeing aircraft, which would have incorporated those Japanese components. The European Union submits that if Japan succeeded in such a claim, it could potentially receive authorization to take countermeasures against the European Union *vis-à-vis* the value of those Japanese components, even though the United States had already received authorization to take countermeasures in an amount that included the value of those same components as incorporated into Boeing LCA as a result of this proceeding.²⁶¹

6.134. The United States rejects the European Union's request for exclusion of the value of non-United States (US) inputs from the value of Boeing LCA for the purpose of calculating the level of countermeasures. The United States advances three main arguments in support of its position. First, the United States argues that the adopted findings in this dispute pertain to LCA, not components of LCA. The United States therefore submits that the European Union's approach cannot be squared with the findings adopted by the DSB.²⁶²

6.135. Second, the United States argues that the premise of the European Union's argument on double remedies, as the European Union uses that term, was rejected by the arbitrator in *EC – Bananas III (US) (Article 22.6 – EC)*. The United States submits that that arbitrator explained that "the theoretical issue of double counting raised by the European Union is avoided because Members cannot receive rights to impose countermeasures for these types of 'indirect' upstream effects".²⁶³

6.136. Finally, the United States notes that when it applies countermeasures to imports of goods from the European Union, it will base its application of tariffs on the entire value of the imported goods, without respect to the extent to which they incorporate non-European-Union inputs. The United States thus submits that, to ensure an "apples-to-apples comparison", the level of countermeasures must be stated as a value of the adverse effects with respect to the entire value of relevant Boeing LCA as a product. According to the United States, this should be done without regard to whether such Boeing LCA incorporate non-US inputs.²⁶⁴

6.137. Regarding this latter United States' argument, the European Union responds that any consideration related to how the United States intends to implement countermeasures is outside the mandate of this Arbitrator because it pertains to "the nature of the concessions or other obligations to be suspended", which Article 22.7 of the DSU bars the Arbitrator from considering.²⁶⁵

6.138. The Arbitrator notes that the question presented in this context is whether the value of components produced by "suppliers from [non-US] Members" and incorporated into Boeing LCA

²⁵⁹ European Union's written submission, para. 358.

²⁶⁰ European Union's written submission, paras. 358 and 361. The European Union has alternatively characterized the effect felt by Members other than the United States from lost sales and impedance to Boeing aircraft as "adverse effects", "economic harm", "trade effects" and "lost revenues".

²⁶¹ European Union's response to Arbitrator question No. 95, paras. 2-4.

²⁶² United States' written submission, para. 262.

²⁶³ United States' comments on the European Union's response to question No. 95, para. 5 (citing Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, paras. 6.6-6.18).

²⁶⁴ United States' written submission, paras. 264-265.

²⁶⁵ European Union's response to Arbitrator question No. 49, para. 493 (citing Decision by the Arbitrator, *EC – Hormones (US) (Article 22.6 – US)*, para. 19).

should be excluded from the value of Boeing LCA in determining the level of countermeasures that the DSB can authorize the United States to take.

6.139. Our mandate is to determine the level of "countermeasures ... commensurate with the degree and nature of the adverse effects determined to exist". In this dispute, the compliance panel and the Appellate Body found that the European Union and certain of its member States had failed to comply with the DSB recommendations and rulings and, in particular, the obligation under Article 7.8 of the SCM Agreement "to take appropriate steps to remove the adverse effects or ... withdraw the subsidy by continuing to be in violation of Articles 5(c) and 6.3(a)-(c) of the SCM Agreement".²⁶⁶ The specific type of adverse effect that was determined to exist was "serious prejudice" within the meaning of Article 5(c) in the forms of lost sales and impedance within the meaning of Article 6.3(a)-(c).

6.140. Article 5(c) provides that "[n]o Member should cause, through the use of any subsidy ... adverse effects to the interests of other Members", including "serious prejudice to the interests of another Member". The adopted findings in this dispute indicate that the European Union "cause[d]" "serious prejudice" to the United States' "interests". Those findings mention no other Members' interests in this respect.²⁶⁷ Therefore, considering that the findings of the compliance proceedings provide the basis for this arbitration proceeding, we focus on the United States' interests in this proceeding.

6.141. We further note that Article 6.3(a)-(c) provides that the specific types of serious prejudice contained therein arise with respect to a "like product of another Member".²⁶⁸ The adopted findings on the specific types of serious prejudice in this dispute, i.e. lost sales and impedance, pertain to LCA – which is the product at issue in this dispute.²⁶⁹ We further note that during the 2011-2013 Reference Period LCA were only produced by two Members, i.e. the European Union (Airbus) and the United States (Boeing).²⁷⁰ Therefore, the adverse effects determined to exist in this proceeding relate to one specific product, i.e. Boeing LCA.

6.142. In sum, the adverse effects determined to exist in this proceeding are those suffered by one Member, the United States, and with reference to one product, Boeing LCA. We thus reject the European Union's position that the adverse effects in this proceeding can be considered to have been suffered by the United States and additional Members, or with reference to any product other than Boeing LCA. We see no legal basis for considering any adverse effects possibly suffered by other Members or determining the maximum level of countermeasures with reference thereto.²⁷¹

6.143. Contrary to the European Union's suggestion, we consider the result reached in *US – Upland Cotton (Article 22.6 – US II)* consistent with our interpretation of our mandate. In that dispute, the findings in the underlying compliance proceedings were based on a determination that the subsidies at issue caused significant price suppression within the meaning of Article 6.3(c) in the world market for upland cotton, constituting serious prejudice to the interests of Brazil within the meaning of

²⁶⁶ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.43; and Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 7.2.

²⁶⁷ The compliance panel and the Appellate Body found that the LA/MSF subsidies at issue are a genuine and substantial cause of significant lost sales and impedance "constituting serious prejudice to the interests of the United States within the meaning of Article 5(c) of the SCM Agreement". (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.716, 5.731, 5.742, 6.31, 6.37, 6.42, and 6.43; and Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 7.1.d.xiv, 7.1.d.xv, and 7.1.d.xvi).

²⁶⁸ See Article 6.3 of the SCM Agreement.

²⁶⁹ Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 1.32; and *EC and certain member States – Large Civil Aircraft*, para. 2.1. We note that in the compliance proceedings, the panel and Appellate Body found that there were three relevant LCA product markets, i.e. single-aisle, twin-aisle, and VLA. This does not change the fact, however, that the overall product at issue is LCA.

²⁷⁰ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1215 (noting that "as it was during the original proceeding, the LCA industry continues to be characterized by what is effectively an Airbus-Boeing duopoly"). We note that this Airbus-Boeing duopoly would also be the situation in the relevant counterfactual. (See paragraph 6.79 above).

²⁷¹ We also note that it is not within our mandate to determine whether lost sales or impedance of Boeing LCA resulted in "economic harm" to Members other than the United States.

Article 5(c) of the SCM Agreement.²⁷² Thus, the adverse effects determined to exist in that proceeding were those suffered by one Member, Brazil, and with reference to one product, upland cotton, which was the like product within the meaning of Article 6.3(c).²⁷³ On that basis, the arbitrator determined the level of countermeasures with reference to the economic impact of the price suppression on upland cotton from Brazil²⁷⁴, and excluded from the level of countermeasures the economic impact of the price suppression for upland cotton on Members other than Brazil. The arbitrator conducted no inquiry into the value of any non-Brazilian cotton inputs (e.g. foreign fertilizers used to grow Brazilian upland cotton) and did not exclude the value of such inputs from the level of countermeasures.

6.144. Furthermore, we are aware of no previous arbitrator that has excluded the value of inputs not produced in the territory of the complaining party from the value of the product(s) at issue in determining the level of countermeasures or the level of suspension of concessions or other obligations. Indeed, one arbitrator suggested that it would be improper to do so. In *EC – Bananas III (US) (Article 22.6 – EC)*²⁷⁵, the United States submitted that the arbitrator should take into account the value of US inputs used in Latin American banana production (e.g. United States fertilizer, pesticides and machinery shipped to Latin America and United States capital or management services used in banana cultivation there) in determining the level of nullification or impairment sustained by the United States. The arbitrator, however, declined to attribute the value of intermediate inputs to the Member (the United States) that was producing or exporting such inputs in its calculation of the level of suspension, basing its reasoning on considerations relating to rules of origin.²⁷⁶ The arbitrator reasoned that it was evident from applicable rules of origin that the place of origin of the end product, bananas, is the country where the bananas were grown.²⁷⁷ More pertinent to the circumstances of that proceeding, the arbitrator noted that the right to seek redress under the DSU for nullification or impairment caused with respect to the final product at issue lies with the Members that were the countries of origin of that final product, and not with any other Member supplying certain inputs for such products. Consequently, it found that "there is no right and no need under the DSU for one WTO Member to claim compensation or request authorization to suspend concessions for the nullification or impairment suffered by another WTO Member with respect to goods bearing the latter's origin or service suppliers owned or controlled by it".²⁷⁸ In short, once the final product was determined to "originate" in a certain Member, the entire value of that product was assigned to that Member for the purpose of calculating the level of nullification or impairment. We thus note that a previous arbitrator, when confronted with a position similar to the European Union's argument here, rejected that position.

6.145. Fundamentally, the European Union's argument hinges on the notion that it is improper to include in the assessment of the maximum level of countermeasures the value of a Boeing LCA that is not attributable to US inputs. Taken to its logical end, this argument would have the United States trace the value of Boeing LCA back through the supply chain to the level of raw materials and ascertain the source of each of the hundreds of components, as we could apportion countermeasures

²⁷² Appellate Body Report, *US – Upland Cotton (Article 21.5 – Brazil)*, para. 448(c); and Panel Report, *US – Upland Cotton (Article 21.5 – Brazil)*, para. 10.256.

²⁷³ Panel Reports, *US – Upland Cotton (Article 21.5 – Brazil)*, para. 10.42; and *US – Upland Cotton*, fn 258.

²⁷⁴ Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.88 and 4.89 (noting that the findings in the compliance proceedings involve "'serious prejudice' to the interests of Brazil specifically").

²⁷⁵ We note that this was an arbitration that was conducted exclusively under Article 22.6 of the DSU. However, as noted in paragraph 3.4 above, to the extent that we are governed by Article 22.6 as well, we find the decision by the arbitrator in *EC – Bananas III (US) (Article 22.6 – EC)* relevant to our determination.

²⁷⁶ Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, paras. 6.12–6.13.

²⁷⁷ Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.13. It is worth quoting in full the reasoning of the arbitrator:

WTO Members typically determine the origin of agricultural products based on the place of production. In principle, every banana has the origin of the country where it was grown. For purposes of WTO rules it is irrelevant whether goods or services (e.g. fertilizer, machinery, pesticides, capital and management services) used as intermediate inputs in the cultivation of bananas and their delivery up to the f.o.b. stage are of US origin even if US content should amount to a significant part of the end-product's value. Also, under US rules of origin bananas grown in Puerto Rico or Hawaii are US products regardless of the percentage of foreign input incorporated in them or used for their cultivation.

²⁷⁸ Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.14.

to the United States only insofar as it was the source of such inputs.²⁷⁹ This would make the exercise of calculating the level of countermeasures "time consuming and exceedingly complicated", as the European Union itself notes.²⁸⁰ We have difficulty squaring this argument with the expeditious nature of Article 22.6 arbitration proceedings, especially in the light of the fact that LCA production is not unique in relying on complex and dynamically optimized international supply chains.

6.146. Additionally, we observe that were we to exclude the value of non-US LCA components from the maximum level of countermeasures, we would weaken the effectiveness of the WTO dispute settlement mechanism and diminish the compliance-inducement function of countermeasures. Indeed, the more internationalized the production of an export good is, the more difficult it would be, in practice, for the Member exporting the final good to induce compliance through countermeasures.²⁸¹ In our view, this would undermine the security and predictability of the multilateral trading system.

6.147. Finally, we note the European Union's concern about double remedies, arising from other Members whose producers supply inputs to Boeing for incorporation into Boeing LCA bringing claims against it. In the present dispute, no other Member has come forward to challenge the subsidies at issue since the United States filed its request for consultations in 2004. Moreover, the risk of input-producing Members bringing their own disputes against the same responding party (i.e. the party that maintains a WTO-inconsistent measure against the final product that incorporates the inputs) existed in other disputes in which arbitrations under Article 22.6 were conducted, and we are not aware of any specific adjustments made by those arbitrators in view of that risk. Finally, we recall that one previous arbitrator explained that producers of intermediate inputs cannot "claim compensation or request authorization to suspend concessions for the nullification or impairment suffered by another WTO Member with respect to goods bearing the latter's origin or service suppliers owned or controlled by it".²⁸²

6.148. In the light of the above considerations, we decline to exclude the value of LCA components produced by suppliers from outside the United States and incorporated into Boeing LCA from the total value of Boeing LCA in determining the level of countermeasures that the DSB can authorize the United States to take.

6.3.4 Technical European Union arguments against the United States' methodology

6.149. Section 6.3.4 examines more technical arguments that the European Union has raised regarding the United States' methodology. It proceeds in four parts. First, it summarizes the United States' technical approach to valuing the adverse effects determined to exist. Second, it addresses certain preliminary considerations before turning to, third and finally, the United States' valuation of lost sales and impedance.

²⁷⁹ We note that in the present proceeding, we would, in at least some cases, need to base our determination on information about the inputs used in the manufacture of Boeing LCA and their sourcing outside the United States from several years ago, i.e. the 2011-2013 Reference Period or even beforehand.

²⁸⁰ European Union's response to Arbitrator question No. 95, para. 23. Foreshadowing this difficulty, the European Union submits that the Arbitrator should, therefore, limit itself to the locus of production activity of the "first tier suppliers" to Boeing LCA, i.e. components manufacturers whose goods and services are directly used by Boeing in the final assembly of its LCA, in determining the nationality of the inputs. (European Union's response to Arbitrator question No. 95, para. 22). (emphasis omitted) However, we find such a demarcation at the level of first tier suppliers to be arbitrary. Intermediate inputs to a Boeing LCA that are manufactured by a Member other than the United States could be processed from raw materials that are supplied by the United States. In such a scenario, based on the European Union's approach, the entire value added would be treated as coming from non-US inputs although it contains raw materials from the United States.

²⁸¹ Under the European Union's suggested approach, only well-coordinated WTO dispute settlement proceedings by various input-supplying Members along with the United States as the producer of the final good could result in countermeasures at the level that the United States is seeking in the present proceeding (i.e. a level that is based on the total value of the additional Boeing LCA that would have been sold or delivered).

²⁸² Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.14. That arbitrator further noted that such overlapping claims would give rise to the issue of double counting and should therefore not be allowed.

6.3.4.1 Summary of the United States' technical approach to valuing the adverse effects determined to exist

6.150. By way of background, section 6.3.4.1 describes the United States' technical approach to valuing the adverse effects determined to exist during the 2011-2013 Reference Period. The Arbitrator in a subsequent section examines the reasonableness of the United States' technical valuation.

6.151. The United States' technical approach consists of three steps.²⁸³ The first and second steps, respectively, compute the value of the two forms of adverse effects that were determined to exist in the compliance proceedings, i.e. lost sales and impedance.²⁸⁴ The last step annualizes the sum of the values of lost sales and impedance expressed in US dollar terms of a given year in the Reference Period, namely 2013.²⁸⁵

6.152. The average annual level of adverse effects determined to exist (*AEDTE*) for a given Reference Period expressed in US dollar terms of a given year *T* proposed by the United States can be summarized as follows²⁸⁶:

$$\begin{aligned} \text{Average } AEDTE_{\text{Reference Period}}^{\text{in year } T \text{ USD}} = & \left(\sum_{\substack{\text{order} \\ \text{year } t}} \text{LostSales}_{\text{order year } t}^{\text{in order year } t \text{ USD}} \times \frac{PPI_{\text{order year } t}}{PPI_{\text{order year } t}} \right. \\ & + \left. \sum_{\substack{\text{delivery} \\ \text{year } s}} \text{Impedance}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}} \times \frac{PPI_{\text{delivery year } s}}{PPI_{\text{delivery year } s}} \right) \quad (1) \\ & \times \frac{12}{\text{Months in Reference Period}} \end{aligned}$$

where *AEDTE*: average annual level of adverse effects determined to exist

T: base/reference year

t: order month/year in the Reference Period (i.e. December 2011, year 2012 or year 2013)

$\text{LostSales}_{\text{order year } t}^{\text{in order year } t \text{ USD}}$: lost sales value in order year *t* expressed in US dollar terms of order month/year *t*

$\text{Impedance}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}}$: impedance value in delivery month/year *s* expressed in US dollar terms of delivery month/year *s*

PPI_t : PPI for CA Manufacturing in order month/year *t*

Months in RP: number of months in the Reference Period (i.e. 25 months).

6.153. As shown in Equation (1), the United States proposes to first calculate the value of lost sales and then the value of impedance for the 2011-2013 Reference Period.²⁸⁷ In other words, the United States proposes to calculate the value of lost sales and impedance separately for December 2011 (expressed in US dollar terms of December 2011), the year 2012 (expressed in 2012 US dollar terms) and the year 2013 (expressed in 2013 US dollar terms). Each of these three lost sales and impedance values represents, respectively, the value of the additional LCA that Boeing would have sold (in the case of lost sales) or delivered (in the case of impedance) in the counterfactual in December 2011, the year 2012 or the year 2013:

$$\text{LostSales}_{\text{order year } t}^{\text{in order year } s \text{ USD}} = \sum_i \text{LostSale}_{\text{Airline } i, \text{order year } t}^{\text{in order year } t \text{ USD}} \quad (2)$$

²⁸³ Unless specified otherwise, this section describes the main methodology proposed by the United States to calculate lost sales and impedance. Alternative approaches proposed by the United States in response to the European Union's arguments are discussed in sections 6.3.4.3 and 6.3.4.4 below.

²⁸⁴ United States' methodology paper, paras. 32-53 and 82-89.

²⁸⁵ United States' methodology paper, paras. 90-100.

²⁸⁶ The symbol Σ in Equation (1) corresponds to the sum operator for each month/year *t* in the reference period: $\sum_{t=2011}^{2013} x_t = x_{2011} + x_{2012} + x_{2013}$.

²⁸⁷ United States' methodology paper, para. 30.

$$Impedance_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}} = \sum_k Impedance_{\text{Market } k, \text{delivery year } s}^{\text{in delivery year } s \text{ USD}} \quad (3)$$

where i : airline i whose order was lost to Airbus in the month/year t
 k : geographic market k in which Airbus aircraft were delivered in the month/year s .

6.154. The United States proposes to apply countermeasures on an annualized basis, and for this reason computes the average annual level of adverse effects determined to exist. However, before computing this annual average, the United States expresses the sum of lost sales and impedance values in US dollar terms of a same year by applying the ratio of the PPI for CA Manufacturing in the common base year T and the PPI for CA Manufacturing in the order month/year t or in the delivery month/year s . The United States expresses the level of adverse effects determined to exist in US dollar terms of the last year in the Reference Period, namely 2013 ($T=2013$).

6.155. For each step of the United States' approach, the European Union formulates several criticisms. These criticisms are reviewed below in sections 6.3.4.2, 6.3.4.3, and 6.3.4.4.

6.3.4.1.1 The United States' valuation of lost sales

6.156. According to the United States, the scope of the valuation of lost sales in this proceeding is determined by the findings regarding lost sales from the compliance proceedings. Five lost sales were identified in the compliance proceedings, involving three Airbus LCA models within the A350XWB and A380 model "families", namely the A350XWB-900 (Singapore Airways lost sale), the A350XWB-1000 (Cathay Pacific Airways and United Airlines lost sales), and the A380 (Emirates and Transaero Airlines lost sales).²⁸⁸

6.157. To value the lost sales in the counterfactual, the United States first identifies the Boeing models that compete most closely with the three Airbus LCA models involved in the lost sales. The United States identifies the closest competing Boeing models in the lost sales context as indicated in Table 1.²⁸⁹

Table 1: Airbus and closest competing Boeing models according to the United States²⁹⁰

Airbus model	Closest competing Boeing model
A350XWB-900	787-10
A350XWB-1000	777-300ER
A380	747-8I

6.158. The United States proceeds with specifying the number of orders that Boeing would have secured for the closest competing Boeing models in the counterfactual. In the context of the lost sales, the United States assumes that, absent the LA/MSF subsidies at issue, Boeing would have sold and delivered the same number of LCA as Airbus actually sold. Table 2 reproduces the counterfactual orders of Boeing LCA on which the United States bases its valuation. According to the United States, its proposed order numbers are consistent with the Appellate Body's findings on lost sales in the compliance proceedings.²⁹¹

²⁸⁸ United States' methodology paper, paras. 26-27.

²⁸⁹ United States' methodology paper, paras. 32-33.

²⁹⁰ United States' methodology paper, para. 33 (citing Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1308, 6.1359-6.1360, 6.1370, 6.1792, and 6.1410; and Airbus Presentation by John Leahy, COO Customers, Commercial update – Global Investor Forum, (Exhibit USA-2)).

²⁹¹ United States' methodology paper, para. 32.

Table 2: Counterfactual Boeing twin-aisle and VLA orders proposed by the United States

Product market	Lost sales campaign	Airbus model	Closest Boeing model	Order year	Number of counterfactually ordered aircraft
Twin-Aisle	Cathay Pacific Airways	A350XWB-1000	777-300ER	2012	10
Very Large Aircraft	Transaero Airlines	A380	747-8I	2012	4
Twin-Aisle	Singapore Airways	A350XWB-900	787-10	2013	30
Twin-Aisle	United Airlines	A350XWB-1000	777-300ER	2013	10
Very Large Aircraft	Emirates	A380	747-8I	2013	50

6.159. The United States proposes to value each lost sale in the year in which the corresponding order was lost, using only such information as would have been available to Boeing at the time that the order would have been won by Boeing. The United States defines the value of each lost sale as the discounted value, at the time that the order was lost, of the expected net delivery price of the counterfactual Boeing aircraft at a scheduled future delivery date.²⁹²

6.160. To determine the counterfactual pricing terms for each lost sale at issue, the United States uses the contractual pricing terms contained in a firm order for the closest competing Boeing model that the same airline actually placed, [[***]], within one or two years of the sale lost to Airbus. According to the United States, such Boeing comparator orders, [[***]], provide the best available indication of the net delivery prices that the customers involved in the lost sales would have paid for the closest competing Boeing model in the counterfactual. Each of these comparator orders, [[***]], specifies the aircraft's gross price as well as the price concessions and the escalation formula. The gross price is expressed in base-year US dollar terms. However, the base year cannot be a later year than the order year. The aircraft net price, also expressed in base-year US dollar terms, is the difference between the gross price and the price concessions (expressed in base-year US dollar terms).²⁹³

6.161. Since many years can pass between the time of order and the time of the deliveries, aircraft purchase contracts contain a [[***]] escalation formula. That formula determines the monthly escalation factor that adjusts, for a given (future) delivery date, the base-year prices for increases in labour and material costs resulting from inflation and other economic changes that are expected to have occurred by that delivery date. The [[***]] escalation formula agreed upon between Boeing and the respective airline is based on [[***]]. For each lost sales campaign at issue, the United States applies the escalation factors to transform the net delivery prices (expressed in base-year US dollar terms) into net delivery prices expressed in delivery-year US dollar terms. The United States proposes to use [[***]] escalation factors [[***]] reported in the comparator order [[***]] and the contractually agreed delivery schedule contained in Airbus' respective contract.²⁹⁴

6.162. According to the United States, the net delivery prices in delivery-year US dollar terms reflect the expected value of the aircraft that Boeing would have sold, but do not reflect the value of the delivered aircraft at the time that the sale was lost. Observing that "economic activity tomorrow is not as valuable as economic activity today", the United States proposes to apply a discount rate to determine the discounted value of the Boeing LCA at the time of the relevant lost sale had Boeing won the orders. The United States proposes the interest rate on United States ten-year treasury bonds (T-Bond rate) as the appropriate discount rate because it represents the interest rate on US sovereign debt and thus reveals the "price the United States has had to pay to transfer economic activity from the future to the present". Dividing the projected aircraft net delivery prices (expressed in delivery-year US dollar terms) by the discount factor provides the discounted value (sometimes

²⁹² United States' methodology paper, paras. 52-53.

²⁹³ United States' methodology paper, para. 46; and Boeing Declaration, (Exhibit USA-5 (BCI)).

²⁹⁴ United States' methodology paper, paras. 42-43; response to Arbitrator question No. 135, para. 158; Boeing Declaration, (Exhibit USA-5 (BCI)); Cathay Pacific 777-300ER Order Information, (Exhibit USA-12 (HSBI)); Transaero 747-8I Order Information (Exhibit USA-13 (HSBI)); Singapore Airlines 787-10 Order Information, (Exhibit USA-14 (HSBI)); United 777-300ER Order Information, (Exhibit USA-15 (HSBI)); and Emirates [[***]] Information, (Exhibit USA-16 (HSBI)).

referred to as the "present value") of scheduled future aircraft deliveries expressed in US dollar terms of the corresponding order year.²⁹⁵

6.3.4.1.2 The United States' valuation of impedance

6.163. Turning to the valuation of impedance, the United States contends that in this proceeding the scope of its valuation of impedance is determined by the impedance findings from the compliance proceedings, which involve Airbus A380 deliveries to six geographic markets (Australia, China, the European Union, Korea, Singapore and the United Arab Emirates).²⁹⁶

6.164. Having identified the Boeing 747-8I model as competing most closely with the Airbus A380 model, the United States specifies the number of additional 747-8I aircraft that would have been delivered to the six geographic markets in the counterfactual during the 2011-2013 Reference Period. The United States assumes that absent the LA/MSF subsidies at issue, Boeing would have delivered the same number of additional 747-8I aircraft to the six geographic markets during the 2011-2013 Reference Period as the number of A380 aircraft that Airbus actually delivered to the six geographic markets during the same time-period. The United States further assumes that these additional counterfactual deliveries would have occurred in the same month or year as each of those A380 aircraft deliveries. Table 3 reproduces the additional counterfactual deliveries of Boeing VLA on which the United States bases its valuation. According to the United States, its proposed counterfactual delivery numbers are consistent with the Appellate Body's findings on impedance in the compliance proceedings.²⁹⁷

Table 3: Counterfactual additional Boeing 747-8I deliveries proposed by the United States

Geographic market with impedance (Airlines involved)	Delivery date	Number of additional counterfactual Boeing 747-8I deliveries
Australia (Qantas Airways)	December 2011	1
China (China Southern Airlines)	December 2011	1
	2012	2
	2013	1
European Union (Air France; British Airways; Lufthansa)	2012	4
	2013	4
Korea (Korean Air)	2012	1
	2013	2
Singapore (Singapore Airlines)	2012	5
United Arab Emirates (Emirates)	December 2011	2
	2012	11
	2013	13

6.165. The United States computes the value of impedance for a given geographic market in a given month/year in the Reference Period by multiplying the global (worldwide) average per-aircraft net delivery price of 747-8I aircraft for the relevant month/year by the number of counterfactual deliveries of 747-8I aircraft in the corresponding month/year. According to the United States, these global average per-aircraft net delivery prices provide the best available indication of the net delivery

²⁹⁵ The discount factor for a given order- and delivery-year combination is equal to the term $(1 + DiscountRate)$ raised to the power of the number of years between the time of order and time of delivery. (United States' methodology paper, paras. 49 and 51).

²⁹⁶ United States' methodology paper, para. 28.

²⁹⁷ United States' methodology paper, para. 82.

prices that the customers that would have received additional 747-8I aircraft in the counterfactual would have paid.²⁹⁸

6.166. The United States computes the global average per-aircraft net delivery price of 747-8I aircraft for 2012 and 2013 by dividing the sum of all net delivery prices of actual worldwide deliveries of 747-8I aircraft that occurred in that year by the number of 747-8I aircraft delivered worldwide in that year. The United States takes the relevant information on these net delivery prices of 747-8I aircraft from [[***]]. In response to an argument by the European Union that the United States' calculated 2012 global average net delivery price per aircraft is artificially inflated by the inclusion of [[***]], the United States excluded prices of 747-8I deliveries to [[***]] that had been included in the United States' initial calculation.²⁹⁹

6.167. As concerns the 2011 delivery price, it must be noted that no 747-8I aircraft were in fact delivered in 2011, and therefore no actual 2011 per aircraft delivery prices of 747-8I aircraft exist. The United States therefore proposes to extrapolate a 747-8I per aircraft delivery price for 2011 by multiplying the average 2012-2013 ratio between the global average 747-8I per aircraft delivery price and the global average 747-8I per aircraft order price by the 2011 global average 747-8I per aircraft *order* price.³⁰⁰

6.3.4.1.3 Annualization of the average values of lost sales and impedance

6.168. The United States proposes to annualize the sum of the total values of lost sales and impedance calculated over the 25-month 2011-2013 Reference Period. Having separately computed the values of lost sales and impedance for December 2011 (expressed in December 2011 US dollar terms), the year 2012 (in 2012 US dollar terms) and the year 2013 (in 2013 US dollar terms), the United States proposes to express the values of lost sales and impedance that occurred in December 2011 and the year 2012 in 2013 US dollar terms. The United States proposes this to express the values of adverse effects found within the 25-month 2011-2013 Reference Period on a common monetary basis. The United States further proposes to apply the PPI for CA Manufacturing to the 2011 and 2012 values of lost sales and impedance to adjust them and obtain their 2013 adjusted values. The United States deems this PPI index to be the proper index to perform this adjustment because the PPI for CA Manufacturing measures the overall price movement at the aircraft producer level (i.e. Boeing). More specifically, the United States performs this adjustment by multiplying, respectively, the December 2011 and 2012 levels of adverse effects determined to exist by the 2013-to-December 2011 or the 2013-to-2012 PPI for CA Manufacturing ratio, as summarized in Table 4 below.³⁰¹

Table 4: Overview of the United States' annualization of lost sales and impedance

Reference period	Adverse effects determined to exist (in order-/delivery-year US dollar terms)	PPI for CA Manufacturing ratio	Adverse effects determined to exist (AEDTE) (in 2013 US dollar terms)	Annualization	Average annual adverse effects determined to exist (AEDTE) (in 2013 US dollar terms)
December 2011	$(LostSales + Impedance)$	$\times \frac{PPI_{2013}}{PPI_{Dec\ 2011}}$	$= AEDTE_{in\ Dec\ 2011}$		
2012	$(LostSales + Impedance)$	$\times \frac{PPI_{2013}}{PPI_{2012}}$	$= AEDTE_{in\ 2012}$		
2013	$(LostSales + Impedance)$	$\times 1$	$= AEDTE_{in\ 2013}$		
Total			$TotalAEDTE$	$\times \frac{12}{25}$	$= AverageAEDTE$

²⁹⁸ United States' methodology paper, para. 46.

²⁹⁹ United States' written Submission, paras. 244-254; response to Arbitrator question No. 61, para. 42; Boeing Declaration, (Exhibit USA-5 (BCI)); and Second Revised 747-8I Global Delivery Prices for 2012 and 2013 (revision to Exhibit USA-26 (HSBI)), (Exhibit USA-103 (HSBI)).

³⁰⁰ United States' methodology paper, para. 88.

³⁰¹ United States' methodology paper, paras. 90 and 94-96.

6.169. By placing all the estimated values of lost sales and impedance on a common 2013-US-dollar basis, these values can then directly be aggregated and annualized to obtain an average annual level of adverse effects for the 2011-2013 Reference Period expressed in 2013 US dollar terms that does not require BCI or HSBI protection.³⁰²

6.170. Finally, the Arbitrator notes that, using its three-step approach, the United States calculates the total annualized value of the adverse effects determined to exist, stated in 2013 US dollar terms, as approximately USD 10,130 million.³⁰³

6.3.4.2 Preliminary considerations

6.171. Section 6.3.4.2 addresses certain preliminary issues applicable to our ensuing valuation of both lost sales and impedance. First, it addresses certain general evidentiary issues. Second, it discusses the "closest competing Boeing models" that the United States identifies in its submissions. Third, it examines a request by the European Union that the Arbitrator determine product-market-specific countermeasures. Finally, it evaluates the European Union's request that the values of certain services be deducted from the prices of relevant Boeing LCA.

6.3.4.2.1 General evidentiary issues

6.172. In the ensuing parts of this Decision, and consistent with its mandate, the Arbitrator determines the values of the LCA orders that Boeing would have secured in the counterfactual had it won the lost sales and the LCA deliveries that Boeing would have made in the counterfactual had it not suffered impedance. As discussed in more detail in the following sections, these valuations involve a number of different determinations regarding the values of the Boeing LCA that would have been ordered and delivered in the case of lost sales and impedance, respectively. As such counterfactual orders and deliveries, of course, did not actually occur, we must estimate the values of these counterfactual orders and deliveries based on an appropriate methodology and the information submitted to us by the parties. Thus, at this point, we briefly describe the general principles that guide how we approach the parties' proposed methodologies and the information submitted by the parties.

6.173. Regarding the legal standard that governs our assessment of the assumptions underlying the parties' proposed methodologies, we refer to, and agree with, the arbitrator's remarks in *US – Tuna II (Mexico) (Article 22.6 – US)* that any such "assumptions should be reasonable, taking into account the circumstances of the dispute". We also find relevant the finding made in several arbitration proceedings that assumptions should be based on "credible, factual, and verifiable information".³⁰⁴ Furthermore, in keeping with our adjudicative role, we will conduct our assessment of the parties' arguments and the evidence on the record in an objective manner.

³⁰² The annualization is calculated by dividing the sum of lost sales and impedance by the total number of months in the reference period (i.e. 25 months) and multiplying it by the total number of months in a year (i.e. 12 months).

³⁰³ The United States in the course of this proceeding revised the proposed total annualized value of the adverse effects determined to exist on two occasions. Initially, the United States calculated an annualized value of adverse effects of approximately USD 10,560 million in 2013 US dollar terms, which reflected the use of Airbus delivery schedules estimated by Boeing and the inclusion of the so-called ["***"] in the calculation of the 2012 global average price for impedance. (United States' methodology paper, para. 97; and Aggregation of Adverse Effects Determined to Exist by Year, (Exhibit USA-22 (HSBI))). To minimize areas of disagreement with the European Union, the United States later recalculated the value of impedance by excluding the so-called ["***"] from its calculation of the 2012 global average price for impedance. The corresponding annualized value of the adverse effects determined to exist amounts to approximately USD 10,180 million in 2013 US dollar terms. (Revised Aggregation of Adverse Effects Determined to Exist by Year (revision to Exhibit USA-22 (HSBI)), (Exhibit USA-28 (HSBI))). Finally, the United States recalculated the value of lost sales by replacing the estimated Airbus delivery schedules with Airbus actual contracted delivery schedules submitted by the European Union. The corresponding annualized value of the adverse effects determined to exist amounts to approximately USD 10,130 million, which is the figure we reflect above. (Second Revised Aggregation of Adverse Effects Determined to Exist by Year. (revision to Exhibit USA-28 (HSBI)), (Exhibit USA-99 (HSBI))).

³⁰⁴ Decision by the Arbitrator, *US – Tuna II (Mexico) (Article 22.6 – US)*, para. 5.16 (fns omitted) (quoting Decisions by the Arbitrators, *US – COOL (Article 22.6 – United States)*, para. 4.5; *US – Gambling (Article 22.6 – US)*, para. 3.3; and *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.54). See also Decision by

6.174. We also note that, in general, negotiations on the sale of LCA are driven by a complex interplay of factors, including customer-specific and some unquantifiable ones.³⁰⁵ In the context of the present proceeding, we are therefore not just dealing with complex economic interactions between airline customers and LCA manufacturers. Our task is further complicated by the fact that we must estimate the value of counterfactual Boeing sales and deliveries, including the associated sales terms (number of aircraft, price, delivery schedule) that would have been specific to each negotiated contract. In the absence of direct, actual evidence, any such exercise by its very nature is beset by a degree of uncertainty and will thus result in a degree of approximation.³⁰⁶

6.175. In the light of the foregoing, we must seek to ensure that not just our methodological approach, but also our concrete quantitative estimation, is supported, wherever possible, by credible and verifiable information. To that end, we have undertaken all reasonably feasible efforts to request additional information from the parties to complete the record. Where we nevertheless ultimately did not have access to certain desired information (e.g. because it is not readily available), we drew appropriate inferences from the best available information on the record, provided that the best information that we had was itself credible and verifiable.³⁰⁷

6.176. In connection with the issue of available information, we note that the European Union raised certain due process concerns. In its comments on the response to an Arbitrator question by the United States posed after the meeting with the parties, the European Union asserted that the United States' failure to submit primary source evidence demonstrating the reliability of certain information used in the United States' valuation methodology violated the European Union's due process rights.³⁰⁸ In the next round of questions to the parties requiring written responses, the Arbitrator and the European Union both asked the United States to produce, *inter alia*, such primary source documentation. The United States provided the requested documents in its responses to the third round of questions to the parties submitted on 15 March 2019. As of that filing, therefore, the European Union was in possession of such primary source documents.³⁰⁹

6.177. The European Union submitted comments on the United States' submission of 15 March 2019 on 8 April 2019. In those comments, the European Union raised a new due process

the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.127 (indicating that "it is necessary to rely only on credible, verifiable information, and not on speculation" in calculating the level of nullification or impairment") (quoting Decision by the Arbitrator, *US – 1916 Act (EC) (Article 22.6 – US)*, para. 5.63).

³⁰⁵ See e.g. Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1185-6.1189, 6.1216-6.1223, and 6.1412; European Union's responses to Arbitrator question No. 60, para. 134, and No. 61, paras. 150-157 and 187; United States' written submission, paras. 195-196; responses to Arbitrator question No. 60, para. 23, No. 61, para. 32; and Boeing e-mail from [***] (13 Dec. 2018), (Exhibit USA-35 (BCI)).

³⁰⁶ The panel in *US – Anti-Dumping and Countervailing Duties (China)* took a similar view when it had to apply Article 14(b) of the SCM Agreement, and in particular the guideline that the investigating authority in calculating the benefit to a firm of an alleged subsidy should take into account "the amount the firm would pay on a comparable commercial loan which the firm could actually obtain on the market". It is worth setting out the relevant statement by the panel in full:

We note, first, the phrase "the amount the firm would pay on a comparable commercial loan which the firm could actually obtain on the market". In our view, the use of the conditional mode here, in conjunction with the reference to the individual borrower's situation, is an indication that where loans are concerned, the very individualized nature of borrowing ... often will limit an investigating authority's ability to identify a fully comparable existing commercial loan held by the investigated borrower to use as a benchmark for the investigated government loan, meaning that some degree of approximation will be inevitable.

(Panel Report, *US – Anti-Dumping and Countervailing Duties (China)*, para. 10.177).

³⁰⁷ See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 4.28 (stating that "in the absence of figures grounded on facts, the Arbitrators tried to use estimates which ... seemed reasonable on the basis of the information available"); and Decisions by the Arbitrator, *US – COOL (Article 22.6 – United States)*, para. 5.101 (stating that "if and where a Member has submitted the best available information, it might be appropriate for an arbitrator to decide to accept that information in that particular proceeding").

³⁰⁸ European Union's response to Arbitrator question No. 96, para. 37.

³⁰⁹ The European Union continues to argue that the United States' information is "incomplete, inconsistent, and non-verifiable" in important aspects. However, the European Union does not raise any due process objections in raising those specific arguments. (European Union's comments on the United States' responses to Arbitrator question No. 135, section B, paras. 356-367). (See paragraphs 6.312-6.318 below) (discussing these alleged deficiencies).

objection, i.e. that "the European Union's due process right to a meaningful opportunity to answer the case put to it by the United States" was compromised by the United States' filing of 15 March 2019.³¹⁰ The European Union offers the following points in support of this argument: (a) the submitted evidence was voluminous and complex, (b) the United States had "withheld" evidence that it could and should have submitted earlier in the proceeding, which would have afforded the European Union "multiple opportunities" to respond to it rather than just one opportunity, (c) the United States' belated submission of evidence and the European Union's limited opportunities to engage with it undermines the value of the debate between the parties and, relatedly, renders it impossible for the Arbitrator to make an "objective assessment" of the matter before it, and (d) the impact of the United States' belated submission was exacerbated by the fact that the European Union had to work on its submissions related to the fourth set of questions from the Arbitrator at the same time as it was working on its comments on the United States' evidentiary submissions in question.³¹¹

6.178. The Appellate Body has explained that "[a]s a general rule, due process requires that each party be afforded a meaningful opportunity to comment on the arguments and evidence adduced by the other party".³¹² Such an opportunity must be "meaningful in terms of that party's ability to defend itself adequately".³¹³ Thus, an inquiry into whether due process has been respected in a particular instance depends on a consideration of general and case-specific factors, which can include the conduct of the parties, the issue to which the relevant evidence relates and the circumstances surrounding its submission, and the discretion of the Arbitrator.³¹⁴

6.179. In assessing the European Union's due process objection, it is important to identify the evidence, the submission of which the European Union claims violated its due process rights. The European Union raises its due process concerns in the context of commenting on the United States' responses to four discrete questions, i.e. question Nos. 93, 115, 135, and 136.³¹⁵ We thus limit our analysis to the content of the United States' responses to question Nos. 93, 115, 135 and 136. For ease of reference, we refer to that content (both the content of the submission and the exhibits provided therewith) as the Challenged Information.

³¹⁰ The European Union raised such objections in its comments on the United States' responses to four different Arbitrator questions. (European Union's comments on the United States' responses to Arbitrator question Nos. 93, 115, 135, and 136).

³¹¹ The Arbitrator sent the fourth set of questions to the parties on 28 February 2019, with responses due 22 March 2019 and comments on the other parties' responses due 12 April 2019. (Communication to the parties of 1 March 2019).

³¹² Appellate Body Report, *Thailand – Cigarettes (Philippines)*, para. 150.

³¹³ Appellate Body Report, *US – Gambling*, para. 270. According to the Appellate Body, due process is also intrinsically connected to notions of fairness, impartiality and the rights of parties to be heard and to be afforded an adequate opportunity to pursue their claims, make out their defences, and establish the facts in the context of proceedings conducted in a balanced and orderly manner, according to established rules. (Appellate Body Report, *Thailand – Cigarettes (Philippines)*, para. 147).

³¹⁴ Appellate Body Report, *Thailand – Cigarettes (Philippines)*, para. 155.

³¹⁵ In one instance, the scope of the European Union's objection appears limited to the content of the United States' response to that question. (European Union's comments on the United States' response to Arbitrator question No. 136, paras. 403-406). In the other three, although the objections initially appear to pertain to the content of the United States' responses to those questions, they also either contain or cross-reference language that refers to the contents of the United States' submission as a whole. (European Union's comments on the United States' responses to Arbitrator question No. 93, paras. 2-3 ("More generally, the United States' *entire approach* to providing evidence has compromised, in an unacceptable manner, the European Union's due process right") (emphasis added) and fn 3 (referring to the European Union's comments on the United States' response to Arbitrator question No. 135, section A), No. 115, fn 257 (referring to the European Union's comments on the United States' response to Arbitrator question No. 135, section A), and No. 135, section A (referencing the entire volume of the United States' 15 March 2019 submission)).

We consider, however, that a close reading of this latter language indicates that it is simply context for understanding the European Union's more pointed objections to the specific content of the United States' response to these four questions. (European Union's comments on the United States' response to Arbitrator question No. 135, section A, paras. 351-355 (specifying that the European Union's due process objection concerns the "bulk" of the United States' evidentiary submissions, i.e. "order and [***] data", which would appear to encompass all exhibits submitted pursuant to Arbitrator question Nos. 93, 115, 135, and 136, less Survival Rate Calculation, (Exhibit USA-65 (HSBI)); and Boeing E-mail regarding Questions 136, 139-142, (Exhibit USA-101 (HSBI)), which we also include in our analysis)).

6.180. We next consider the conduct of the parties. The United States provided the Challenged Information in response to direct questions posed by the Arbitrator and the European Union. The United States' submission of 15 March 2019 was therefore consistent with the Working Procedures, and the European Union does not claim otherwise.³¹⁶ Further, we do not consider that the United States necessarily had to provide the Challenged Information earlier in the arbitration proceeding. This is so because the purpose of the four questions pursuant to which the Challenged Information was submitted was (a) to present an alternative cancellation rate that could be used to estimate the probability that certain orders made pursuant to the "lost sales" would be cancelled³¹⁷, (b) to obtain primary source documentation regarding a [[***]] to a customer that the European Union, but not the United States, had advocated using as a comparator order in the lost-sales context³¹⁸, (c) to obtain primary source documentation to confirm the accuracy of previously submitted non-primary source information by the United States regarding potential comparator orders in the lost sales and impedance contexts, (d) to obtain additional primary source documentation regarding the potential comparator orders mentioned in part (c) above that was requested by the European Union and/or Arbitrator, but that the United States had not used in its methodology previously³¹⁹, and (e) to obtain examples of how escalation factors were calculated using escalation formulae in certain potential comparator orders that the United States had previously offered in the lost-sales and impedance contexts.³²⁰

6.181. We also note that all numerical data that the United States used in its methodology had, before the receipt of the Challenged Information, been supported in the United States' methodology paper with evidentiary submissions of some kind and the United States did not rely on Challenged Information to raise new substantive technical issues before the Arbitrator.

6.182. We further note that the European Union had 24 days to comment on the Challenged Information. The European Union submitted 93 pages of written comments accompanied by one HSBI exhibit. In those comments, the European Union responds to each of the United States' responses to question Nos. 93, 115, 135, and 136. The European Union engaged with the Challenged Information and in doing so also proposed valuation "corrections". The European Union submitted no request for any extension of the deadline for commenting on the Challenged Information.³²¹ We

³¹⁶ The Working Procedures provide that "evidence necessary for purposes of rebuttal, or evidence necessary for answers to questions or comments on answers provided by the other party" can be submitted after the substantive meeting, which occurred in February 2019. (Working Procedures of the Arbitrator, Annex A-1, para. 5.1). We note that the United States filed its HSBI Version Appendix and HSBI exhibits associated with the 15 March 2019 submission on 18 March 2019, three days following the filing deadline. This is allowed under the BCI/HSBI Procedures, and the European Union did not object to it. We also note that "WTO dispute settlement proceedings do not involve any particular temporal sequence of proof. Both parties will adduce evidence in support of their own arguments or to rebut the arguments made by the other at various stages of a dispute, sometimes simultaneously, throughout the entirety of a proceeding". (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.50). We are mindful that adherence to Working Procedures is not necessarily dispositive of whether due process has been respected. (Appellate Body Report, *Thailand – Cigarettes (Philippines)*, para. 155).

³¹⁷ United States' response to Arbitrator question No. 115. The European Union argues that the United States should have provided this alternative in its response to Arbitrator question No. 73, which appeared in the second set of questions sent to the parties. (European Union's comments on the United States' response to Arbitrator question No. 115, para. 187). We note, however, that that question did not ask the United States to present an alternative methodology in this context, but to respond to the European Union's basic assertion that a discount rate should include a component to reflect the risk of cancellation. The United States did so, arguing that such a cancellation rate should not be used at all, but further asserted that certain flaws existed in the European Union's proposed methodology in this context. (United States' response to Arbitrator question No. 73).

³¹⁸ European Union's written submission, paras. 209-218; responses to Arbitrator question No. 28, para. 418, and No. 67, para. 233; and United States' response to Arbitrator question No. 93.

³¹⁹ United States' response to Arbitrator question No. 135; and responses to European Union's question Nos. 2-6.

³²⁰ United States' response to Arbitrator question No. 136. We note that this specific information was requested to clarify how a particular escalation factor was constructed that was used by the United States to compute a price for LCA involved in a particular lost sale.

³²¹ The Arbitrator extended other deadlines for questions and comments in response to parties' requests. (See United States' communication (28 Feb. 2019) (requesting extension of deadline for responses to questions from the Arbitrator); European Union's communication (28 Feb. 2019) (requesting extension of deadlines for responses to questions from the Arbitrator and for comments on responses); and Arbitrator's communication to the parties regarding parties' request for extension of deadline, (1 March 2019) (extending deadlines for responses to questions from the Arbitrator and for comments on responses)).

further note that the European Union itself requested much of the Challenged Information taking the form of primary source documentation³²², and we find it reasonable to believe that the European Union was aware of the kind of information that it would receive.³²³

6.183. We next address the evidence at issue and the circumstances surrounding its submission. The Challenged Information consists of the United States' answers to question Nos. 93, 115, 135, and 136, which, by and large, discussed information contained in the 27 exhibits accompanying these answers.³²⁴ The bulk of the exhibits consists of primary source information related to Boeing [[***]], orders, [[***]] or [[***]] that were discussed as possible comparator orders in the lost sales and impedance context. The 27 exhibits' volume was significant, totalling 1,875 pages, all of which was HSBI.³²⁵ As already noted, the primary source documentation regarding the [[***]], orders, [[***]] or [[***]] were offered to support previously submitted information, or was submitted in response to the European Union's and/or Arbitrator's request.³²⁶

6.184. In the light of the entirety of the foregoing considerations, we are unable to accept the European Union's claim that it was deprived of a meaningful opportunity to respond to the Challenged Information, or any information in the United States' submission of 15 March 2019, for that matter. In particular, we recall that the Challenged Information was submitted in accordance with the Working Procedures; was submitted in response to requests from the Arbitrator and the European Union in the form of written questions; the European Union had over three weeks to respond to the Challenged Information; and the European Union did not seek any extension of the deadline for responding to the Challenged Information.

6.3.4.2.2 Closest competing models

6.185. As noted above, the United States quantifies the value of "the adverse effects determined to exist" by calculating the value of the LCA that Boeing would have sold if Boeing had won the lost sales and had not suffered impedance.³²⁷ To carry out that calculation, the United States identifies the Boeing LCA models that in its view compete most closely with the Airbus LCA models that were at issue in the compliance findings concerning lost sales (i.e. the A350XWB-900 and -1000 models) and impedance (i.e. the A380 model). Table 5 below indicates the closest competing Boeing models identified by the United States.

Table 5: Closest competitors of Airbus models as identified by the United States³²⁸

Airbus model	Closest competing Boeing model
A350XWB-900	787-10
A350XWB-1000	777-300ER
A380	747-8I

³²² European Union's questions to the United States Nos. 1-7.

³²³ We note that the European Union itself has submitted primary source Airbus order documentation that is of similar complexity to the Boeing primary source order documentation that forms the bulk of the Challenged Information.

³²⁴ Question 93: Exhibit USA-59 (HSBI). Question 115: Exhibit USA-65 (HSBI). Question 135: Exhibits USA-68 (HSBI) through USA-71 (HSBI), Exhibits USA-73 (HSBI) through USA-81 (HSBI), Exhibit USA-87 (HSBI) and Exhibits USA-89 (HSBI) through USA-97 (HSBI). Question 136: Exhibit USA-85 (HSBI) and Exhibit USA-101 (HSBI).

³²⁵ This represented the majority of the total volume of exhibits that the United States submitted with its 15 March 2019 submission, i.e. 46 exhibits running over 2000 pages total, most of which was HSBI.

³²⁶ European Union's response to Arbitrator question No. 96, paras. 37-40; opening statement at the meeting of the Arbitrator, paras. 102-111; United States' responses to Arbitrator question Nos. 93, 115, 135, and 136; and responses to European Union's question Nos. 1-7. We note that there was significant overlap between the primary source information requested by the Arbitrator and that desired by the European Union. Indeed, as already noted, one of the main reasons why the Arbitrator requested such information were the earlier complaints by the European Union that such primary source documentation should be on the record. (Compare Arbitrator's third set of questions to the parties, section 4 ("Evidentiary Requests") (19 Feb. 2019) and European Union's questions to the United States Nos. 1-7).

³²⁷ United States' methodology paper, para. 31.

³²⁸ United States' methodology paper, para. 33.

6.186. The European Union does not dispute these pairings offered by the United States.

6.187. The Arbitrator notes that the United States submitted a presentation by John Leahy, COO Customers of Airbus comparing the Airbus A350XWB-900 and A350XWB-1000 models to the Boeing 787-10 and 777-300ER models, respectively, to highlight the operational and technical advantages that these Airbus models have over their corresponding Boeing counterparts.³²⁹ Additionally, the United States refers to articles in the media juxtaposing the capabilities of the Airbus A350XWB-900 model with that of Boeing's 787-10 model.³³⁰ We also note that the compliance panel and the Appellate Body found that, generally, the Airbus A350XWB family of aircraft (i.e. twin-aisle aircraft) and the Boeing 787 and 777 families of aircraft (i.e. twin-aisle aircraft) compete in the same twin-aisle product market, and that the Airbus A380 and Boeing 747-8I models compete in the VLA product market.³³¹ In the light of such evidence and findings, and the absence of disagreement between the parties in this respect, we see no basis to disagree with the United States' identification of the closest competing Boeing models above and adopt it for purposes of our own calculation.³³²

6.3.4.2.3 Product-market-specific countermeasures

6.188. The European Union submits that the Arbitrator "must calibrate and quantify a level of countermeasures that is commensurate with the adverse effects determined to exist *in each product market at issue*".³³³ According to the European Union, the text of Article 7.10 of the SCM Agreement supports its position because that provision requires the countermeasures to be "commensurate with the degree and nature of the adverse effects determined to exist". The European Union recalls in this respect that the compliance panel and Appellate Body found that adverse effects occurred in two distinct product markets, i.e. the twin-aisle LCA and VLA product markets, and thus in order for countermeasures to be "commensurate with the degree and nature" of those adverse effects, the Arbitrator in the European Union's view "should make separate findings for each product market".³³⁴ The European Union also argues that doing so would be consistent with the approach taken in previous arbitration decisions, and in particular the arbitrator's decision in *US – Washing Machines (Article 22.6 – US)*. Finally, the European Union states that the fact that it "has taken different steps to ensure compliance in each product market"³³⁵ supports its request in this context because, if the second compliance panel finds that the European Union has achieved compliance in one of the two relevant product markets, the amount of countermeasures "must be reduced accordingly to 'maintain [correspondence]' and ensure that countermeasures are 'temporary'".³³⁶

³²⁹ Airbus presentation by John Leahy, COO Customers, Commercial update – Global Investor Forum, slides 43-44 (12 Dec. 2013) (entitled, "A350-900 capability versus 787-10"), (Exhibit USA-2).

³³⁰ Emirates to choose between A350-900 and 787-10 next year, Murdo Morrison, FlightGlobal (Oct. 1, 2015), (Exhibit USA-3); and Wide Body Battle: Boeing 787-10 Or Airbus A350-900? Dhierin Bechai, Seeking Alpha (Dec. 19, 2014), (Exhibit USA-4).

³³¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.513 (citing Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1370); and Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1308, 6.1359-6.1360, 6.1370 (twin-aisle product market) and 6.1410 (VLA product market).

³³² We recognize that the pairings identified above are meant to identify the *closest* competing models, but not the *only* competing models. In this context, we recall first that a given model of LCA will not only compete with all other aircraft in its product market to some degree (e.g. the Boeing 777-300ER model might compete at times with the Airbus A330 model), but at times will compete against LCA in other product markets. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1416 (explaining that "important competitive relationships may also exist between pairings or combinations of aircraft *across* two, or even all three, of the product markets")) (emphasis original)

³³³ European Union's opening statement at the meeting of the Arbitrator, para. 80. (emphasis original) We note that the European Union, in other portions of its submissions, appears to indicate that the Arbitrator *need not* but *may, in its discretion*, provide separate amounts of countermeasures *vis-à-vis* each product market. (European Union's comments on the United States' response to Arbitrator question No. 102, para. 74 (arguing that "[t]he principal disagreement between the Parties concerns the question whether, in the circumstances of the present case, the Arbitration Panel should *exercise its discretion* and award separate amounts for each of the respective product markets")). (emphasis added)

³³⁴ European Union's opening statement at the meeting of the Arbitrator, para. 82.

³³⁵ European Union's comments on the United States' response to Arbitrator question No. 102, para. 81.

³³⁶ European Union's comments on the United States' response to Arbitrator question No. 102, para. 82 (quoting Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.5). (alteration original) See also European Union's opening statement at the meeting of the Arbitrator, section IV; comments on the United States' response to Arbitrator question No. 102 (citing Decisions by the Arbitrators, *US – COOL*

6.189. The United States argues that the Arbitrator "is not required to determine, separately for each product market, a level of countermeasures corresponding to the adverse effects determined to exist".³³⁷ The United States asserts that there is nothing in either the text or context of relevant portions of the SCM Agreement that contains such a requirement, and no previous arbitrator has found there to be such a requirement therein. However, the United States notes that, in any event, the United States "methodology makes it easy to discern what portion of the countermeasures corresponds to the adverse effects in each of the respective product markets".³³⁸

6.190. The Arbitrator notes that neither the SCM Agreement nor the DSU contains an express requirement to determine countermeasures or suspension of concessions *vis-à-vis* individual product markets in the manner that the European Union advocates. Our mandate in this proceeding is to determine a level of countermeasures that is "commensurate with the degree and nature of the adverse effects determined to exist". In our view, therefore, providing a single maximum level of Annual Suspension based on the "degree and nature of the adverse effects determined to exist" is consistent with our mandate. The fact that the compliance panel and Appellate Body found adverse effects to exist *vis-à-vis* two different product markets does not compel a different conclusion. Indeed, it is not clear to us why under the European Union's approach an arbitrator would necessarily have to determine individual levels of countermeasures for different product markets at issue rather than determine individual levels of countermeasures *vis-à-vis*, for instance, individual "lost sales".

6.191. We note the European Union's argument that prior dispute settlement practice supports its request in this context. Two of the four arbitration decisions that the European Union cites determined the level of Annual Suspension in a single amount, rather than provide different levels of Annual Suspension in respect of different product markets.³³⁹ Another arbitration decision articulated a formula that would prospectively control the maximum level of suspension of concessions. It also made no distinction among different product markets.³⁴⁰ In the final arbitration decision, i.e. *US – Washing Machines (Article 22.6 – US)*, the arbitrator determined separate amounts of suspension *vis-à-vis* different measures at issue, not specifically *vis-à-vis* different product markets.³⁴¹ We further find no persuasive content in other arbitration decisions that supports the European Union's position. We therefore consider that prior dispute settlement practice does not materially support the European Union's position.

6.192. Finally, we turn to the European Union's assertion that the Arbitrator should determine levels of countermeasures for different product markets because the second compliance panel may find that the European Union has achieved compliance in at least one of the two relevant product markets. According to the European Union, in such a scenario the amount of countermeasures "must be reduced accordingly to 'maintain [correspondence]' and ensure that countermeasures are 'temporary'".³⁴² In our view, it suffices to note in this respect that our descriptions regarding how

(Article 22.6 – United States), paras. 6.78-6.79; *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, para. 3.121; and *EC – Hormones (US) (Article 22.6 – EC)*, paras. 65 and 78).

³³⁷ United States' response to Arbitrator question No. 102, para. 23.

³³⁸ United States' response to Arbitrator question No. 102, para. 25. See also United States' response to Arbitrator question No. 102, para. 24.

³³⁹ Decisions by the Arbitrators, *US – COOL (Article 22.6 – United States)*, pp. 81-82; and *EC – Hormones (US) (Article 22.6 – EC)*, para. 83.

³⁴⁰ Decision by the Arbitrator, *US – Offset Act (Byrd Amendment) (EC) (Article 22.6 – US)*, section V.

³⁴¹ Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.5. The arbitrator in that decision issued its "overall award" in three parts: (a) one amount concerning an anti-dumping measure on large residential washers (LRWs) from Korea, (b) another amount concerning a countervailing duty measure on LRWs from Korea, and (c) then-unknown United States anti-dumping measures that may be placed on Korean imports (other than LRWs) in the future. (Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, section 5). The latter component was governed by a single formula that applied to all relevant Korean imports, irrespective of product-market distinctions. Indeed, the arbitrator's decision never mentions the term "product market". As concerns structuring countermeasures around individual measures at issue, we note that this would be impractical in this proceeding for two reasons. First, it is unclear what proportion of the value of the adverse effects determined to exist in the twin-aisle LCA product market is attributable to the "indirect effects" of A380 LA/MSF, rather than the "direct effects" of A350XWB LA/MSF. Second, there were multiple A380 LA/MSF measures, and multiple A350XWB LA/MSF measures, the individual impacts of which on either relevant product market are unclear as in the compliance proceeding causation was determined based on these measures' aggregated effects.

³⁴² European Union's comments on the United States' response to Arbitrator question No. 102, para. 82 (quoting Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.5). (alteration original)

we calculated the maximum level of Annual Suspension should provide the parties with sufficient guidance as to how that level was determined with respect to, *inter alia*, the product markets involved.

6.193. Consequently, even if it generally lay within our discretion to determine levels of countermeasures for different product markets, we do not find it appropriate to do so in the circumstances of this arbitration proceeding.

6.194. In conclusion, in this decision we will provide a single maximum level of Annual Suspension rather than determine a separate maximum level of Annual Suspension for each of the two product markets at issue.

6.3.4.2.4 Valuation of services

6.195. The European Union argues that service-related components of LCA prices, such as prices that are paid by the LCA customers for post-delivery services, should be excluded from the calculation of the value of the LCA that Boeing would have sold or delivered in the counterfactual. According to the European Union, this is because the adverse effects findings in these proceedings concerned solely the sale and delivery of LCA, i.e. goods, and did not concern any revenue that Boeing would have earned from providing services. The European Union therefore asserts that the prices for such post-delivery services, to the extent that they would be included in the value for LCA counterfactually sold or delivered by Boeing, should be excluded from the Arbitrator's valuation.³⁴³

6.196. The United States argues that it would not be appropriate to reduce any relevant counterfactual Boeing LCA prices to account for prices paid by the LCA customers for post-delivery services. First, the United States asserts that Boeing's post-delivery services [[***]]. Second, the United States asserts that, to the limited extent that Boeing has obligations under an [[***]].³⁴⁴

6.197. The Arbitrator notes that the record indicates that the provision of post-delivery services [[***]]. Very few sales contracts that the parties have submitted to assist us in valuing lost sales and impedance [[***]].³⁴⁵ We further note that when these services [[***]].³⁴⁶ Indeed, the European Union directs us to no examples of any sales contracts on the record in which prices for such services are explicitly identified in a meaningful manner, and, relatedly, the European Union has not provided any methodology describing how the value of any post-delivery services could be deducted from relevant aircraft prices. In the light of this, we perceive no convincing conceptual rationale for treating them as separate from the sale of the LCA.

6.198. For all these reasons, we do not consider it appropriate to deduct the value of any services from the value of the counterfactually ordered and delivered Boeing LCA.

6.3.4.3 Issues surrounding the valuation of lost sales

6.199. In section 6.3.4.3, we assess the approach proposed by the United States for determining the value of adverse effects in the form of lost sales. We also address the technical criticisms raised by the European Union against specific steps contained in the United States' approach to quantifying lost sales, and any alternatives to those specific steps that were proposed by the European Union. We recall that in the compliance proceedings the Appellate Body confirmed the panel's findings that the orders secured by Airbus in five specific sales campaigns in the twin-aisle and VLA markets that occurred in the post-implementation period (identified in Table 19 of the compliance panel report)

³⁴³ European Union's response to Arbitrator question No. 41, para. 456.

³⁴⁴ United States' responses to Arbitrator question No. 41, para. 93, and No. 120, para. 80 (citing United States' response to Arbitrator question No. 135 which contains excerpts from the pricing information in the comparator orders to show that Boeing's service-related obligations, where Boeing had [[***]]).

³⁴⁵ See [[***]], (Exhibit USA-38 (BCI)); [[***]], (Exhibit USA-39 (BCI)); [[***]], (Exhibit USA-40 (BCI)); [[***]], (Exhibit USA-41 (BCI)); Cathay Pacific March 2011 777-300ER Order Documentation, (Exhibit USA-69 (HSBI)); Singapore Airlines 2013 787-10 Order Documentation, (Exhibit USA-73 (HSBI)); United 2015 777-300ER Order Documentation, (Exhibit USA-74 (HSBI)); Lufthansa 2006 747-8I Order Documentation, (Exhibit USA-79 (HSBI)); and Lufthansa Escalation Documentation, (Exhibit USA-87 (HSBI)).

³⁴⁶ Cathay Pacific 2013 777-300ER Order Documentation, (Exhibit USA-68 (HSBI)), pp. 70 and 73.

"represent 'significant lost sales' to the US LCA industry ... within the meaning of Article 6.3(c) of the SCM Agreement".³⁴⁷ We reproduce Table 19 of the compliance panel report below as Table 6:

Table 6: United States' "lost sales" claims in the post-implementation period³⁴⁸

Product Market / Customer	LCA model	Number of orders 2012	Number of orders 2013
<i>Twin-Aisle LCA</i>			
Cathay Pacific Airways	A350XWB-1000	10	
Singapore Airways	A350XWB-900		30
United Airlines	A350XWB-1000		10
<i>Very Large Aircraft</i>			
Emirates	A380		50
Transaero Airlines	A380	4	

6.200. For the purpose of determining the value of lost sales, the United States calculates the counterfactual value of the lost sales identified in Table 19 of the compliance panel report, i.e. the value of the orders that Boeing would have won in the counterfactual. As discussed above, the United States defines the value of each lost sale at issue as the discounted value of scheduled deliveries of the closest competing Boeing model in the counterfactual. In particular, the United States calculates, for each lost sale i , the discounted value, at the time that the order was lost (i.e. order year t), of the net delivery price of each Boeing aircraft counterfactually delivered to airline i at a scheduled post-order date s .³⁴⁹

$$\text{LostSale}_{\text{Airline } i, \text{order year } t}^{\text{in order year } t \text{ USD}} = \sum_{\text{Delivery year } s} \frac{\text{BoeingNetPrice}_{\text{Airline } i, \text{delivery year } s}^{\text{in delivery year } s \text{ USD}}}{(1 + \text{DiscountRate}_{\text{order year } t})^{\text{delivery year } s - \text{order year } t}} \times \text{Number Of Aircraft}_{\text{Airline } i, \text{delivery year } s} \quad (4)$$

where s : scheduled delivery date(s) of airline i 's order for the closest competing Boeing model³⁵⁰

$\text{BoeingNetPrice}_{\text{Airline } i, \text{delivery year } s}^{\text{in delivery year } s \text{ USD}}$: net delivery price of airline i 's order for the closest competing Boeing model delivered in year s and expressed in US dollar terms of delivery year s

$\text{NumberOfAircraft}_{\text{Airline } i, \text{delivery year } s}$: number of counterfactual Boeing aircraft scheduled to be delivered to airline i in year s .

³⁴⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.31(a) (noting that "the orders identified in Table 19 of the Panel Report in the twin-aisle LCA market represent 'significant lost sales' to the US LCA industry") and 6.37(a) (noting that "the orders identified in Table 19 of the Panel Report in the VLA market represent 'significant lost sales' to the US LCA industry").

³⁴⁸ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, Table 19. We note that this Table refers to "Singapore Airways". The parties have used the names "Singapore Airlines" and "Singapore Airways" while referring to the same airline customer in this proceeding. We use the names "Singapore Airlines" and "Singapore Airways" interchangeably in this Decision.

³⁴⁹ More technically, the United States calculates, for each lost sale i , the sum of Boeing's net delivery prices of the aircraft counterfactually delivered to airline i at scheduled post-order dates (expressed in their respective delivery-year US dollar terms) divided by the term one plus the discount rate for order year t raised to the power of the number of years between the order year t and their respective delivery year s .

³⁵⁰ For simplicity, the United States assumes that, had Boeing won the lost sales, the counterfactual Boeing orders would all have occurred in July of a given year in the reference period (i.e. 2012 or 2013). Similarly, the United States assumes that any counterfactual delivery would have occurred, or would occur, in July in the expected delivery years (e.g. July 2020).

6.201. As shown in Equation (4), the calculation of lost sales proposed by the United States requires identifying the closest competing Boeing model (an aspect which we have already addressed in section 6.3.4.2.2 above); determining the counterfactual Boeing delivery schedules; selecting the relevant comparator orders to retrieve information on Boeing's counterfactual delivery prices; and choosing a discount rate. The United States proposes to apply a discount rate to express the value of Boeing aircraft, initially expressed in delivery-year US dollar terms, in terms of US dollar terms of the order month/year t in the reference period.

6.202. The parties contest six main areas in this context: (a) whether the Arbitrator should use facts post-dating the lost sales when valuing the lost sales, (b) whether to value the lost sales from the United States' or Boeing's perspective, (c) the additional number of what models of LCA Boeing would ultimately have sold and delivered in the counterfactual had Boeing won the lost sales, (d) the timing of Boeing's counterfactual deliveries, (e) the prices of Boeing's additional LCA sales, and (f) whether and how to perform a discounting exercise. This section addresses each in turn, after a brief discussion of the representativeness of the 2011-2013 Reference Period for purposes of valuing lost sales.

6.3.4.3.1 Representativeness of the 2011-2013 Reference Period

6.203. The Arbitrator notes that prior arbitrators have indicated that a reference period, in order to provide an appropriate basis on which to calculate a maximum level of countermeasures or suspension of concessions or other obligations, should be "representative".³⁵¹ We likewise consider an inquiry into the representativeness of the 2011-2013 Reference Period appropriate in the context of our task to place values on the lost sales and impedance that are "commensurate with the adverse effects determined to exist" and not punitive in nature. We observe at the outset that the representativeness issue that we are concerned with here is whether the 2011-2013 Reference Period can be considered representative of the short-term adverse effects (in the form of impedance and lost sales) resulting from the European Union's failure to comply by the end of the implementation period.³⁵²

6.204. Regarding the length of our Reference Period, we note that it is 25 months. Most arbitrators have used shorter reference periods.³⁵³ However, in other contexts, for instance in the area of quota administration under Article XIII:2(d) of the GATT 1994, a longer "previous representative period" has been applied.³⁵⁴ The DSU does not prescribe any fixed time-period that Article 22.6 arbitrators must use, nor are we aware of any time-period that will necessarily be appropriate in all circumstances. The main reason for using the 2011-2013 time-period as our Reference Period is that it was used during the compliance panel and appellate review proceedings and that in our assessment we rely on the adverse effects that these prior adjudicators determined to exist during the 2011-2013 Reference Period. Consistency therefore suggests that we not depart unnecessarily from the approach taken at the compliance proceeding stage in this dispute. As a general matter, though, we consider that we could in principle elect to use a subperiod of the 2011-2013 time-period on representativeness grounds, if we deemed it appropriate to do so.³⁵⁵

6.205. With these introductory observations in mind, we turn now to consider the representativeness of the 2011-2013 Reference Period for purposes of our quantification of adverse

³⁵¹ See Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*, paras. 4.18-4.19; *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.115-4.119; and *US – Offset Act (Byrd Amendment) (Brazil) (Article 22.6 – US)*, para. 3.150.

³⁵² For greater clarity, we note that this inquiry is different from the kind of inquiry that the European Union suggested we should undertake. To recall, it is the European Union's argument that the adverse effects determined to exist in the 2011-2013 Reference Period should be "representative" of adverse effects occurring at present and in the future. As further discussed in section 6.3.1 above, we are unable to accept this argument.

³⁵³ See footnote 161 above.

³⁵⁴ See, for instance, Panel Report, *EC – Bananas III (Article 21.5 – Ecuador)*, para. 6.39 (referring to GATT Panel Report, *EEC – Apples (Chile I)*, L/5047, para. 4.8, which noted that "in keeping with normal GATT practice, the Panel considered it appropriate to use as a 'representative period' a three-year period previous to 1979, the year in which the EC measures were in effect"). See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 4.45.

³⁵⁵ The United States indicated, along similar lines, that certain kinds of data could be adjusted in a reference period if they were found to be particularly anomalous. (See United States' responses to Arbitrator question Nos. 103 and 119).

effects in the form of lost sales. We note in this respect that the 2013 Emirates order for 50 A380 aircraft was, historically speaking, unusually large for an A380 order. However, as explained below in section 6.3.4.3.4.1, we decide to adjust the order numbers down by [[***]] to account for cancellations.³⁵⁶ Consequently, the remainder of the 2013 Emirates order amounts to [[***]] A380 aircraft. In our view, this is not significantly out of line with the volume of orders for A380 aircraft in other years.³⁵⁷ Similarly, we note that the 2013 order from Singapore Airlines for 30 A350XWB-900 aircraft was substantial. However, the data on record indicates that A350XWB-900 orders of that magnitude are unexceptional.³⁵⁸ We also recall that substantial order size variation over time is not uncommon in the LCA industry.³⁵⁹ We thus discern nothing about the orders that represent the lost sales, or about any data on record relating to those orders and market conditions in the 2011-2013 Reference Period, that could be objectively characterized as so anomalous as to render the 2011-2013 Reference Period unrepresentative of the short-term adverse effects (in the form of lost sales) resulting from the European Union's failure to comply by the end of the implementation period.

6.206. We therefore perceive no basis upon which to conclude that the 2011-2013 Reference Period is unrepresentative in the context of valuing lost sales and that we should therefore use only a temporal subset of the 2011-2013 Reference Period rather than the entire 25-month Reference Period.

6.3.4.3.2 Use of facts post-dating the lost sales

6.207. The European Union argues that, in valuing the five lost sales in question, it is legally permissible and proper for the Arbitrator to take into account facts that arose after the orders representing the lost sales were placed, including facts that arose after the 2011-2013 Reference Period, insofar as such facts bear on what monetary value Boeing would have ultimately realized from the lost sales had Boeing won them in the counterfactual. In the European Union's view, this includes facts concerning cancellations, conversions, or deferment of deliveries of the Airbus LCA ordered pursuant to the five lost sales, and the use of [[***]] versus [[***]] escalation rates in converting base-year prices to delivery-year prices.³⁶⁰

6.208. The United States argues that the Arbitrator, in valuing the five lost sales in question, may only take into account facts that were known to the parties (i.e. Boeing and the relevant LCA customers) at the time of the orders that would have been placed had Boeing won the lost sales in the counterfactual. According to the United States, this is so because the lost sales were identified on the basis of orders occurring in the 2011-2013 Reference Period, and any facts arising after the relevant orders would have been placed were not on the record before the compliance panel or Appellate Body in the compliance proceedings and formed no part of the findings related to lost sales. In the United States' view, if the Arbitrator were to consider such facts, it would be improperly altering what "the adverse effects determined to exist" are.³⁶¹

³⁵⁶ See paragraphs 6.227 and 6.229 below.

³⁵⁷ Updated Ascend Database, (Exhibit EU-79) (indicating, for example, orders for A380 aircraft in the volumes of 78 in 2001, 34 in 2003, and 32 in both 2007 and 2010).

³⁵⁸ Updated Ascend Database, (Exhibit EU-79) (indicating, for example, orders for A350XWB-900 aircraft in the volumes of 139 in 2007, 80 in 2008, 85 in 2010, and 57 in 2014). Our review of the evidence on record further indicates nothing exceptional about the orders in 2012 and 2013 by Cathay Pacific and United Airlines, respectively, of ten A350XWB-1000 aircraft each. Although in certain years on either temporal side of the 2011-2013 Reference Period there were no orders for A350XWB-1000 aircraft, in years in which there were orders (between 2007 and 2018) the volume of orders was generally in excess of ten aircraft per year.

³⁵⁹ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1719 (explaining that LCA "orders tend to be very large and sporadic").

³⁶⁰ European Union's written submission, paras. 163-164, 182-195, 227, and 255-260; responses to Arbitrator question No. 16, para. 323, No. 28, para. 421, No. 40, para. 450, No. 60(c), paras. 146-148, No. 80, para. 285, No. 109, paras. 206-211, No. 110, paras. 212-224, No. 147, paras. 304-308, and No. 167, paras. 1-25; comments on the United States' response to Arbitrator question No. 135, para. 380-383; and opening statement at the meeting of the Arbitrator, paras. 86-91. For more detailed explanations of why and how such facts may be taken into account, see sections 6.3.4.3.4.1, 6.3.4.3.4.2, 6.3.4.3.4.4, 6.3.4.3.5.2 and 6.3.4.3.6.2 below.

³⁶¹ United States' written submission, paras. 138-149, 158, 185, and 189; and responses to Arbitrator question No. 40, para. 85, No. 43, paras. 95-100, and No. 58, paras. 14-16.

6.209. The Arbitrator begins its analysis with the United States' broad contention that it would be improper to value the lost sales using facts that were not on the record of the compliance proceedings. We discern no categorical legal bar to considering facts that were not on the record in a previously conducted proceeding in this dispute. The SCM Agreement and DSU are silent in this regard. Further, we note that because arbitrations generally involve valuation exercises that were not the focus of previous original or compliance proceedings, the factual information put before arbitrators not infrequently differs significantly from the factual information that forms part of the records of previous original or compliance proceedings.

6.210. The thrust of the United States' argument appears to be narrower, however. That is, in the United States' view, if we used certain facts (assumed to have arisen in the counterfactual) that would only have arisen in the counterfactual after the orders representing the lost sales occurred (which, in large part occurred after the end of the 2011-2013 Reference Period), we would be revising the findings of the compliance panel and Appellate Body. In other words, the United States considers the *value* of the orders representing the lost sales to have been set, for purposes of this proceeding, at the time that the lost sales were determined to exist in the compliance proceedings. We agree that we must place a value on "the adverse effects determined to exist" in the 2011-2013 Reference Period, rather than alter what "the adverse effects determined to exist" are.³⁶² We thus briefly review how the five relevant lost sales found to exist during the 2011-2013 Reference Period were determined to be "significant ... lost sales" within the meaning of Article 6.3(c) of the SCM Agreement to ensure that any approach that we take does not invalidate those findings.

6.211. As already discussed in section 6.3.3.2.1 above, and in accordance with the relevant language of Article 6.3(c), the five relevant lost sales were determined to be such based on LCA order data, and were determined to be "lost" because in the absence of relevant LA/MSF subsidies, the United States LCA industry would have won the orders.³⁶³ These lost sales were deemed "significant" in view of a combination of the following factors: (a) strategic importance, (b) learning-curve effects (i.e. the beneficial learning effects that would accrue from producing the ordered LCA), (c) incumbency (i.e. gaining or retaining the particular customer), and (d) the number of aircraft and monetary amounts involved in the sales.³⁶⁴

6.212. The adopted findings that the five lost sales were "significant" were made on the basis of facts on the record before the compliance panel, i.e. based on conditions present in the 2011-2013 Reference Period. However, at least the latter three of these factors upon which the findings of "significance" were based, identified in the preceding paragraph³⁶⁵, appear dependent, at least in significant part, on *expectations* regarding the *future* benefits expected to accrue to the LCA producer who won the orders. Indeed, relevant learning effects will mainly arise during the production of LCA, i.e. an activity occurring generally years after a relevant order.³⁶⁶ Incumbency benefits would only appear relevant if the customer itself remains solvent and present in the marketplace after the order is placed (e.g. the customer does not go bankrupt and cease business). Further, regarding monetary amounts, because only *[[***]]* payment is made by a customer upon order in the form of a deposit, with *[[***]]* made upon delivery³⁶⁷, *[[***]]* the money realized from an LCA order will depend on the order resulting in a delivery (i.e. that the order is not cancelled). We further note that the original

³⁶² It will be recalled that, earlier in this Decision, we decided to use an order-centric approach to valuing lost sales. (See section 6.3.3.2.1 above).

³⁶³ See paragraph 6.100 above.

³⁶⁴ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1798 (citing Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1845).

³⁶⁵ We understand the point regarding "strategic importance" as mainly pertaining to instances when a major LCA customer orders its LCA from a particular producer, and/or when a customer switches from buying LCA from one producer to the other. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1781; Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, para. 1212; Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1845; and European Union's response to Arbitrator question No. 61).

³⁶⁶ Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1214 (explaining that "[l]earning effects ... result primarily from a more experienced workforce, and imply that per unit production costs fall as output accumulates over time") and 6.1806 (explaining that "deliveries of new LCA will lag their order date by typically *at least* three years, and usually many more years in respect of *newly launched* aircraft") (emphasis original); and *EC and certain member States – Large Civil Aircraft*, paras. 7.1717 and 7.1726-7.1727 (describing learning effects and also "economies of scale" resulting from obtaining LCA orders).

³⁶⁷ See paragraph 6.236 below.

panel described how the occurrence of post-order developments could easily influence the degree of benefits – monetary or otherwise – that an LCA producer would ultimately realize from a given order.³⁶⁸ Thus, we consider that the findings that the five lost sales were "significant" were, in large part, based on expectations regarding the benefits that would arise for Boeing had Boeing won them in the counterfactual, and not the notion that such benefits would accrue immediately upon order.

6.213. In the light of these elements, we adopt an approach that is in conformity with the findings of the compliance panel that (a) Boeing would have won the orders representing the lost sales in the counterfactual, and (b) at the time of those counterfactual orders, "significant" benefits for Boeing would have arisen immediately upon order and/or that Boeing would have reasonably expected "significant" benefits to arise from such orders in the future. Our assessment accordingly takes careful account of these points.

6.214. We further recall that it is our mandate under Article 7.10 of the SCM Agreement to determine countermeasures that are "commensurate with the adverse effects determined to exist", i.e. the value of the identified lost sales and instances of impedance. Especially in the context of assessing the value of lost sales, the value ultimately realized from the counterfactual orders would depend in large part on how the terms of the orders would have played out after they were placed (e.g. due to cancellation, conversion, delivery delays, and/or how [[***]] in fact play out over time). Thus, if in the context of this proceeding there now is evidence on the record indicating that a particular order that Boeing would have secured in the counterfactual would have been cancelled after the 2011-2013 Reference Period in the counterfactual, whereas such evidence was not yet available in the 2011-2013 Reference Period, we consider it appropriate to take such evidence into consideration and adjust the value of that order downwards. In our view, this would not invalidate the findings in the compliance proceeding involving points (a) and (b) described in the paragraph immediately above. Indeed, if we did not do so, we would be granting the United States countermeasures including a monetary value that Boeing would not have realized in the counterfactual. In our view, an approach that would result in the United States being granted countermeasures in response to (some quantum of) determined adverse effects that it would not have suffered in the counterfactual would not be in keeping with Article 7.10.³⁶⁹ Also, as we have observed above³⁷⁰, although the United States may be authorized to take countermeasures "commensurate with the adverse effects determined to exist", the legal standard of "commensurateness" does not permit countermeasures that are punitive.

6.215. Finally, we emphasize that, insofar as we take into account in our assessment any particular evidence that was not available during the 2011-2013 Reference Period, we do so in order to place as accurate a value as reasonably possible on the orders that represent the lost sales that occurred in the 2011-2013 Reference Period, and not to alter adverse effects already established in the compliance proceedings or to establish any additional adverse effects. Instead, in our assessment we take into account evidence, including post-Reference Period evidence, only insofar as it sheds light on how we should quantify the adverse effects determined to exist in the 2011-2013 Reference Period.

6.3.4.3.3 United States' perspective versus Boeing's perspective

6.216. The United States argues that the discounting exercise that the United States uses in its valuation of lost sales is premised on the time value of money for the United States, i.e. the value of lost sales for the United States if that value had accrued to the United States in the year of order instead of the year of delivery. The United States argues that this is the appropriate way to conceptualize the discounting exercise (i.e. from the perspective of the United States government) because Article 5 of the SCM Agreement describes adverse effects as occurring *vis-à-vis* the "interests of another Member", not *vis-à-vis* a private company like Boeing. Therefore, for the

³⁶⁸ Panel Report, *EC and certain member States – Large Civil Aircraft*, paras. 7.1724 and 7.2178.

³⁶⁹ See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 3.34 (indicating that "[i]t would be quite inappropriate for the Arbitrators to award the European Communities benefits which it is *not actually losing* as a result of the continued" non-compliance of the United States). (emphasis added)

³⁷⁰ See section 5 above (noting that countermeasures should not be "punitive").

purpose of valuing the level of countermeasures that the United States may be authorized to take, the discounting exercise must be performed from the perspective of the United States.³⁷¹

6.217. The European Union argues that the discounting exercise is premised on the time value of money for Boeing, i.e. the value of lost sales for Boeing if that value had accrued to Boeing in the year of order instead of the year of delivery. In the European Union's view, this is so because the value of these private LCA sales contracts is what is at issue. According to the European Union, they were concluded by Boeing, and Boeing makes investments and takes risks pursuant to these contracts. The European Union indicates that the purpose of a discount rate is to capture the risks borne by the contracting party making the investment, not some third party who is neither a party to such a contract nor making investments or taking risks *vis-à-vis* the relevant sales transactions.³⁷²

6.218. The Arbitrator notes at the outset that although the parties' disagreement arises more specifically in the context of the discounting exercise that forms just one step of the United States' lost sales valuation methodology, the parties' disagreement in this context appears to have potentially broader implications regarding how we conduct our valuation of lost sales, and we therefore discuss this issue here.

6.219. The United States predicates its argument in this context on the fact that, in the language of the chapeau of Article 5 of the SCM Agreement, the "[European Union] cause[d] ... adverse effects to the interests of [the United States]" rather than to Boeing. This is true. Yet, Boeing is a United States LCA manufacturer. Thus, viewing the situation through the lens of WTO rules, it is clear to us that when Boeing suffers harm, so does the United States.³⁷³ Any benefit that the United States as a WTO Member would have realized in the absence of adverse effects caused by the European Union would have accrued to it via the enhanced sales that Boeing would have realized.³⁷⁴ Thus, we see no force in the United States' argument based on Article 5 that "the degree and nature of the adverse effects determined to exist" should be determined from the perspective of the United States government, rather than Boeing.

6.220. Accordingly, we consider that the European Union in this dispute caused adverse effects to the interests of the United States through the economic impact of relevant LA/MSF subsidies on Boeing's LCA orders and deliveries. In this proceeding, for discounting and other quantification purposes, we therefore value the adverse effects determined to exist from Boeing's perspective. As explained, by proceeding in this way, we reliably assess the adverse effects sustained by the United States.

6.3.4.3.4 Number and models of aircraft sold and delivered in the counterfactual

6.221. As discussed in section 6.3.4.1.1, the United States assumes that, absent A380 and A350XWB LA/MSF, and with respect to each of the five lost sales at issue, each of the five relevant customers would have ordered from Boeing a number of the closest competing Boeing model that is equal to the number of Airbus LCA that each airline actually ordered.³⁷⁵ According to the United States, this assumption is consistent with the adopted findings in the compliance proceedings. The European Union did not specifically address the United States' assumption.³⁷⁶ We agree with this assumption, because the compliance panel and Appellate Body both found that the lost orders

³⁷¹ United States' methodology paper, paras. 49-51; written submission, paras. 229-230; and responses to Arbitrator question No. 37, No. 69, para. 46, No. 73 and No. 175, para. 16.

³⁷² European Union's written submission, paras. 265, 269 and 275; responses to Arbitrator question No. 78(c), paras. 266-270, No. 111, para. 231; and comments on the United States' responses to Arbitrator question No. 111, paras. 141-146, No. 175, para. 26.

³⁷³ See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 3.19 (noting that "there can be no question that the benefits which are denied to the European Communities include the benefits which are denied to EC right holders").

³⁷⁴ See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, para. 3.48 (noting that "the benefits which the *European Communities* could expect to realize are the payments which US CMOs would make to *EC right holders*"). (emphasis added)

³⁷⁵ United States' methodology paper, para. 32.

³⁷⁶ However, the European Union does contest certain aspects of the counterfactual that would have arisen after the initial orders were placed.

themselves (i.e. the number of LCA that Airbus sold as part of each of the five lost sales) "represented" lost sales to the United States' LCA industry.³⁷⁷

6.222. The United States also assumes that, in the counterfactual, Boeing would have delivered all the LCA that the five relevant customers would have ordered. The European Union contests certain aspects of this assumption. These aspects relate to (a) actual cancellations of some lost sales, (b) the risk of future cancellations of counterfactually ordered aircraft, and (c) actual conversions of some lost sales to a different Airbus model. We address each in turn below.

6.3.4.3.4.1 Failure to take actual cancellations into account

6.223. The European Union argues that the Arbitrator should not include in the calculation of the maximum level of countermeasures the full value of Boeing LCA orders that Boeing would have secured had Boeing won the lost sales because, according to the European Union, some of those orders would have been subsequently cancelled in the counterfactual. In the European Union's view, this is so because Transaero cancelled all four of the A380 aircraft that it ordered in the 2012 lost sale, and Emirates cancelled [[***]] of the A380 aircraft that it ordered in the 2013 lost sale. In the European Union's view, if Boeing had won these lost sales, the customers would have cancelled these orders in the counterfactual as well. Thus, according to the European Union, in determining a level of countermeasures, the Arbitrator can consider, at most, the value of the deposits and pre-delivery payments (PDPs) that Boeing would have received in connection with those cancelled deliveries.³⁷⁸

6.224. The United States, as already noted in section 6.3.4.3.2, contends that the Arbitrator cannot consider facts, including the cancellations of orders for Airbus LCA that represented lost sales to Boeing, that occurred after the orders representing the lost sales were placed, as such consideration would be inconsistent with the findings of the panel and Appellate Body in the compliance proceedings. Thus, in the United States' view, the Arbitrator should assume that all orders that Boeing would have secured had it won the lost sales would have been delivered in the counterfactual.³⁷⁹

6.225. The Arbitrator considers that, in the counterfactual, the relevance of actual cancellations of Airbus orders depends on whether an actual cancellation of an Airbus order was solely the result of the airline's decision and independent of Airbus' will and the characteristics of its aircraft (such that any cancellation of Airbus orders would also have led the same airline to cancel orders for Boeing LCA in the counterfactual). If so, such cancellations are, in our view, exogenous events to any aircraft manufacturer that would have occurred in any counterfactual, including the one proposed by the United States. The United States failed to provide a valid rationale as to why Boeing would still have made certain counterfactual deliveries where no actual deliveries occurred in reality because of specific airlines' decisions and actions. We note that information on such actual cancellations by definition only becomes available after the airline has placed its order.

³⁷⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.31(a) (noting that "the orders identified in Table 19 of the Panel Report in the twin-aisle LCA market represent 'significant lost sales' to the US LCA industry") and 6.37(a) (noting that "the orders identified in Table 19 of the Panel Report in the VLA market represent 'significant lost sales' to the US LCA industry"); and Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1798 (noting that all of the orders identified in Table 19 of that report represent "significant" "lost sales" to the United States LCA industry and, therefore, that the challenged LA/MSF subsidies continue to be a "genuine and substantial" cause of serious prejudice to the United States within the meaning of Article 6.3(c) of the SCM Agreement). We note that the relevant part of Table 19 of the compliance panel report are reproduced as Table 6 further above (containing the "Number of orders" columns). Moreover, bearing in mind the substitutability of the closest competing Boeing and Airbus models, and the demonstrated customer demand for the specified number of aircraft involved in the lost sales, we discern no argumentation or evidence on the record indicating that the number of Boeing LCA that would have been ordered in the counterfactual would have differed from the number of orders involved in the lost sales in reality.

³⁷⁸ European Union's written submission, paras. 163, 226-228; responses to Arbitrator question No. 43, No. 54, para. 17, and No. 147, paras. 287 and 306; and opening statement at the meeting of the Arbitrator, paras. 67 and 86-91.

³⁷⁹ United States' written submission, para. 138; response to European Union's question No. 1, paras. 241-242; and comments on the European Union's response to Arbitrator question No. 147, para. 245.

6.226. Accordingly, given our decision to take into account up-to-date information insofar as it sheds light on how we should quantify the adverse effects determined to exist in the 2011-2013 Reference Period, we remove the deliveries to Transaero Airlines from any counterfactual delivery schedule used to quantify adverse effects. The evidence on the record indicates that in 2015 Transaero Airlines went bankrupt. This is an airline-specific event not attributable to Airbus that would likewise have occurred, along with the order cancellation, with Boeing in the counterfactual.

6.227. Similarly, the evidence on the record suggests that the decision by Emirates in 2019 to cancel [[***]] outstanding A380 aircraft stemmed from Emirates' business strategy regarding the VLA market generally and was not specific to Airbus VLA. More specifically, we note that Emirates was faced with external pressures, such as an increase in fuel prices; seasonality of demand in air travel; and ongoing macroeconomic pressures, including global geopolitical tensions and volatile currency markets. In combination, these pressures would reduce the profitability of, and the business case for owning, a four-engine VLA that is relatively less fuel efficient and less versatile in comparison to a two-engine twin-aisle LCA.³⁸⁰ Furthermore, the Emirates Group's Annual Report 2018-19 refers to the high quality of the A380 programme, which suggests to us that Emirates' decision to cancel some of the A380 orders does not stem from Emirates' dissatisfaction with the A380 aircraft, but was rooted in the external pressures highlighted above.³⁸¹

6.228. The evidence on the record also shows that Boeing currently has [[***]] orders outstanding for airline or leasing company customers [[***]] orders outstanding for [[***]].³⁸² The United States does not explain why, particularly in the light of the weak general demand for 747-8I aircraft, Emirates would have made a different decision in the counterfactual regarding the partial cancellation of its VLA order had it ordered Boeing VLA. Nor does the United States address how Boeing would have prevented such a cancellation.

6.229. Based on the above, we are of the view that Emirates' decision to cancel a portion of its orders for A380 aircraft was part of a broader trend in certain airlines' business strategies involving a move away from VLA towards twin-aisle LCA, as demonstrated by the weak observed airline demand for VLA (except for freighters) that has resulted in a very limited number of orders for A380 and 747-8I aircraft.³⁸³ We therefore find that Emirates' decision to partially cancel its VLA order was independent of Airbus' will and not specific to Airbus VLA. We therefore remove the cancelled [[***]] outstanding deliveries of A380 aircraft to Emirates from any counterfactual delivery schedule that we use to value the relevant lost sale.

6.3.4.3.4.2 Failure to take potential future cancellations into account

6.230. The European Union argues that the risk that a specific LCA order may ultimately not result in an actual delivery due to a cancellation of the order should also be factored into the calculation of the value of lost sales. The European Union contends that as soon as an LCA order is concluded, Boeing faces a positive risk of future contractual default by its customer (as the episode of Transaero Airlines' bankruptcy illustrates) and will want to be compensated for such potential revenue losses in the future. According to the European Union, and as discussed in section 6.3.4.3.6.4, this inherent default risk in connection with future deliveries of LCA is one of the three components that has to be reflected in the discount rate. In the absence of information on Boeing's comparator order- or customer-specific default risks, the European Union proposes to use Boeing's average cancellation rate based on historical cancellation rates (measured as the difference between gross orders and

³⁸⁰ The Emirates Group Annual Report, 2018-19, (Exhibit EU-145); and Andreas Spaeth, "Emirates to buy Rolls Royce Powered A380s Says Sir Tim Clark", Airline Ratings, 2 November 2018, (Exhibit EU-146). The European Union asserts that these features (relatively less fuel efficiency and less versatility) of Airbus' VLA, which make it commercially less attractive for Emirates to own and operate VLA when faced with these external pressures, apply equally to Boeing's VLA. In other words, the European Union argues that the 747-8I aircraft is also relatively less fuel efficient than a twin-aisle LCA and similarly unsuited for short-haul and regional point-to-point air travel as the A380 aircraft. (European Union's response to Arbitrator question No. 167, para. 22). The United States has neither refuted this argument, nor is there any evidence on the record to show that the features of Airbus' VLA that now make it unattractive to Emirates are unique to Airbus' VLA and not shared by Boeing's VLA.

³⁸¹ 2019 Emirates Annual Report, (Exhibit EU-145), p. 19; and Arabian Travel Market interview, (Exhibit EU-152).

³⁸² United States' response to Arbitrator question No. 171, para. 5.

³⁸³ Updated Ascend Database, (Exhibit EU-79).

net orders, divided by gross orders) across all LCA sales made by Boeing for the period 2008 to 2017 as a proxy for Boeing's risk of cancellation.³⁸⁴

6.231. In response, the United States contends that adjusting the value of the lost sales downwards to account for any risk of potential cancellation of the orders that Boeing would have secured had Boeing won the lost sales would be contrary to the findings of the panel and Appellate Body in the compliance proceedings. According to the United States, this is so because the chance that such orders might be cancelled in the counterfactual played no role in the findings on lost sales in the compliance proceedings.³⁸⁵

6.232. The United States nevertheless argues that if the Arbitrator were to account for the probability that an order might be cancelled before its scheduled delivery in the counterfactual, it should, for each counterfactual aircraft delivery, multiply its discounted net present delivery value by an annual "survival rate" in order to obtain a sort of "expected value"³⁸⁶:

$$AdjustedLostSale_{Airline\ i, order\ year\ t}^{in\ order\ year\ t\ USD} = \sum_{Delivery\ year\ s} \frac{BoeingNetPrice_{Airline\ i, delivery\ year\ s}^{in\ delivery\ year\ s\ USD}}{(1 + DiscountRate_{order\ year\ t})^{delivery\ year\ s - order\ year\ t}} \times NumberOfAircraft_{Airline\ i, delivery\ year\ s} \times SurvivalRate_{order\ year\ t, delivery\ year\ s} \quad (5)$$

6.233. According to the United States, the survival rate corresponds to the inverse of the probability that an expected delivery in Boeing's backlog would be cancelled in any given year. The United States defines the inverse of the probability that an aircraft ordered in a given year is cancelled the following year as one minus the annual cancellation rate in that following year. For each combination of order- and delivery-year, the United States calculates the survival rate of an aircraft ordered in year t and expected to be delivered in year s as the product of each annual probability that an aircraft was not cancelled between the order year t and the year preceding the delivery year s (i.e. $s - 1$):³⁸⁷

$$SurvivalRate_{order\ year\ t, delivery\ year\ s} = \prod_{r=year\ t}^{Delivery\ year\ s-1} ProbabilityNotBeingCancelled_r \quad (6)$$

6.234. The United States proposes to use Boeing's historical annual cancellation rate for all its LCA sales, which it defines as the ratio between the number of cancellations in a given year and the sum of backlog at the beginning of the year and gross orders in that year minus conversions and deliveries. For any counterfactual deliveries scheduled after 2018, the United States proposes to calculate Boeing's annual cancellation rate for the year 2018 and onwards as Boeing's average annual cancellation rate for all its LCA sales between 2008 and 2017.

6.235. According to the European Union, notwithstanding certain disagreements specific to the calculation methodology that the United States presented, the United States' approach to calculating the cancellation rates can easily be reconciled with that of the European Union. In the European Union's view, the Arbitrator may either consider contractual default risk rates as part of

³⁸⁴ European Union's written submission, para. 277; and response to Arbitrator question No. 29, paras. 429-432.

³⁸⁵ United States' response to Arbitrator question No. 126, paras. 118-120.

³⁸⁶ United States' response to Arbitrator question No. 115, paras. 49-50; and Survival Rate Calculation, (Exhibit USA-65 (HSBI)). The United States notes that this approach "would not account for PDPs paid prior to cancellation". (United States' response to Arbitrator question No. 115, para. 50). However, as noted in section 6.3.4.3.4.3, [[***]] in the light of the evidence on the record.

³⁸⁷ The symbol Π in Equation (6) corresponds to the product operator for each year between the order year t and the year preceding the delivery year s : $\prod_{t=2012}^{2015} x_t = x_{2012} \times x_{2013} \times x_{2014} \times x_{2015}$.

the discount rate, or adjust the discounted net present delivery value downwards by applying the survival rate to account for the risk of cancellation of the relevant order.³⁸⁸

6.236. The Arbitrator recalls that Boeing typically receives only [***] payment immediately upon order. As delivery nears, the customer typically must begin making [***] payments, referred to as PDPs. At delivery, the customer must then pay whatever balance remains from the delivery price. Because most money is paid on delivery, if cancellations occur, Boeing may ultimately retain only any deposits and/or PDPs previously received in connection with the cancelled LCA orders.³⁸⁹

6.237. With this background, we note that the United States' proposed methodology to quantify lost sales is based on a risk-free setting where the risk of cancellation is assumed to be zero. Yet, we note, as acknowledged by both parties, that the risk of cancellation does exist, as shown by Boeing's historical cancellation rates.

6.238. We further recall that we previously rejected the United States' conceptual argument that actual cancellations should not be taken into account because doing so would be inconsistent with the findings from the compliance proceedings (see section 6.3.4.3.4.1). This is the only argument that the United States offered as to why the Arbitrator should also not consider the risk of cancellation in determining the value of the lost sales in the counterfactual. We therefore agree with the European Union that the risk that specific Boeing LCA deliveries may not materialize in the future due to cancellation of the orders should be taken into account in the valuation of lost sales.

6.239. Turning to the calculation of this cancellation risk, we note that the European Union initially proposed a definition of the cancellation rate that was different from the one proposed by the United States. However, the European Union later used Boeing's cancellation rates as computed according to the United States' definition. We therefore adopt the approach used by both parties and define the annual cancellation rate as the ratio between the number of cancellations in a given year and the sum of backlog at the beginning of that year and gross orders minus conversions and deliveries that have occurred in that year.

6.240. We recall that although both parties use the same Boeing average cancellation rate based on Boeing's historical cancellations for the 2008-2017 time-period, the parties propose to apply it differently. The European Union's proposed approach consists of including Boeing's average cancellation rate in Boeing's discount rate, while the United States' approach involves adjusting the discounted net present delivery value by applying the survival rate, which is based on Boeing's annual probability that an aircraft is not cancelled, which itself is based on Boeing's cancellation rates. However, the European Union is of the view that the Arbitrator may either consider the approach proposed by the European Union with the discount rate or the approach favoured by the United States with the survival rate. In the light of the agreement between the parties on this particular issue, we choose to take into account the risk of future cancellations by applying the survival rate proposed by the United States.

6.241. Although we agree with the general approach proposed by the United States to calculate Boeing's average cancellation rate, we question the validity of calculating it as the United States proposes, i.e. based on cancellation data from the 2008-2017 period. This is so because doing so implicitly assumes that Boeing's additional counterfactual aircraft orders and deliveries, including Transaero's cancellation³⁹⁰, would not have had any impact on Boeing's cancellation rate. Yet, we note that neither the United States nor the European Union provided any rationale as to why this assumption would hold in the counterfactual. The United States also does not explain why it included the pre-2012 cancellation rates even though it claims that the pre-2012 cancellation rates are not indicative of the likelihood that an aircraft ordered in 2012 or 2013 would be cancelled prior to its delivery date. We therefore choose to calculate Boeing's average cancellation rate for the 2008-2011 period on the grounds that the cancellation rates during this period are not affected by the additional counterfactual orders placed in the Reference Period and the deliveries made between 2012 and

³⁸⁸ European Union's response to Arbitrator question No. 79, para. 277; and comments on the United States' response to Arbitrator question No. 115, para. 191.

³⁸⁹ United States' methodology paper, para. 42.

³⁹⁰ According to the counterfactual delivery schedule (i.e. Airbus' contractually agreed delivery schedule) the four 747-8I aircraft would have been delivered to Transaero in [***].

2017.³⁹¹ We also reject the United States' suggestion that we apply the survival rate to the delivery price for any delivery occurring after 2013. In our view, the survival rate should only be applied to any delivery occurring after 2018.³⁹² This is so because, with the exception of the cancelled Transaero orders and the partially cancelled Emirates order, we discern no evidence on the record indicating that any of the relevant Boeing counterfactual deliveries arising out of the lost sales and scheduled to take place before the present day would have been cancelled by the relevant airline. We thus assume them to have been delivered and to carry a zero risk of cancellation.

6.3.4.3.4.3 Valuation of deposits and PDPs for counterfactually cancelled orders

6.242. At this point, the Arbitrator notes that, in section 6.3.4.3.4.1 above, we determined that, in the counterfactual, the 2012 Transaero lost sale (i.e. all four counterfactual orders for 747-8I aircraft) and a portion of the 2013 Emirates lost sale (i.e. [[***]] of the 50 counterfactual orders for 747-8I aircraft) would have been cancelled. Thus, these Boeing LCA would never have been delivered and Boeing would not have received the full delivery price for them. We recall, however, that, upon an LCA order, the customer will generally pay a [[***]] deposit to the manufacturer, and, as the delivery date approaches, the customer will pay additional PDPs to the manufacturer before paying the outstanding balance upon delivery.³⁹³ The question thus arises of whether, in the counterfactual, Boeing would have received deposits and/or PDPs in connection with the cancelled Transaero and/or Emirates orders, and if so, whether it would be appropriate for us to include those in the valuation of the adverse effects.

6.243. The United States argues that the PDPs that Boeing would have received in connection with the cancelled orders should be included in the valuation of these cancelled orders.³⁹⁴ Regarding the Transaero lost sale, the United States submitted HSBI evidence indicating that [[HSBI]].³⁹⁵ More broadly, the United States explains that whether Boeing [[***]], depends on the circumstances of the cancellation. The United States does not, however, specifically indicate what the specific outcome would have been in the circumstances surrounding the Transaero and Emirates orders in the counterfactual, had those orders (or some of those orders) been cancelled.³⁹⁶

6.244. The European Union argues that in a situation where an order that forms part of the lost sales would have been cancelled in the counterfactual, the Arbitrator could take into account deposits and PDPs that Boeing would have received even in the absence of any LCA delivery in determining the value of those lost sales. According to the European Union, such deposits and PDPs are usually paid to cover some of the direct production costs of the LCA that were ordered. However, the European Union has offered no arguments on how these deposits and PDPs should be treated if the

³⁹¹ We note that the 2008-2011 period includes years in and following the 2008 financial crisis. The United States did not explain how the financial crisis has affected Boeing's cancellation rate. In any case, the financial crisis is by definition an exogenous event that would have also occurred in the counterfactual. We further note that the annual cancellation rate [[***]]. (Survival Rate Calculation, (Exhibit USA-65 (HSBI))).

³⁹² We note that the European Union follows the same approach by setting, for any counterfactual delivery prior to 2019, the cancellation risk at zero in its formula of the discount rate.

³⁹³ United States' methodology paper, para. 42; response to Arbitrator question No. 33, paras. 51-53; Boeing Declaration, (Exhibit USA-5 (BCI)); and European Union's response to Arbitrator's question No. 42, para. 459.

³⁹⁴ We note that the United States' foremost position is that the Transaero and Emirates lost sales should be valued in the same manner as any other lost sale, as the compliance panel and the Appellate Body had found these sales to be instances of significant lost sales within the meaning of Article 6.3(c) of the SCM Agreement. Failure to value them would, in the United States' view, constitute a collateral attack on the DSB's adopted findings, and factual developments post-dating the Reference Period should not affect the valuation of adverse effects. We have already discussed this argument in the sections 6.3.4.3.2 and 6.3.4.3.4.1.

³⁹⁵ Boeing e-mail from [[***]] (Dec. 13, 2018), (Exhibit USA-30 (HSBI)) (second word to the end of sentence of second line under [[***]] on first page). Similarly, for the Transaero order for four A380 aircraft that formed part of the lost sales findings, the European Union submitted evidence to show that Transaero Airlines had made deposits and pre-delivery payments to Airbus by [[***]]. (European Union's response to Arbitrator question No. 30; and Transaero Airlines Deposits and Pre-delivery Payments, (Exhibit EU-83 (HSBI))).

³⁹⁶ United States' responses to Arbitrator question No. 94, paras. 2-5, and No. 32, para. 50; Boeing E-mail regarding First Set of Arbitrator Questions, (Exhibit USA-30 (HSBI)); and Boeing E-mail from [[***]] (Feb. 10, 2019), (Exhibit USA-60 (BCI)).

LCA manufacturer were required to return the amount received as deposits and PDPs by virtue of cancellation of the orders.³⁹⁷

6.245. In the Arbitrator's view, it would appear to be reasonable to include deposits and PDPs in the calculation of the maximum level of countermeasures only if Boeing would have both received and retained such monetary amounts in the counterfactual in the event of a partial or complete cancellation of an order. We therefore address whether Boeing would have received and retained such payments with respect to the Transaero and Emirates cancelled orders in the counterfactual.

6.246. Regarding the 2012 Transaero order for A380 aircraft, we note that Transaero also placed an order for [[***]] 747-8I aircraft in [[***]].³⁹⁸ When Transaero declared bankruptcy, [[***]] these orders were cancelled along with the orders for Airbus A380 aircraft which were the subject of the 2012 lost sale.³⁹⁹ The United States explained that Boeing [[HSBI]].⁴⁰⁰ This HSBI evidence indicates that Boeing [[***]]. In the light of this, it would in our view not be appropriate to characterize [[***]] for the cancelled Transaero LCA. We consider this HSBI evidence as the best evidence that we have indicating what Boeing would have done with additional deposits and PDPs that Boeing would have received for the additional four 747-8I aircraft that it would have sold to Transaero had Boeing won the 2012 lost sale. In the absence of contrary evidence, we therefore assume that Boeing would have [[***]] with those additional amounts. Thus, on balance, we consider it unreasonable to include in our valuation any deposits and/or PDPs that Boeing would have received in the counterfactual in connection with the Transaero lost sale.

6.247. Regarding the 2013 Emirates lost sale, we recognize that it would appear reasonable to assume that, in the counterfactual, Boeing would have received certain deposits and/or PDPs in connection with the cancelled [[***]] 747-8I aircraft orders. However, even if this would have been so, we would still consider it unreasonable to include any such amounts in our valuation. The United States has explained that it is [[***]] in situations involving cancellation. Indeed, according to the United States, in situations like the Emirates cancellation, it would appear that the issue would have been settled [[***]].⁴⁰¹ The United States has directed us to nothing on the record indicating what [[***]] the Emirates order in the counterfactual in the event of cancellation and would support the view that Boeing would have [[***]] any relevant counterfactual deposits and/or PDPs received from Emirates, [[***]] of any relevant deposits or PDPs.⁴⁰² We also have no evidence before us regarding what [[***]] on this front in these circumstances in the event of such [[***]]. Thus, the [[***]] any counterfactually received deposits and/or PDPs is [[***]]. In the light of the foregoing, we consider it unreasonable to include in our valuation any deposits and/or PDPs that Boeing would have received in the counterfactual in connection with the Emirates lost sale.

6.3.4.3.4.4 Failure to take conversions into account

6.248. The European Union argues that insofar as the orders that Airbus secured from the lost sales have been converted⁴⁰³ by customers for reasons that would have led them to convert orders of Boeing LCA as well (had Boeing won the lost sales instead), then the Arbitrator should make appropriate adjustments to the value of the lost sales. According to the European Union, two of the five lost sales (United Airlines and Cathay Pacific Airways) have involved conversions of certain Airbus LCA as of May 2019. The European Union asserts that the circumstances surrounding such

³⁹⁷ European Union's responses to Arbitrator question No. 25, fn 420, No. 28, fn 455, No. 43, paras. 465-466, No. 54, para. 17, and No. 166, fn 56; and comments on the United States' response to the Arbitrator question No. 94, para. 20.

³⁹⁸ United States' methodology paper, para. 62; and Transaero 747-8I Order Information, (Exhibit USA-13 (HSBI)).

³⁹⁹ United States' response to Arbitrator question No. 75, para. 92; and Boeing Contracted Delivery Schedules and Actual Delivery Information for "Comparator" Orders, (Exhibit USA-29 (HSBI)).

⁴⁰⁰ Boeing E-mail regarding First Set of Arbitrator Questions, (Exhibit USA-30 (HSBI)) (second word to the end of sentence of the second line from [[***]] on page 1).

⁴⁰¹ United States' response to Arbitrator question No. 94, para. 5.

⁴⁰² We consider that certain [[***]] (which we choose as the comparator order for the Emirates lost sale) support our conclusion in this context. (See Lufthansa 2006 747-8I Order Documentation, (Exhibit USA-79 (HSBI)), p. 18; and paragraph 6.309 below).

⁴⁰³ By conversions, we mean the process of changing an order for an LCA of one model (e.g. an A350XWB-1000 aircraft) to an order for a different LCA model (e.g. an A350XWB-900 aircraft).

conversions indicate that had Boeing won these lost sales in the counterfactual, similar conversions would have occurred *vis-à-vis* Boeing's orders.⁴⁰⁴

6.249. The United States submits that the European Union's conversion-related arguments are both conceptually and factually flawed. In the view of the United States, if the Arbitrator were to reflect in the counterfactual a conversion from the model found to be associated with particular lost sales to a different model, it would be altering the adopted findings based on a new factual record. Moreover, the European Union wrongly presumes that because certain Airbus orders were in fact converted, then the counterfactual Boeing order would likewise have been subject to a similar conversion.⁴⁰⁵

6.250. The Arbitrator notes that the value that Airbus or Boeing would expect to ultimately realize from a given order depends in part on the model of LCA that is ultimately delivered to the customer pursuant to that order. Thus, we consider that counterfactual conversions of Boeing LCA that would have been ordered had Boeing won the lost sales are, in principle, a relevant consideration. However, we first have to satisfy ourselves that it is reasonable to conclude that such counterfactual conversions would have occurred. We recall that the main disagreement between the parties in this context is whether the fact that certain relevant *Airbus* LCA orders were converted means that corresponding counterfactual *Boeing* LCA orders would also have been converted. We thus turn to examine the record evidence that the parties have supplied.

6.251. Regarding the United Airlines conversion, the European Union provided evidence in the form of specialized press articles suggesting that the reason behind United Airlines' conversion of all its orders for A350XWB-1000 aircraft back to orders for A350XWB-900 aircraft in September 2017⁴⁰⁶ is found in United Airlines' long-term fleet strategy and, relatedly, its evolving fleet requirements.⁴⁰⁷ We note that this evidence suggests that low fuel prices and the imminent delivery of Boeing 777-300ER aircraft ordered at end of line prices in 2015 allowed United Airlines to retire its 747-400 aircraft earlier than anticipated and that in the light of this change in fleet composition United Airlines reassessed its prior purchase of A350XWB-1000 aircraft, which had been ordered in 2013 to replace the 747-400 aircraft. The European Union also submitted to the Arbitrator a letter to Airbus dated January 2017, in which [[***]] acknowledged that conversion of the A350XWB-1000 order occurred solely at the request of United Airlines.⁴⁰⁸

6.252. The United States essentially agrees with what appears to be the main factual thrust of the European Union's evidence in this context, i.e. that United Airlines' imminent receipt of 777-300ER aircraft in 2017 essentially led to the conversion of the Airbus order. The United States contends, however, that the European Union ignores that United Airlines ordered those 777-300ER aircraft in 2015 and that, in the counterfactual, United Airlines would have ordered 777-300ER aircraft in 2013 (i.e. at the time of the lost sale, and before the airline's initial 777-300ER orders in 2015).⁴⁰⁹ The United States thus infers that, to the extent that the "imminent delivery" of 777-300ER aircraft would

⁴⁰⁴ European Union's response to Arbitrator question No. 110, para. 214. As discussed in section 6.3.4.3.6.1 on delivery prices, the European Union argues that the Arbitrator should take the United Airlines and Cathay Pacific Airways conversions into consideration by selecting an alternative comparator order, or by downward-adjusting prices contained in an existing comparator order that is considered the most representative, reliable, and robust available (European Union's response to Arbitrator question No. 110, para. 218).

⁴⁰⁵ United States' written submission, paras. 185-194; responses to Arbitrator question No. 117, para. 61, and No. 110, para. 35; and comments on the European Union's responses to Arbitrator question No. 98, paras. 76-79 and No. 161, para. 18.

⁴⁰⁶ The European Union explains that, in 2013, with a view to replacing its ageing fleet of Boeing 777 aircraft, United Airlines had converted an order for 25 A350XWB-900 aircraft into an order for the larger A350XWB-1000 aircraft variant and at the same time ordered an additional 10 A350XWB-1000 aircraft (those which constitute the "lost sale" at issue). (European Union's response to Arbitrator question No. 98, para. 66).

⁴⁰⁷ See Chicago Business Journal, "United Airlines postponing delivery of much-anticipated Airbus-350", 6 September 2017, (Exhibit EU-59); Airways Magazine, "United Converts A350-1000 Order to A350-900", 6 September 2017, (Exhibit EU-60); Airbus, "New agreement with United Airlines increases A350 XWB order to 45", 6 September 2017, (Exhibit EU-139); and European Union's responses to Arbitrator question No. 98, para. 67, and No. 162, para. 26.

⁴⁰⁸ See Letter [[***]], (Exhibit EU-140 (HSBI)); and European Union's response to Arbitrator question No. 162, para. 28.

⁴⁰⁹ See Table 1 above (indicating that the closest competing Boeing model to the Airbus A350XWB-1000 aircraft is the 777-300ER aircraft).

have caused United Airlines to consider order conversions, it would be the imminent delivery of counterfactual 777-300ER aircraft ordered at the time of the lost sale in 2013. Accordingly, the United States submits that there is no basis to assume that a counterfactual 777-300ER order in 2013 would have been converted to a smaller Boeing model in 2017.⁴¹⁰

6.253. Based on the evidence before us, we accept the European Union's argument that the 2017 United Airlines conversion of Airbus A350XWB aircraft was triggered by United Airlines, mainly in the light of its changing fleet composition and, in particular, the imminent arrival of previously ordered 777-300ER aircraft in 2015. In the counterfactual, however, United Airlines would have already ordered 777-300ER aircraft in 2013 as a result of Boeing winning the United Airlines lost sale. These 777-300ER aircraft would presumably have been ordered and/or retained to replace the 747-400 aircraft. In the absence of the A350XWB-1000 aircraft, United Airlines would have needed the 777-300ER aircraft ordered in 2013 to replace the 747-400 aircraft. It would have had no reason to convert them to smaller aircraft. Indeed, as indicated by the evidence provided by the European Union, United Airlines continued to order 777-300ER aircraft between 2015 and 2018.⁴¹¹ In short, the event that appeared to be the driving force behind the Airbus conversion, i.e. the arrival of 777-300ER aircraft, would have happened substantially earlier in the counterfactual than it did in reality and there would have been no corresponding event leading to the conversion of these particular 777-300ER aircraft in the counterfactual. This gives us serious doubts as to whether it is reasonable to assume that United Airlines' conversion decisions would have been the same in the counterfactual as in reality and, consequently, we do not find it reasonable to assume that in the counterfactual this conversion would likewise have occurred *vis-à-vis* the 2013 Boeing order for 777-300ER aircraft.

6.254. Regarding the Cathay Pacific Airways conversion, the European Union presented evidence suggesting that Cathay Pacific Airways' September 2017 decisions to convert two A350XWB-1000 aircraft to A350XWB-900 aircraft and to defer five A350XWB-1000 aircraft from 2020 to 2021 were taken at the request of Cathay Pacific Airways in the context of [[***]], and were part of a larger conversion and deferral effort towards smaller A350XWB-900 LCA.⁴¹² The European Union also submitted an E-mail by [[***]], explaining that the decision by Cathay Pacific Airways to request the conversion was driven by the perception that the A350XWB-900 model was better suited for the new routes and frequencies foreseen by Cathay Pacific Airways' expansion plan and would enable it to cut costs to revive earnings.⁴¹³ In that E-mail, [[***]]. The European Union thus contends that Cathay Pacific Airways' decision to convert part of its order would have also occurred in the counterfactual.⁴¹⁴

6.255. The United States argues that there is no basis to assume that, in the counterfactual, Cathay Pacific Airways would have anticipated similar cost savings from the conversion of orders for the 777-300ER aircraft to orders for the smaller 787-10 aircraft, particularly since the airline would have already had a large, installed fleet of 777-300ER aircraft, which would have made it relatively easy for the airline to incorporate additional 777-300ER aircraft into its fleet. The United States is of the view that a "down-conversion" to a 787-10, for example, would have required Cathay Pacific Airways to introduce an entirely new Boeing model into its fleet. Moreover, given that the actual conversion allegedly arose in the context of [[***]], there is no basis to assume that a similar circumstance would have arisen in the counterfactual.⁴¹⁵

⁴¹⁰ United States' comments on the European Union's response to Arbitrator question No. 161, paras. 19-23.

⁴¹¹ See Airways Magazine, "United Converts A350-1000 Order to A350-900", 6 September 2017, (Exhibit EU-60).

⁴¹² See Flight Global, "Cathay swaps batch of A350-1000s to smaller -900", 13 September 2017, (Exhibit EU-58). More specifically, in the context of Cathay Pacific Airways' evaluation of its request for proposal ("RfP") for the A321neo aircraft, Cathay Pacific Airways requested a down-conversion of a total of six A350XWB-1000 aircraft into A350XWB-900 aircraft, and a deferral of eight LCA in total. (See E-mail [[***]], (Exhibit EU-142 (HSBI)); and Cathay Pacific Campaign A350-1000, 2013 (Exhibit EU-133 (HSBI))).

⁴¹³ See E-mail [[***]], (Exhibit EU-142 (HSBI)); and Cathay Pacific Campaign A350-1000, 2013, (Exhibit EU-133 (HSBI)).

⁴¹⁴ See European Union's response to Arbitrator question No. 162, paras. 29-30.

⁴¹⁵ United States' comments on the European Union's response to Arbitrator question No. 161, paras. 19-23.

6.256. The United States also responds to the European Union's suggestion that, if certain Boeing contractual provisions provide for conversions, the appropriate "down-conversion" might be from 777-300ER aircraft to the 777-8 aircraft⁴¹⁶, a long-range variant of the 777X programme launched in 2013. The United States notes that the 777-8 aircraft has standard two-class seating of 350-375 passengers and a maximum range of 8,690 nautical miles.⁴¹⁷ According to the compliance panel report, the 777-300ER aircraft has standard seating for 360 or 386 passengers (according to Airbus and Boeing, respectively) and a maximum range of 7,650 or 7,825 nautical miles.⁴¹⁸ The United States argues that it is difficult to see how switching from a 777-300ER aircraft to the 777-8 aircraft, a longer-range variant with comparable seating capacity, would constitute a "down-conversion", and still more difficult to see how such a switch would be consistent with Cathay Pacific Airlines' reasons for converting two orders for A350XWB-1000 aircraft to A350XWB-900 aircraft.⁴¹⁹

6.257. Based on the evidence before us, we accept the European Union's argument that Cathay Pacific Airways converted two orders for A350XWB-1000 aircraft to orders for A350XWB-900 aircraft in order to save costs. We note that it made this decision in the context of [[***]]. Based on the evidence before us, we also accept the United States' argument that a "down-conversion" in the counterfactual would have required Cathay Pacific Airways to introduce an entirely new Boeing model into its fleet. This suggests to us that the cost savings from a down-conversion in the counterfactual may have been significantly smaller than those expected from the conversion of two A350XWB-1000 aircraft into A350XWB-900 aircraft. The European Union did not explain why such conversion would still have taken place in the counterfactual in circumstances that would likely have differed in significant ways from those of the Airbus conversion. We therefore consider that it is not reasonable to assume that in the counterfactual this conversion would have occurred *vis-à-vis* Boeing's orders.

6.3.4.3.5 Timing of Boeing's counterfactual deliveries

6.258. The parties also disagree as to the timing of Boeing's counterfactual deliveries. This timing is relevant to the United States' methodology because, as discussed in section 6.3.4.1.1, the United States establishes the value of a lost sale by summing the discounted values of all post-order deliveries of the closest competing Boeing model. In order to determine the date from which that delivery price should be discounted, the United States proposes to use Airbus' contractually agreed delivery schedules of the lost sales at issue as Boeing's counterfactual delivery schedules.⁴²⁰ This section addresses (a) whether this proposal by the United States is reasonable, and (b) whether to adjust those schedules to take into account post-order delivery deferrals. We address each in turn.

6.3.4.3.5.1 Failure to use Boeing delivery schedules

6.259. The European Union argues that using delivery schedules agreed by Airbus with the customers in connection with the lost sales in order to estimate counterfactual delivery dates of corresponding Boeing deliveries, as proposed by the United States, is inappropriate. According to the European Union, this is so because, as the United States itself notes, the contracted schedule between Airbus and the customer "reflects circumstances specific to Airbus' aircraft, operations, and relationships".⁴²¹ In the European Union's view, the use of Airbus delivery schedules fails to capture Boeing's supply-side constraints in the counterfactual world, such as production bottlenecks, delays in the development of the aircraft, or problems with suppliers – all of which may affect the timeline of Boeing's counterfactual deliveries, and none of which are captured by examining Airbus' delivery schedules.⁴²²

6.260. The European Union, instead, proposes to use the latest updated versions of delivery schedules contained in selected Boeing comparator orders, i.e. LCA orders that Boeing concluded

⁴¹⁶ European Union's response to Arbitrator question No. 161, para. 22.

⁴¹⁷ Technical specs of 777X, Boeing website, (Exhibit USA-114).

⁴¹⁸ Panel Report, EC and certain member States – Large Civil Aircraft (Article 21.5 – US), para. 6.1295 and Table 17.

⁴¹⁹ United States' comments on the European Union's response to Arbitrator question No. 161, para. 24.

⁴²⁰ United States' responses to Arbitrator question No. 40, para. 83, and No. 135, paras. 157, 164, 178 and 185.

⁴²¹ European Union's written submission, paras. 223-225; response to Arbitrator question No. 80, paras. 284-287; and comments on the United States' response to Arbitrator question No. 135, paras. 372-373.

⁴²² European Union's comments on the United States' responses to Arbitrator question No. 114, para. 184, No. 130, paras. 298-305, and No. 135, para. 372.

with customers in reality and involving the Boeing LCA model that would have been ordered had Boeing won the lost sale in question. The European Union considers that these comparator orders contain contractual terms, including delivery schedules, reasonably similar to what Boeing and the relevant airline would have agreed in the counterfactual if Boeing had won the lost sales.⁴²³ The European Union also notes that the counterfactual delivery schedules to which Boeing would have agreed would also have been influenced by Boeing's other commitments to deliver LCA to other customers during the relevant time-periods because Boeing only has the capacity to deliver so many LCA in a given period of time.⁴²⁴

6.261. The United States responds that the counterfactual contractually agreed delivery schedule between Boeing and each of the customers involved in the lost sales would have complemented, rather than duplicated, any delivery schedule that appeared in any other Boeing order concluded with any other customer in the counterfactual. The United States therefore rejects the European Union's proposal that the Arbitrator rely on the delivery schedules of Boeing's comparator orders.⁴²⁵

6.262. The Arbitrator notes that the delivery schedule for any LCA order is the result of a negotiation between the seller and the customer.⁴²⁶ Customers will seek delivery positions that suit their strategies and plans, while LCA producers will try to accommodate the customers' requests subject to the supply-side constraints that they face. It can be noted in this regard that LCA manufacturers do not produce for inventory but on demand.⁴²⁷

6.263. That being said, in the absence of direct evidence of the counterfactual negotiating results, we consider it less problematic to use Airbus' contractual delivery schedules concluded in connection with the lost sales than using the delivery schedules of Boeings in comparator orders. In our view, although these Airbus delivery schedules reflect circumstances and supply-side constraints specific to Airbus, we consider that they can be reasonably assumed to reflect the actual pressures from the demand side because they have been accepted by the customers involved in the lost sales at issue. Moreover, we do not consider that the use of a delivery schedule contained in a Boeing comparator order would reasonably reflect Boeing's supply-side constraints in negotiations with the relevant customers involved in the lost sales. Indeed, we consider it unlikely that Boeing, which has limited production capacity in a given period of time, would conclude contracts containing identical delivery schedules with multiple customers, rather than trying to sequence overall deliveries in a more even fashion over time. In addition, although Airbus' contractually agreed delivery schedules may not reflect exactly what the customers would have wanted from or been able to negotiate with Boeing in the counterfactual, they at least represent a compromise that was acceptable to the negotiating parties at the time of order. We further discern no other option for constructing Boeing's relevant counterfactual delivery schedules that, in our minds, would yield a more reliable result than using Airbus' contractually agreed delivery schedules.

6.264. In the light of the above, we consider it reasonable to use, as Boeing's counterfactual delivery schedules, the delivery schedules found in the contracts concluded by Airbus and the relevant customers in connection with the lost sales.

6.3.4.3.5.2 Failure to take deferrals of deliveries into account

6.265. The European Union notes that certain LCA deliveries arising from the orders that Airbus secured in connection with the lost sales have been deferred⁴²⁸ by customers. According to the European Union, where these deferrals occurred for reasons that would have led those same

⁴²³ The issue of the choice of comparator order or [[***]] is discussed in section 6.3.4.3.6.1.

⁴²⁴ European Union's comments on the United States' response to Arbitrator question No. 135, para. 389; Boeing Contracted Delivery Schedules and Actual Delivery Information for "Comparator" Orders, (Exhibit USA-29 (HSBI)); and Boeing Contracted Delivery Schedules, Delivery Schedule Changes, and Actual Delivery Information for "Comparator" Orders (Exhibit USA-44 (HSBI)).

⁴²⁵ United States' response to Arbitrator question No. 135, para. 158. The United States further argues that the delivery schedule of the [[***]] the Cathay Pacific Airways lost sale would be a reasonable estimate to use if there were no better data, although the delivery schedule [[***]] is less reliable because it reflects [[***]], rather than [[***]]. (United States' response to Arbitrator question No. 40, para. 87).

⁴²⁶ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1750.

⁴²⁷ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 5196.

⁴²⁸ By deferral, we mean the delay of LCA deliveries beyond the contractually agreed time.

customers to defer deliveries of Boeing LCA as well (had Boeing won the lost sales instead), the Arbitrator should assume that similar deferrals would have occurred to the LCA ordered from Boeing, and make appropriate adjustments to the value of the lost sales. In particular, the European Union raises the issue of deferrals in the context of the lost sales concerning orders by United Airlines (involving an up to three-year delayed delivery from 2022-2024 to 2025-2026) and Cathay Pacific (involving a one-year delayed delivery from 2020 to 2021 for some aircraft).⁴²⁹

6.266. The United States contends that the European Union's arguments related to deferrals are both factually and conceptually flawed. The United States argues that the European Union overstates the frequency of deferrals. According to the United States, [[***]] of firm orders for the 747-8I, 777-300ER, and 787-10 models have occurred as originally scheduled. In addition, delivery delays, including in response to customer requests, have typically been of [[***]] delays, on average.⁴³⁰ More generally, the United States is of the view that there are many possible reasons for deferrals, some of which could be specific to an Airbus aircraft in the real world and would not have applied to the closest competing Boeing model ordered in the counterfactual. In addition, the United States asserts that there could be differences between the Airbus contracts under which the deferrals occurred and the contracts that Boeing would have concluded with the relevant customers, which could have altered the frequency and/or duration of relevant deferrals in the counterfactual.⁴³¹

6.267. The Arbitrator notes that the value that Airbus or Boeing would expect to ultimately realize from a given LCA order depends in part on when the LCA ordered are delivered. This is because the net delivery price on a given date is determined by the escalation factor associated with that delivery date. Thus, we consider that counterfactual deferrals of Boeing LCA are, in principle, relevant considerations for purposes of our valuation of lost sales. However, we first have to satisfy ourselves that such counterfactual deferrals would have occurred.

6.268. We note that some deliveries of Airbus LCA associated with lost sales have been deferred after the initial order.⁴³² However, the European Union does not propose to take into account all deferrals that arose in connection with Airbus' actual and future deliveries arising out of the lost sales at issue, but only the deferrals requested by the airlines. In fact, the parties, have materially discussed only two instances of deferrals, namely, deferrals associated with the United Airlines and Cathay Pacific Airways lost sales, which, according to the European Union, have been requested by both airlines in the context of conversion.⁴³³ As explained in section 6.3.4.3.4.4, we do not take these conversions into account in the valuation of lost sales. We further note that there is no evidence on the record to suggest that both airlines requested the deferrals independently of the conversions. In the light of the foregoing, we consider that it is not reasonable to assume that these deferrals would have been requested had Boeing won the lost sales involving United Airlines and Cathay Pacific Airways.

6.269. With respect to the deferrals associated with the United Airlines lost sale, the European Union additionally contends that the United States' assertion that in the counterfactual Boeing would have delivered its LCA according to the expected delivery schedule contained in Airbus' 2013 United Airlines order contract is not legitimate. According to the European Union, this is because the actual

⁴²⁹ European Union's response to Arbitrator question No. 98, paras. 73-77.

⁴³⁰ United States' response to Arbitrator question No. 124, para. 110 (stating that "for the 747-8, more than [[***]] percent of the deliveries occurred as originally scheduled, and just under [[***]] percent were delayed by, on average, [[***]]. For the 777-300ER, about [[***]] percent of the deliveries were on time, and about [[***]] percent of the deliveries were delayed by, on average, [[***]]. And for the 787-10, there was [[***]]"); and comments on the European Union's response to Arbitrator question No. 98.

⁴³¹ United States' written submission, paras. 185-194; responses to Arbitrator question No. 117, para. 61, and No. 110, para. 35; and comments on the European Union's responses to Arbitrator question No. 98, paras. 76-79, and No. 161, para. 18.

⁴³² The length of such deferrals (compared to the delivery schedules contractually agreed) range, for example, anywhere from [[***]] months to [[***]] years (in the case of Emirates) for "delivery dates re-scheduled earlier than the original delivery dates", while other deliveries have been delayed from [[***]] months to [[***]] years (in the case of United Airlines). However, we note that [[***]] the Airbus deliveries pertaining to the lost sales at issue have, on average, been delayed [[HSBI]]. (Analysis based on Exhibit EU-86 (HSBI), Exhibit EU-87 (HSBI), Exhibit EU-88 (HSBI), Exhibit EU-89 (HSBI), Exhibit EU-90 (HSBI), Exhibit EU-91 (HSBI), Exhibit EU-92 (HSBI), Exhibit EU-106 (HSBI), and Exhibit EU-123 (HSBI)).

⁴³³ European Union's response to Arbitrator question No. 110, paras. 213-214.

deferral, which resulted in more distant delivery slots ([[***]]), was purely driven by United Airlines' business considerations and had nothing to do with any actions taken by Airbus.⁴³⁴

6.270. The United States counters that, as the European Union's own evidence shows, United Airlines, in September 2017, continued to take deliveries of Boeing 777-300ER aircraft (pursuant to orders placed in 2015, after the 2013 lost sale) and did not plan to defer the entry into service of the 787-10 aircraft that it had ordered, even as it significantly deferred its A350XWB aircraft orders.⁴³⁵ According to the United States, it would therefore be an unnecessary and inappropriately speculative exercise to posit a counterfactual in which United Airlines would have initially ordered the 777-300ER aircraft in 2013, converted those orders to 787-10 orders in 2017, and then deferred the 787-10 orders by several years.⁴³⁶

6.271. We agree with the United States. In our view, it is implausible that United Airlines would have converted its order for 777-300ER aircraft placed in 2013 to 787-10 aircraft orders in 2017 and then deferred the 787-10 aircraft orders by several years, given that it also placed an order for 777-300ER aircraft in 2015 that was not deferred.

6.272. Similarly, in the case of Cathay Pacific Airways, we are not convinced by the explanation provided by the European Union that in the counterfactual Cathay Pacific Airways would have converted its order for 777-300ER aircraft to an order for 787-10 aircraft which it would subsequently have deferred.

6.273. In the light of the above, we are unable to accept the European Union's proposal to adjust the counterfactual Boeing delivery schedules by taking into account counterfactual deferrals of deliveries.

6.3.4.3.6 Delivery prices of Boeing's counterfactual deliveries

6.274. As discussed in section 6.3.4.1.1, to determine the value of the counterfactual Boeing's deliveries, the United States first calculates for each lost sale the net delivery price, expressed in delivery-year US dollar terms, of the closest competing Boeing model that would have been ordered and then delivered in the counterfactual. For each order at issue, the valuation proposed by the United States starts with the selection of a Boeing comparator order ([[***]]) that contains the contractual prices of the closest competing Boeing model to which the United States assumes Boeing and the airline would have agreed in the counterfactual.⁴³⁷ The pricing information included in the chosen comparator order ([[***]]) can then be used to compute the net delivery price for the closest competing Boeing model delivered in year s and expressed in US dollar terms of the delivery year s as follows⁴³⁸:

⁴³⁴ European Union's response to Arbitrator question No. 98, para. 75.

⁴³⁵ United States' comments on the European Union's response to Arbitrator question No. 98, para. 78 and fn 91 (citing Chicago Business Journal, "United Airlines postponing delivery of much-anticipated Airbus-350", 6 September 2017 (Exhibit EU-59 (HSBI))).

⁴³⁶ United States' comments on the European Union's response to Arbitrator question No. 98, paras. 78-79.

⁴³⁷ United States' methodology paper, paras. 56, 61, 67, 72, and 78.

⁴³⁸ United States' methodology paper, para. 45.

$$BoeingNetPrice_{Airline\ i, delivery\ date\ s}^{in\ delivery\ year\ s\ USD} = (BoeingGrossPrice_{Airline\ i, order\ year\ t}^{in\ base\ year\ USD} - Concessions_{Airline\ i}^{in\ base\ year\ USD}) \times EscalationFactor_{Airline\ i}^{delivery\ year\ s} - OtherConcessions_{Airline\ i}^{in\ base\ year\ USD} \quad (7)$$

where $BoeingGrossPrice_{Airline\ i, order\ year\ t}^{in\ base\ year\ USD}$: gross order price of closest competing Boeing model ordered by airline i in year t and expressed in US dollar terms of the base year⁴³⁹

$Concessions_{Airline\ i, order\ year\ t}^{in\ base\ year\ USD}$: price concessions contained in airline i 's order contract for the closest competing Boeing model expressed in US dollar terms of the base year, and [[***]]

$OtherConcessions_{Airline\ i, order\ year\ t}^{in\ base\ year\ USD}$: price concessions contained in airline i 's order contract for the closest competing Boeing model expressed in US dollar terms of the base year, but [[***]]

$EscalationFactor_{Airline\ i}^{delivery\ year\ s}$: escalation factor for the delivery date s calculated from the escalation formula contained in airline i 's order contract for the closest competing Boeing model.⁴⁴⁰

6.275. As shown in Equation (7), the net delivery price expressed in delivery-year US dollar terms corresponds to the difference between the gross delivery price and price concessions, both expressed in base-year US dollar terms, multiplied by the escalation factor associated with the delivery date minus additional price concessions [[***]] and also expressed in base-year US dollar terms. The escalation factor is determined by an escalation formula that is [[***]]. In particular, the escalation formula determines the escalation factor for each month of each year between the base year and the scheduled delivery year. According to the United States, the use of an escalation formula is "an industry-accepted practice to offset the increase in labor and material costs over time resulting from inflation and other economic changes".⁴⁴¹

6.276. Relevant data on the gross price, price concessions and escalation factors, which is necessary to calculate the net delivery price, are available in Boeing comparator order contracts [[***]] as well as in Boeing's internal records, including in particular its electronic revenue management system. As summarized in Table 7, for four of the five lost sales at issue, the United States proposes to use, as comparator orders, firm orders placed by the same customer for the closest competing Boeing model within one or two years of the Airbus orders representing the lost sales. According to the United States, the pricing terms contained in these comparator Boeing orders are the best available indication of the prices that these same customers would have paid for the closest competing Boeing model in the counterfactual.⁴⁴²

⁴³⁹ The base year does not necessarily correspond to [[***]].

⁴⁴⁰ As explained above, escalation factors are specified for the relevant month in the expected delivery years by using the escalation formula contained in the comparator order. However, for simplicity, the United States assumes that any delivery would occur in July in the expected delivery years.

⁴⁴¹ United States' methodology paper, paras. 42-45.

⁴⁴² United States' methodology paper, paras. 46-47, 56, 61, 67, and 72; and response to Arbitrator question No. 135, paras. 158, 165, 172, 179, and 186.

Table 7: Comparator orders and the [[*]] proposed by the United States⁴⁴³**

Lost sales in the Reference Period				Comparators proposed by the United States			
Year	Airline	Model	Order size	Year	Airline	Model	Order size
2012	Cathay Pacific Airways	A350XWB 1000	10	2013	Cathay Pacific Airways order	777-300ER	[[***]] ⁴⁴⁴
2012	Transaero Airlines	A380	4	2012	Transaero Airlines order	747-8I	4
2013	Singapore Airlines	A350XWB 900	30	2013	Singapore Airlines order	787-10	30
2013	United Airlines	A350XWB 1000	10	2015	United Airlines order	777-300ER	10
2013	Emirates	A380	50	[[***]]	Emirates [[***]]	747-8I	[[HSBI]]

6.277. The United States explains that with respect to the Emirates lost sale, there was no contemporaneous Boeing 747-8I aircraft sale to Emirates that it could rely on as a comparator order. The United States thus proposes to use [[***]] of an HSBI number (i.e. a number that is on the record but protected by our HSBI procedures) of [[***]]. Alternatively, the United States asserts that the Arbitrator could use the 2013 Korean Air order for five Boeing 747-8I aircraft as comparator order.⁴⁴⁵

6.278. The European Union raises a number of concerns regarding delivery prices that relate to (a) the choice of the comparator orders, (b) the choice of the point in time from which we begin using [[***]] escalation factors (i.e. the time of order or the present day), and (c) the application of price adjustments to the delivery prices contained in the comparator orders. We address each in turn.

6.3.4.3.6.1 Choice of the comparator orders

6.279. The European Union argues that the comparator orders selected by the United States are neither representative nor reliable, nor robust. Although the European Union is of the view that it is the United States' responsibility to demonstrate that its selected comparators are representative, reliable, and robust approximations of the counterfactual lost sales, it identifies a number of criteria intended to guide the Arbitrator's assessment of the representativeness, reliability, and robustness of potential comparator orders. According to the European Union, buyer-furnished equipment (BFE), flight deck equipment (FDE, i.e. avionics and communication instruments); the engine supplier, type, and performance; as well as the maximum take-off weight (MTOW) all have important implications for LCA prices, along with other criteria, such as the "comparator LCA type", order size, delivery schedule, order year, and competitiveness of the campaign.⁴⁴⁶

6.280. The European Union also rejects the delivery prices in the comparator orders chosen by the United States because in the European Union's view they are exaggerated and fail to properly approximate the counterfactual delivery prices, resulting in artificially inflated estimates of adverse effects from lost sales. Further, the European Union rejects some of the United States' proposed comparator orders because of their unrepresentativeness and unreliability. The comparator orders proposed by the European Union are summarized in Table 8.⁴⁴⁷

⁴⁴³ This table only shows the comparators that the United States proposes and considers as "first-best".

⁴⁴⁴ The order size of [[***]] aircraft is taken from the Ascend database (Updated Ascend Database, (Exhibit EU-79)). However, we note that the order size of the [[***]].

⁴⁴⁵ United States' methodology paper, para. 48; response to Arbitrator question No. 121, para. 94; comments on the European Union's response to Arbitrator question No. 106, para. 155; and Boeing Declaration, (Exhibit USA-5 (BCI)), para. 4.

⁴⁴⁶ European Union's response to Arbitrator question No. 106, paras. 152-154.

⁴⁴⁷ European Union's written submission para. 230.

Table 8: Comparators proposed by the European Union⁴⁴⁸

Lost sales in the Reference Period				Comparators proposed by the European Union			
Year	Airline	Model	Order size	Year	Airline	Model	Order size
2012	Cathay Pacific Airways	A350XWB 1000	10	[[***]]	Cathay Pacific Airways [[***]]	777-300ER	[[HSBI]]
2012	Transaero Airlines	A380	4	-	-	-	-
2013	Singapore Airlines	A350XWB 900	30	2013	Singapore Airlines order*	787-10	30
2013	United Airlines	A350XWB 1000	10	2015	United Airlines order*	777-300ER	10
2013	Emirates	A380	50	2006	Lufthansa order	747-8I	20

Note: * Same comparator order as the one proposed by the United States.

6.281. In particular, the European Union rejects the 2013 Cathay Pacific Airways order for Boeing 777-300ER aircraft proposed by the United States as a comparator for the 2012 Cathay Pacific Airways lost sale on the grounds that it was not a competitive campaign because Airbus did not submit any offer in that campaign.⁴⁴⁹ The European Union further submits that the 2013 Cathay Pacific Airways order for [[***]] 777-300ER aircraft is not of the same order size as the Cathay Pacific Airways lost sale for ten aircraft. As an alternative comparator order for the Cathay Pacific Airways lost sale, the European Union proposes the [[***]] Cathay Pacific Airways [[***]], or alternatively the 2011 Cathay Pacific Airways order for ten 777-300ER aircraft. According to the European Union, the [[***]] Cathay Pacific Airways [[***]] would obviate the need to identify a comparator order, while the 2011 Cathay Pacific Airways order for ten 777-300ER aircraft has an order size identical to the original 2012 Cathay Pacific Airways lost sale involving ten A350XWB-1000 aircraft.⁴⁵⁰

6.282. The United States argues that the European Union bears the burden of proof with respect to its arguments that the United States' comparator orders are unreasonable. According to the United States, the focus of the European Union's criteria on the physical or performance characteristics of a Boeing aircraft sold pursuant to a comparator order is conceptually misguided because these characteristics should not affect the selection of the comparator orders. The United States argues that this is so because the European Union never established that, in the counterfactual, the customer would have configured the Boeing model to approximate, as closely as possible, the characteristics of the Airbus aircraft that it ordered in reality as a general matter, or with respect to BFE, FDE, MTOW, or engine supplier/type/performance in particular.⁴⁵¹ The United States further submits that the European Union's focus on BFE is irrelevant because Boeing [[***]]. The United States also notes that the European Union failed to include the [[***]] in its list of criteria, though the European Union has frequently recognized the importance of this factor in ensuring an appropriate selection of comparator orders. Overall, the United States argues that the task before the Arbitrator is to value each lost sale by reference to the Boeing LCA that the customer

⁴⁴⁸ This table only shows the comparator orders that the European Union considers as "first-best" (European Union's responses to Arbitrator question No. 28, paras. 421 and 424, No. 68, para. 236, No. 96, para. 35, and No. 106, para. 163; Correcting US lost sales valuation, (Exhibit EU-143 (HSBI))). It does not show the comparator orders proposed by the European Union to account for the conversion of the Cathay Pacific Airways and United Airlines lost sales.

⁴⁴⁹ As discussed in section 6.3.4.3.4.4, the European Union also rejects the comparator order for the Cathay Pacific Airways lost sale proposed by the United States on the grounds that the proposed comparator order does not take into account the conversion of two A350XWB-1000 aircraft to a smaller A350XWB-900 variant. The European Union makes a similar argument for the conversion of the United Airlines order of A350XWB-1000 aircraft to A350XWB-900 aircraft. We recall that we have decided not to assume that if Boeing had won the lost sales its orders would have been converted in a manner similar to how Airbus' actual orders were converted following the placement of the orders. We thus do not further consider the European Union's arguments regarding conversions.

⁴⁵⁰ European Union's responses to Arbitrator question No. 96, fn 23, No. 105, para. 147, and No. 161, para. 17. According to the Ascend database, Cathay Pacific Airways ordered ten 777-300ER aircraft in March 2011 and another four 777-300ER aircraft in August of the same year. (Updated Ascend Database (Exhibit EU-79)). However, the European Union does not consider this [[***]] to be a representative comparator order.

⁴⁵¹ United States' comments on the European Union's response to Arbitrator question 106.

would have ordered in the counterfactual, bearing in mind that the particular characteristics of that Boeing LCA would have differed to some degree from the Airbus model.⁴⁵²

6.283. Regarding the United States' comparator order for the Cathay Pacific Airways lost sale, the United States submits that a situation in which Airbus did not submit an offer for a competitor model in a sales campaign that resulted in a Boeing comparator order actually replicates more closely the relevant counterfactual, where the relevant Airbus aircraft (i.e. the A380 aircraft or the relevant A350XWB model) would not have been represented in the campaign. This is because these Airbus LCA would not have been available for order in the counterfactual at any relevant time. According to the United States, insisting on pricing from "competitive campaigns" that reflect vigorous competition from Airbus would entail a significant risk of artificially understating the real level of adverse effects. The United States also prefers a customer-specific comparator order over a customer-specific "final and binding offer" because comparator orders contain aircraft price information to which the customer, by definition, agreed. The United States further claims that despite the European Union's assertion of [[***]].⁴⁵³

6.284. The Arbitrator now turns to another comparator order that the European Union rejects – the comparator order for the Emirates lost sale chosen by the United States. According to the European Union, the Emirates [[***]] does not constitute a reasonable and realistic [[***]] 747-8I aircraft to Emirates because [[***]]. The European Union further contends that the Emirates [[***]].⁴⁵⁴

6.285. As an alternative comparator order for the 2013 Emirates lost sale, the European Union proposes the 2006 Lufthansa order for 20 747-8I aircraft. According to the European Union, the Lufthansa order is the only order of a similar, albeit smaller, magnitude in terms of number of aircraft sold as compared to the counterfactual order from Emirates that would have involved 50 747-8I aircraft.⁴⁵⁵ The European Union further argues that the Lufthansa order is the most accurate comparator order because Lufthansa, like Emirates, is one of the world's premier flagship carriers, with a similarly robust network and focus on traveller comfort.⁴⁵⁶

6.286. In addition, to obtain a relevant per-aircraft price from the 2006 Lufthansa comparator order, the European Union proposes to use the actual average 2013 per-aircraft net delivery price of 747-8I aircraft deliveries arising from the 2006 Lufthansa order, expressed in 2013-year US dollar terms and as reported in Boeing's revenue management system, as the base-year net price to which the Arbitrator would then apply the escalation formula contained in the [[***]] Emirates.⁴⁵⁷

6.287. The United States argues that the European Union's criticisms regarding the Emirates [[***]] have no merit. The United States observes that it provided evidence concerning the circumstances surrounding the formulation of the [[***]] and the 747-8I prices for the [[***]], including [[***]]. The United States argues that Emirates is a customer whom Boeing knows very well from its 777 aircraft sales to the airline and that the 747-8I prices for [[***]].⁴⁵⁸

6.288. Moreover, the United States rejects the 2006 Lufthansa order of 20 747-8I aircraft that the European Union proposed as an alternative comparator order for the 2013 Emirates lost sale

⁴⁵² United States' comments on the European Union's response to Arbitrator question No. 106, paras. 148-161 and fn 204.

⁴⁵³ United States' comments on the European Union's responses to Arbitrator question No. 96, para. 21, No. 97, para. 63, and No. 105, paras. 140 and 143; [[***]] (Exhibit [[***]]); and [[***]] (Exhibit [[***]]).

⁴⁵⁴ European Union's responses to Arbitrator question No. 52, para. 3, and No. 97, para. 52; and comments on the United States' response to Arbitrator question No. 121, paras. 235-249.

⁴⁵⁵ The 747-8I is the closest competing Boeing model relative to the A380, which was the Airbus model actually sold in the Emirates lost sale.

⁴⁵⁶ European Union's response to Arbitrator question No. 68, para. 236.

⁴⁵⁷ The European Union proposes to use this approach instead of using the per-aircraft net price expressed in base-year US dollar terms reported in the 2006 Lufthansa order subject to the associated escalation formula. (European Union's written submission para. 246; response to Arbitrator question Nos. 28, 52, 97, para. 53; and Correcting US lost sales valuation, (Exhibit EU-143 (HSBI))).

⁴⁵⁸ United States' responses to Arbitrator question No. 121, paras. 87-90, and No. 122, paras. 95-100; Boeing Declaration, (Exhibit USA-5 (BCI)); Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)); Emirates [[***]] Information, (Exhibit USA-16 (HSBI)); and [[***]], (Exhibit USA-71 (HSBI)).

because, in the United States' view, the European Union ignores the importance of the [[***]] and timing for determining aircraft prices. More specifically, according to the United States, the Lufthansa 747-8I delivery prices are [[***]], and were set in 2006, just after the 747-8I programme had been launched, and more than six years prior to the Emirates lost sale. The United States further argues that the [[***]].⁴⁵⁹

6.289. The United States proposes that if the Arbitrator were nevertheless not to use the Emirates [[***]], it could use the 2013 Korean Air order of five Boeing 747-8I aircraft as an alternative comparator order for the Emirates lost sales. According to the United States, the 2013 Korean Air order is preferable to the 2006 Lufthansa order, because Korean Air is a major airline in Asia that has ordered and taken delivery of both A380 aircraft and 747-8I aircraft, and its 2013 order for 747-8I aircraft occurred in the same year as the Emirates A380 lost sale.⁴⁶⁰

6.290. The European Union responds that the 2013 Korean Air order is not a representative, reliable, and robust comparator order for the 2012 Emirates lost sale. According to the European Union, the fact that Emirates and Korean Air are both based in Asia is irrelevant because pricing for long-range aircraft is driven by airline characteristics, not by the location of their hub.⁴⁶¹

6.291. The European Union further argues that the United States ignores the importance of order size by choosing an alternative comparator order from Korean Air for five aircraft representing a tenth of the order size of the Emirates lost sale of 50 aircraft. The European Union contends that the Korean Air comparator order fails to account for the signalling effect that Boeing could have hoped to reap from the large order of 50 747-8I aircraft by Emirates and the price concessions and/or volume discounts Emirates would therefore most likely have received. Similarly, the European Union is of the view that the United States appears to have overlooked that, unlike Lufthansa, Korean Air's revenue, number of passengers carried, hours flown, passenger-kilometres flown, seats offered, and number of employees, differ consistently from Emirates. According to the European Union, the similarity in airline-relevant characteristics between Emirates and Lufthansa suggests that the type and extent of price concessions that Emirates would have received from Boeing are more accurately captured by the 2006 Lufthansa order than by the 2013 Korean Air order. The European Union further contends that the fact that the 2006 Lufthansa order was placed seven years prior to the Emirates lost sale does not matter significantly given that delivery prices are escalated year-on-year.⁴⁶²

6.292. The Arbitrator notes that both parties offer comparator orders that reasonably approximate what the delivery prices of the Boeing models sold in the counterfactual would have been. We thus examine these comparator orders to determine whether they can be used to estimate the prices of the counterfactual Boeing orders.

6.293. The European Union has listed a number of criteria intended to guide the Arbitrator in its assessment of the representativeness, reliability, and robustness of the comparator orders (actually won by Boeing). This list includes criteria that relate to the pricing terms of the relevant contracts, such as the comparator LCA type, order size, delivery schedule, order year, and competitiveness of the sales campaign. Other criteria listed by the European Union refer to the aircraft's physical and performance characteristics, such as BFE, FDE, engine supplier, engine type, and engine performance, as well as MTOW. We recognize that all these elements may impact on an aircraft's price in a given sales contract.⁴⁶³

6.294. At the same time, we consider that focusing on some of these items, in particular those related to the aircraft's characteristics, might be conceptually misguided because Boeing and Airbus offerings frequently feature different physical or performance characteristics. It seems likely that where the customer in a given lost sale ordered a certain Airbus model with particular characteristics, it would have ordered the closest competing Boeing model with characteristics that would inevitably

⁴⁵⁹ United States' response to Arbitrator question No. 61, para. 31, and No. 122, para. 99; and comments on the European Union's response to Arbitrator question No. 106, para. 155.

⁴⁶⁰ United States' response to Arbitrator question No. 121, para. 94; and No. 122, para. 100; and Korean Air 2013 747-8I Order Documentation, (Exhibit USA-76 (HSBI)), pp. 17, and 22-25.

⁴⁶¹ European Union's comments on the United States' response to Arbitrator question No. 121, paras. 254-265.

⁴⁶² European Union's comments on the United States' response to Arbitrator question No. 121, paras. 254-265.

⁴⁶³ European Union's response to Arbitrator question No. 106, paras. 153-154.

have differed to some degree in the counterfactual. We therefore decline to let such physical characteristics (other than the use of the closest competing Boeing model) materially guide our decision as to the proper comparator orders to use in this context.

6.295. One of the European Union's general arguments regarding the comparators selected by the United States is that [[***]] to Airbus should be preferred to comparator firm orders. We do not agree. To the contrary, we consider that comparator firm orders are preferable because they represent what the same (or similar) customer (i.e. airline) actually agreed to after negotiations occurred, and not something hypothetical (i.e. [[***]] by Boeing).

6.296. Another point of disagreement between the parties is the use of [[***]] as comparators. We agree with the European Union that prices in [[***]] that have [[***]] have not been accepted by the customer. It is likely that customers would try to improve pricing conditions in [[***]] negotiations. Specifically with regard to the Emirates [[***]], we further consider that the information that it contains is less reliable than order information, because it was [[***]] to the customer. Absent proof of [[***]].

6.297. To sum up, we have decided to reject the use of [[***]] as well as the use of [[***]]. This means that we need to choose comparators from among the proposed comparator firm orders for the closest Boeing model.

6.298. Generally, our choice of the relevant comparator firm orders is based on one main criterion, namely the customer's identity, i.e. the airline, as applying this criterion would likely provide us with pricing terms to which the airline would have agreed, all things being equal, had Boeing won the lost sale. In the absence of a proposed comparator order from the same airline, we opt for a comparator order involving a different airline that shares relatively similar characteristics to the airline that would have placed the order. Finally, where we have different proposed comparator orders from the same airline, but for a different order size, we select the comparator with the order size closest to that of the lost sale.

6.299. In the light of the above, we review the comparators that the parties propose for the five lost sales at issue. We start with the 2012 Cathay Pacific Airways lost sale.

6.300. Table 9 summarizes the main characteristics of the comparator orders that the parties propose, either as first-best or second-best option, for the 2012 Cathay Pacific Airways lost sale⁴⁶⁴:

Table 9: Comparators for Cathay Pacific Airways lost sale proposed by the parties

Cathay Pacific Airways lost sales			Comparators proposed by the parties				
Year	Model	Order size	Year	Airline	Type of comparator	Model	Order size
2012	A350XWB-1000	10	2012	Cathay Pacific Airways	firm order	777-300ER	[[***]]
			[[***]]	Cathay Pacific Airways	[[***]]	777-300ER	[[HSBI]]
			2011	Cathay Pacific Airways	firm order	777-300ER	10

6.301. We consider that the best comparator for the 2012 Cathay Pacific Airways lost sale is the 2011 Cathay Pacific Airways order of ten 777-300ER aircraft. This is so because it is a firm order that was made by the same airline for Boeing's closest competing model and it involves the same number of aircraft. We therefore find this comparator order provides a reasonable estimate of the prices of the LCA that Boeing would have sold to Cathay Pacific Airways in the counterfactual.

6.302. Second, regarding the 2012 Transaero Airlines lost sale, as we explained in section 6.3.4.3.4.1, we have concluded that there would have been no counterfactual 747-8I deliveries to Transaero Airlines owing to the subsequent bankruptcy of Transaero Airlines, which we consider

⁴⁶⁴ This table does not show the alternative comparator order proposed by the European Union to account for the partial conversion of the Cathay Pacific Airways lost sales, because, as we explained in section 6.3.4.3.4.4, accounting for conversions would be speculative in our view.

should be assumed to have occurred also in the counterfactual. We thus need not select any comparator order for the Transaero Airlines lost sale.

6.303. Third, regarding the 2013 Singapore Airlines lost sale, we note that both parties propose to use the same comparator order, namely the 2013 Singapore Airlines order for 30 Boeing 777-300ER aircraft. We agree with the parties and consider that this is the best comparator for the Singapore Airlines lost sale, because the firm order was placed by the same airline for Boeing's closest competing model and for the same order size. We therefore find this comparator provides a reasonable estimate of the prices of the LCA that Boeing would have sold to Singapore Airlines in the counterfactual.

6.304. Fourth, regarding the 2013 United Airlines lost sale, we first recall that we have decided not to take conversions into account. We further note that both parties propose the same comparator order, namely the 2015 United Airlines order of ten 777-300ER.⁴⁶⁵ We, too, consider that this is the best comparator for the United Airlines lost sale, because the firm order was placed by the same airline, for Boeing's closest competing model, and involved the same number of aircraft. We therefore find that this comparator provides a reasonable estimate of the prices of the LCA that Boeing would have sold to United Airlines in the counterfactual.

6.305. Fifth, regarding the 2013 Emirates lost sale, Table 10 summarizes the main characteristics of the comparators proposed by the parties. The Emirates lost sale is the only lost sale at issue for which there is no firm order placed by the airline associated with the lost sale (*in casu*, Emirates) for Boeing's closest competing model. As we explained above, we nevertheless reject the use of [[***]], which [[***]] Emirates and which is favoured by the United States. We do so because in our view pricing information contained in a [[***]] is likely to be less reliable than that contained in a firm order.

Table 10: Comparators for Emirates lost sale proposed by the parties

Emirates lost sales			Comparators proposed by the parties				
Year	Model	Order size	Year	Airline	Type of comparator	Model	Order size
2013	A380	50	[[***]]	Emirates	[[***]]	747-8I	[[***]]
			2013	Korean Air	firm order	747-8I	5
			2006	Lufthansa	firm order	747-8I	20

6.306. Turning to the choice between the 2006 Lufthansa firm order and the 2013 Korean firm order, we offer the following considerations. First, the record reflects that, as an LCA customer, Lufthansa has more relevant characteristics (such as revenue, number of passengers carried, hours flown, passenger-kilometres flown, seats offered, and number of employees) in common with Emirates than does Korean Air.⁴⁶⁶ These similarities in LCA customer characteristics between Lufthansa and Emirates suggest to us that the pricing terms, including the type and extent of price concessions, that Emirates would have been able to negotiate with Boeing would be more accurately captured by the 2006 Lufthansa order than by the 2013 Korean Air order. It is also plausible that while negotiating pricing terms with Emirates, Boeing would have been conscious of factors other than price, such as signalling to its potential customer base that the 747-8I enjoyed the confidence of a strategically significant LCA customer like Emirates. Based on the aforementioned similarities between Emirates and Lufthansa, it appears to us that Boeing would likely also have been conscious of signalling effects when negotiating pricing terms with Lufthansa. [[***]] LCA pricing.⁴⁶⁷

⁴⁶⁵ As explained above, we note that the European Union initially proposed the 2015 United Airlines order for ten Boeing 777-300ER aircraft, but later proposed the 2013 United Airlines order for ten 787-10 aircraft to account for the conversion of the United Airlines lost sale.

⁴⁶⁶ European Union's comments on the United States' response to Arbitrator question No. 121(c), Table 2.

⁴⁶⁷ United States' response to Arbitrator question No. 61 (noting that "[s]trategically significant customers [[***]]. Customers vary in terms of their strategic significance to Boeing. Some customers are

6.307. Our second consideration relates to order size. The size of the 2013 Korean Air order (five 747-8I aircraft) is ten times smaller than the size of the Emirates lost sale. In contrast, the size of the 2006 Lufthansa order (20 747-8I aircraft) is significantly closer to the Emirates lost sale. [[***]].⁴⁶⁸

6.308. We recognize that there is a gap of seven years in relation to the order year between the Lufthansa comparator order and the Emirates lost sale. However, pursuant to LCA sales contracts, the value of counterfactually delivered aircraft is determined by applying the escalation formula contained in the Lufthansa comparator order. This takes into account the changes in labour and material costs in the production of the 747-8I model, to the gross price and price concessions expressed in 2013 US dollar terms. We consider that by applying the escalation formula we can minimize any impact that the gap between the year of order of the Lufthansa sale and the Emirates sale would have on our determination of counterfactual Boeing prices.⁴⁶⁹

6.309. On the basis of the above considerations, we therefore find that the 2006 Lufthansa order for 20 747-8I aircraft constitutes a better comparator order for the 2013 Emirates lost sale than the 2013 Korean Air order for five 747-8I aircraft.

6.310. As concerns the pricing terms that we obtain from the 2006 Lufthansa order, we reject the European Union's suggestion to use the actual average Lufthansa 2013 per-aircraft net delivery price and to apply the escalation formula contained in the Emirates [[***]]. The European Union did not provide any economic rationale to justify combining the gross price and price concessions contained in one contract and the escalation formula contained in another contract. We therefore prefer to take the same approach as for the other comparator orders. That is to say, we use the per-aircraft gross price and price concessions expressed in base-year US dollar terms, and the associated escalation formula contained in the order contract, which allows us to express the net delivery price in delivery-year US dollar terms. We also take into account any [[***]].

6.311. To sum up our decisions above, Table 11 compiles the relevant comparator orders that we have selected to value the five lost sales.

recognized market leaders, and sales to such a customer can be expected to boost the appeal of the model to other customers"); and European Union's response to Arbitrator question No. 61 (noting that "a manufacturer's views on the strategic importance of a sales campaign [[***]]. A manufacturer may consider a campaign to be of particular strategic importance for many reasons, including ... the status of the airline in terms of its perception by other airlines as a market leader").

⁴⁶⁸ United States' responses to Arbitrator question No. 61, para. 36 (noting that "[***]"), and No. 125, para. 117 (noting that "[***]"); and European Union's comments on the United States' response to Arbitrator question No. 125.

⁴⁶⁹ We note that the United States has argued that, to the extent that the Arbitrator does not use [[***]], it should use the 2013 Korean Air order as the appropriate comparator order for the 2013 Emirates lost sale because the "[Korean Air] order for 747-8Is occurred in the same year as the Emirates A380 lost sale" (United States' response to Arbitrator question No. 121(f), para. 94). However, the United States has not offered any rationale for its assertion that the comparator order necessarily needs to be contemporaneous with the lost sale, considering that, as we have noted above, the value of the aircraft is determined by applying the escalation formula (which takes into account the changes in labour and material costs in the production) to the gross price and price concessions.

Table 11: Comparator orders selected by the Arbitrator

Lost sales in the Reference Period				Selected comparator order			
Year	Airline	Model	Order size	Year	Airline	Model	Order size
2012	Cathay Pacific Airways	A350XWB 1000	10	2011	Cathay Pacific Airways order	777-300ER	10
2012	Transaero Airlines	A380	4	2012	-	-	-
2013	Singapore Airlines	A350XWB 900	30	2013	Singapore Airlines order	787-10	30
2013	United Airlines	A350XWB 1000	10	2015	United Airlines order	777-300ER	30
2013	Emirates	A380	50	2006	Lufthansa order	747-8I	20

6.312. As we noted above, the European Union asserts that the Challenged Information that the United States submitted in its responses to the third round of questions is incomplete, inconsistent and non-verifiable in important aspects.⁴⁷⁰ We recall that the Challenged Information primarily relates to evidence that the European Union had requested the Arbitrator to seek from the United States on the basis that evidence previously submitted by the United States did not sufficiently demonstrate the reliability of certain information used in the United States' valuation methodology. The European Union's objection regarding incompleteness, inconsistency, and non-verifiability concerns the United States' newly submitted evidence.

6.313. The European Union argues that, following the Arbitrator's evidentiary request, the United States has modified its method of quantifying the value of lost sales by relying on pricing terms such as gross price and price concessions from the time of the order as contained in the Purchase Agreements (PA) or [***] and excluding all post-order developments on pricing terms, [***]. According to the European Union, this modified approach is inconsistent with the United States' original method of quantifying the value of lost sales using pricing terms retrieved from [***] aircraft that have already been delivered.⁴⁷¹

6.314. Furthermore, the European Union contends that the Singapore Airlines 2013 787-10 Order Documentation provided by the United States contains information only on the [***] between Boeing and Singapore Airlines [***]. According to European Union, there is therefore no objective basis upon which to accept the accuracy of the pricing information reported in the [***].⁴⁷²

6.315. The Arbitrator notes that the evidence on the record indicates that a PA is an LCA sales contract, which specifies, *inter alia*, the gross price, price concessions, escalation formula, order size, delivery schedule, size and timing of PDPs, penalties for late deliveries and performance guarantees, options, purchase rights, and conversion rights at the time of order. The evidence further indicates that [***]. However, the final delivery price [***].⁴⁷³

6.316. We further note that the United States' initial valuation of lost sales relied on the pricing information contained in the [***], with the exception of the valuation of [***], which was based on pricing information contained in [***].⁴⁷⁴ These [***] reflect any post-order developments and affected the contractual price to be paid for the LCA in question, including [***].⁴⁷⁵ We note, however, that following our request that the United States provide, among other things, portions of relevant sales contracts (including amendments), [***], the United States replaced previously

⁴⁷⁰ See footnote 309 above.

⁴⁷¹ European Union's comments on the United States' response to Arbitrator question No. 135, paras. 360-366.

⁴⁷² European Union's response to Arbitrator question No. 135, para. 363; and Singapore Airlines 2013 787-10 Order Documentation, (Exhibit USA-73 (HSBI)).

⁴⁷³ United States' response to Arbitrator question No. 135, para. 156. Based on our review of the record, we see no reason to doubt the United States' explanation in this context.

⁴⁷⁴ Cathay Pacific 777-300ER Order Information, (Exhibit USA-12 (HSBI)); Transaero 747-8I Order Information, (Exhibit USA-13 (HSBI)); Singapore Airlines 787-10 Order Information, (Exhibit USA-14 (HSBI)); and United 777-300ER Order Information, (Exhibit USA-15 (HSBI)).

⁴⁷⁵ This understanding is based on comparisons of original contracts and delivery invoices on the record.

provided data on gross price and price concessions with the pricing information contained in the PAs or [[**]] to value lost sales, with the exception of the [[**]].⁴⁷⁶ Unlike [[**]], the pricing information contained in the PAs [[**]] reflects the pricing terms [[**]]. As explained in section 6.3.4.3.2, in the light of our decision to take into account up-to-date information that sheds light on how we should quantify the adverse effects determined to exist in the 2011-2013 Reference Period, we value lost sales using the gross price and price concessions contained in the PAs or [[**]], but add any relevant post-order developments that have an impact on pricing terms [[**]].⁴⁷⁷

6.317. Specifically regarding the 2013 Singapore Airlines comparator order, we note that the [[**]] makes several cross-references to the [[**]] between Boeing and Singapore Airlines. However, we reject the European Union's contention that in the absence of the [[**]], there is no objective basis to accept the accuracy of the delivery prices reported in the [[**]]. The European Union has failed to explain why [[**]]. In short, we see no reason to believe that the relevant pricing information contained in the [[**]] would, unless specified therein, conflict with relevant information in the original PA in such a way as to make the information contained in the [[**]] inaccurate. Therefore, we see no merit in the European Union's view that the Arbitrator should not accept the accuracy of the pricing information contained in the [[**]] for the 2013 Singapore Airlines comparator order.

6.318. Based on the foregoing, we do not accept the European Union's arguments that the Challenged Information is incomplete, inconsistent and non-verifiable in any material respect such that the Arbitrator could not reasonably rely upon it in its valuation analyses, where relevant.

6.3.4.3.6.2 Failure to use [[]] escalation factors**

6.319. The European Union rejects the United States' use of [[**]] escalation factors⁴⁷⁸ [[**]], as proposed by the United States, on the ground that [[**]] escalation factors artificially inflate the counterfactual delivery price.⁴⁷⁹ The European Union proposes to apply the [[**]] escalation factors instead of [[**]] factors for the counterfactual deliveries occurring before [[**]] and the [[**]] escalation factors only [[**]] for counterfactual deliveries occurring after [[**]].⁴⁸⁰

6.320. The United States argues that the use of the escalation factors that were [[**]] at the time that Boeing would have made the relevant counterfactual sale is proper and consistent with its overall valuation approach, which does not take into account counterfactual post-order factual developments.⁴⁸¹ The United States further contends that the use of [[**]] escalation factors is unnecessarily complicated because the difference between the [[**]] and the [[**]] escalation factors is likely to be small and the [[**]] escalation factors would only apply to some counterfactual deliveries given that [[**]] of the relevant counterfactual deliveries are scheduled for 2018 or subsequent years.⁴⁸²

6.321. The Arbitrator notes that the delivery price paid by the airline is based on the [[**]] escalation factors [[**]]. We further note that the difference between the [[**]] escalation factors and the [[**]] escalation factors is due to [[**]] associated with [[**]] the escalation factor

⁴⁷⁶ Cathay Pacific 2013 777-300ER Order Documentation, (Exhibit USA-68 (HSBI)); Singapore Airlines 2013 787-10 Order Documentation, (Exhibit USA-73 (HSBI)); and Transaero 2013 747-8I Order Documentation, (Exhibit USA-75 (HSBI)).

⁴⁷⁷ We note that the European Union, in arguing that the Challenged Information is "inconsistent" with previously submitted information, makes no claim that such inconsistency has any detrimental impact on the European Union's due process rights in this proceeding. Rather, this argument appears to be a critique of the general coherence of the United States' evidentiary submissions and valuation methodology. As explained above, however, we ultimately agree with the European Union that we should take into account relevant post-order developments in valuing the lost sales.

⁴⁷⁸ As explained above, the escalation factor is determined by an escalation formula that [[**]] reflecting the evolution of labour and material costs in the LCA production and used to calculate the net delivery prices in delivery-year US dollar terms.

⁴⁷⁹ European Union's written submission, para. 255.

⁴⁸⁰ Correcting US lost sales valuation, (Exhibit EU-143 (HSBI)).

⁴⁸¹ See sections 6.3.4.1.1 and 6.3.4.3.2 above.

⁴⁸² United States' written submission, para. 223; and response to Arbitrator question No. 58, paras. 18-19.

[[***]].⁴⁸³ The United States did not provide any economic rationale as to why such [[***]] could be ignored.

6.322. To minimize [[***]], we follow the approach proposed by the European Union. That is to say, we apply the [[***]] escalation factors for any counterfactual deliveries scheduled before [[***]] and the [[***]] escalation factors [[***]] for counterfactual deliveries scheduled after [[***]].

6.3.4.3.6.3 Failure to perform necessary price adjustments

6.323. The European Union argues that if the United States fails to demonstrate the comparability between lost sales counterfactually won by Boeing and comparator orders that Boeing actually secured, the Arbitrator should either select alternative comparator orders, or, at a minimum, make price adjustments to the comparator orders to account for differences between the counterfactual Boeing order and the comparator order, including with respect to order size, delivery schedule and aircraft configuration.⁴⁸⁴ For example, the European Union submits that, contrary to what the United States asserts, the evidence on the record demonstrates that Boeing generally grants volume discounts, which the Arbitrator would need to take into account.⁴⁸⁵ Although the European Union contends that it is difficult to propose methodologies to perform these price adjustments based on the quality and reliability of the information provided by the United States, it suggests different ways of applying such price adjustments.⁴⁸⁶

6.324. Specifically, the European Union proposes to draw reasonable inferences from a detailed comparison of price information contained in (a) the [[***]] submitted by Boeing in the [[***]] lost sales campaign, and (b) the [[***]] comparator order, proposed by the United States. According to the European Union, the relevant differences between the [[***]], including order size and delivery schedules, should be reflected in different pricing terms. The European Union refers to these differences in pricing terms to adjust the prices of the [[***]] comparator orders, and the 2006 Lufthansa comparator order for the Emirates lost sale to account for their differences in order size and delivery schedule with respect to their original Airbus orders.⁴⁸⁷ The European Union also explains, how, if the information pertaining to the [[***]] were deemed unreliable, a structured comparison between (a) the [[***]] aircraft, and (b) the [[***]] aircraft would enable the Arbitrator

⁴⁸³ We note in this respect that the [[***]] escalation factors are, on average, [[***]] higher than the [[***]] escalation factors. For most comparator orders, the difference between the [[***]] and the [[***]] escalation factors tend to increase over time, while for others, the difference initially increases but then decreases. Similarly, the [[***]] escalation factors [[***]] are larger than the [[***]] escalation factors [[***]]. Overall, we observe that the use of [[***]] escalation factors [[***]] yields larger delivery prices than with [[***]] escalation factors.

⁴⁸⁴ European Union's response to Arbitrator question No. 106, para. 166, and No. 166, para. 53.

⁴⁸⁵ European Union's comments on the United States' response to Arbitrator question No. 125, paras. 276-278.

⁴⁸⁶ The European Union also proposes different methodologies to determine the degree of price adjustments that it considers necessary to control for such criteria as differences in the type of comparator LCA, competitiveness of the campaigns, BFE, FDE, jet engines, engine supplier, engine type, and engine performance, and MTOW. (European Union's response to Arbitrator question No. 106, paras. 168-172).

The United States argues that while certain of the European Union's criteria of representativeness support the use of the comparators proposed by the United States, the use of the above-mentioned remaining criteria would be inappropriate. (United States' comments on the European Union's responses to Arbitrator question No. 96, paras. 19-30, Nos. 105, 106, and 165).

As we explained in section 6.3.4.3.4, we consider that in the counterfactual the customer associated with a given lost sale would have ordered the closest competing Boeing model with physical or performance characteristics that would likely have differed to some degree from the Airbus model actually ordered. In our view, adjusting for different physical or performance characteristics would not be appropriate. Moreover, even if it were appropriate, in principle, to control for any such characteristics, undertaking such an adjustment on the basis of the information before us would entail speculation on our part. Indeed, we note that one of the methodologies suggested by the European Union would have required contract information on itemized prices for certain aircraft specifications, [[***]], that are not reported in the order contracts to which we were given access. Similarly, another methodology suggested by the European Union would have required [[***]]. However, we note that the European Union did not explain concretely how these methodologies could be applied to the comparator orders for the various lost sales.

⁴⁸⁷ European Union's responses to Arbitrator question No. 28, paras. 422-424, No. 68, paras. 238-242, No. 97, para. 63, No. 106, para. 168, and No. 164, para. 37.

to downward-adjust the prices contained in the [[**]] comparator orders to better approximate the values of the lost sales if the orders had been won by Boeing in the counterfactual.⁴⁸⁸

6.325. Similarly, the European Union proposes to quantify volume discounts by comparing the price and order information contained in the 2006 Lufthansa order and 2009 Korean Air order if the structured comparison between the [[**]] and the [[**]] is "not possible".⁴⁸⁹

6.326. The United States argues that the downward adjustments to the per-aircraft prices that the European Union proposes are spurious because the evidence on the record does not support the premise that orders involving larger numbers of aircraft and more distant delivery positions consistently or predictably have lower per-airplane prices than orders involving smaller numbers of aircraft.⁴⁹⁰ More generally, the United States points out that Boeing [[**]].⁴⁹¹ In addition, the United States contends that there is no basis to make the European Union's proposed price adjustments because there is no relevant difference between the [[**]] Cathay Pacific Airways, the 2013 United Airlines and the 2015 Singapore Airlines comparator orders and their corresponding lost sales.⁴⁹²

6.327. The Arbitrator considers that, in principle, it may be desirable to perform certain price adjustments to reflect potential structural differences between the comparator orders and the counterfactual lost sales. For instance, we note that the share of [[**]].⁴⁹³ We further note that for these exceptions, where the comparator order presents [[**]]. We also acknowledge that other factors, such as aircraft configuration and timing of delivery might impact the extent of price concessions ultimately agreed by the parties.

6.328. Nonetheless, we are of the view that the methodologies that the European Union proposes to account for differences in order sizes and delivery schedules would entail speculation on our part. More specifically, we note that a comparison between the [[**]] aircraft and the [[**]] would not reasonably enable us to determine the extent to which any differences in order size or in delivery schedules resulted in any differences in prices among the relevant contracts. In addition, and more importantly, the European Union does not explain concretely how the result of the comparison of [[**]] comparators could be applied to the comparator orders for the other lost sales, and we discern no straightforward way to do so. The European Union also failed to explain why differences, if any, revealed by the comparison of the [[**]] comparators would be relevant *vis-à-vis* other lost sales not involving [[**]] and in some instances involving different Boeing aircraft models, namely the [[**]] model in the case of [[**]] and the [[**]] model in the case of [[**]].

6.329. We further note that the European Union only provided a concrete example regarding volume discounts. The European Union infers a volume discount rate by comparing the share of price concessions (with respect to the gross price) reported in the 2006 Lufthansa order and the 2009 Korean Air order. While this approach is easy to implement, it suffers, in our view, from the shortcoming that it assumes a simple linear relationship between the order size and the volume discount. Indeed, the methodology that the European Union proposes could lead to an implausible situation where the net price would become negative because the volume discount would exceed 100% for a sufficiently large order. Another shortcoming of this proposed methodology – similar to a weakness with the comparison approach proposed by the European Union discussed above – is that it would not reasonably enable us to determine the extent to which any differences in order size or in delivery schedules resulted in any differences in prices displayed between the relevant contracts. For these reasons, we reject the methodology that the European Union proposes to infer a volume discount.

⁴⁸⁸ European Union's response to Arbitrator question No. 164, paras. 36-37.

⁴⁸⁹ European Union's response to Arbitrator question No. 97, para. 63.

⁴⁹⁰ United States' response to Arbitrator question No. 125, paras. 114 and 116.

⁴⁹¹ United States' response to Arbitrator question No. 125, para. 117.

⁴⁹² United States' comments on the European Union's response to Arbitrator question No. 164, para. 32.

⁴⁹³ Analysis based on comparator orders reported in Calculation of Delivery Prices for Comparator Orders, (Exhibit USA-61 (HSBI)); and Net Price Calculations for Questions 153 and 154(d) Alternative Impedance Valuations, (Exhibit USA-106 (HSBI)).

6.3.4.3.6.4 Discounting of Boeing's counterfactual delivery prices

6.330. As discussed in section 6.3.4.1.1 and as shown in Equation (4) above, the final step of the valuation of lost sales proposed by the United States involves computing the value of the net delivery-year prices (i.e. in delivery-year US dollar terms) of scheduled deliveries expressed in US dollar terms of the year in which the order was lost (i.e. order-year US dollar terms) by discounting the value of delivery-year US dollar prices with a discount rate.

6.331. Generally, the United States argues that the discounting exercise should be done from the perspective of the United States' government and that the discount rate therefore is "the rate that the United States government is willing to pay to transfer the relevant economic activity, reflected in trade, from the delivery year to the order year". According to the United States, this rate corresponds to the interest rate on US sovereign debt. The United States thus proposes to use the interest rate on United States ten-year T-Bond rate as the discount rate to be applied.⁴⁹⁴

6.332. The European Union raises two main arguments on the United States' proposed discounting exercise: (a) the Arbitrator need not find the order-year values of the lost sales and can instead simply find the present-day (i.e. 2019) value of the lost sales; and (b) the discount rate suggested by the United States is artificially low, resulting in artificially inflated present values (i.e. order-year values) of lost sales. This section addresses each issue in turn.

Appropriateness of determining the present-day value of lost sales without determining order-year values

6.333. The European Union contends that even if the Arbitrator were to conduct a discounting exercise – in the light of the United States' apparent ultimate goal of expressing the value of the adverse effects determined to exist in present-day value terms – the Arbitrator should only do so for certain counterfactual payments. More specifically, the European Union argues that the Arbitrator should discount *future* counterfactual payments, made in connection with the counterfactually sold Boeing LCA, expected to occur after 2019. The European Union proposes to apply an appropriate escalation formula to "de-escalate" the amount of such payments to the present day with a downward-adjustment accounting for the risk of cancellation of the relevant order. Regarding any relevant counterfactual payments that would have already occurred before the present day (i.e. before 2019), the European Union asserts that it would be more appropriate to apply an appropriate escalation formula to those payments to bring their values directly up to the present day from the date on which a given payment would have been made in the counterfactual. According to the European Union, this approach avoids the unnecessary and excessive rounds of inflating (taking forward) and discounting (bringing backward) of the net delivery price of the aircraft.⁴⁹⁵

6.334. The United States argues that an order-centric approach to lost sales is an integral part of the findings concerning lost sales in the reports of the original panel, compliance panel and Appellate Body in the original and compliance proceedings. The United States asserts that such an order-centric approach invites discounting the delivery-year prices back to the order year, if only as an intermediary step of ultimately determining the present-day value of the lost sales.⁴⁹⁶ The United States further contends that contrary to what the European Union appears to assume in advocating how to determine a present-year value of the lost sales, (a) escalating a base-year price to a delivery-year price, (b) discounting the delivery-year price back to the order year to determine the order-year value of the delivery-year price, and, finally, (c) adjusting the order-year value for

⁴⁹⁴ United States' methodology paper, paras. 49-51.

⁴⁹⁵ European Union's written submission, paras. 336-344; and response to Arbitrator question No. 79, paras. 274-278. The European Union also submits that the United States' approach to determining the order-year value of LCA delivery-year prices (deliveries of LCA generally occur years after their order) using a discount rate is unwarranted because if the Arbitrator were to follow the overall methodology proposed by the European Union and measure trade effects as and when they arise (i.e. at the time of delivery), the discounting step in the United States' methodology would become moot. (European Union's written submission, paras. 261-262). We recall that we have rejected this overall methodology proposed by the European Union earlier in our Decision. (See section 6.3.3.1 above). We thus do not consider this proposal further in this context.

⁴⁹⁶ As discussed in section 6.3.4.1.3 above, the United States asks the Arbitrator to determine the present-day value of the adverse effects determined to exist by applying an inflation index to the value of the adverse effects expressed in reference-period dollar values.

inflation to a present-day US dollar value are distinct steps that serve different purposes. In particular, the United States argues that the application of the escalation factor is meant to value the price of the aircraft in the year in which it is scheduled for delivery, the discounting exercise is meant to account for the fact that "economic activity today is more valuable than economic activity tomorrow", and the inflation adjustment is designed to make sure that the countermeasures remain commensurate with the adverse effects determined to exist when applied in subsequent years.⁴⁹⁷

6.335. The Arbitrator recalls that, in this proceeding, it must determine the economic value of adverse effects that were determined to exist in the 2011-2013 Reference Period.⁴⁹⁸ We have used an order-based approach to valuing lost sales, under which we temporally assign the value of lost sales to the 2011-2013 Reference Period.⁴⁹⁹ Consistent with these earlier findings, we consider that it is appropriate to determine the value of the lost sales at the time that they occurred in the 2011-2013 Reference Period and thus look to determine the order-year values of the lost sales.⁵⁰⁰ We therefore reject the European Union's proposal to determine the *present-day value* of the lost sales because it cannot be used to determine the *order-year values* of the lost sales. We thus turn to examine the reasonableness of the United States' proposed discount rate that the United States uses to determine the order-year value of the lost sales.

Choice of the discount rate

6.336. The European Union argues that the ten-year T-Bond rate that the United States proposed as a discount rate must be rejected because it is a United-States-government-centric rather than Boeing-centric discount rate (i.e. it does not capture Boeing's relevant risks and circumstances, which the European Union considers an appropriate discount rate must do). The European Union further contends that the United States government is not a party to any of the LCA sales contracts from which the values of the lost sales are derived, nor is the United States government making investments and taking risks regarding those sales transactions. According to the European Union, the ten-year T-Bond rate thus underestimates the applicable discount rate, *inter alia*, because it fails to account for any risks of contractual default by an LCA customer, which, as the United States itself agrees, reduces the present value of an LCA contract, as measured at the time of order. The European Union argues that this leads to the particularly nonsensical situation where, because the Boeing-centric escalation factors (used to determine delivery-year prices) are higher than the proposed United-States-government-centric discount rate (used to convert the delivery-year prices to order-year value), waiting for uncertain LCA sales revenues in the future would be more valuable to Boeing than realizing the same sales revenue with certainty today.⁵⁰¹

6.337. The European Union asserts that the contractual escalation factor is a more appropriate indicator of the time value of money than the ten-year T-Bond interest rate, although this approach would still overstate the value of the lost sale at the time of the order because, for example, the risk of future cancellation at the time of order would still need to be factored in. The European Union thus proposes to replace the ten-year T-Bond rate with a comparator-order-specific discount rate that captures three components: (a) the real interest rate; (b) the expected LCA price inflation, which may be approximated by the contractually agreed escalation factor; and (c) Boeing's inherent default risk in connection with future deliveries of LCA. According to the European Union, in the absence of information on comparator-order or customer-specific default risks, Boeing's default risk

⁴⁹⁷ United States' written submission, paras. 228 (citing Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.31 and 6.37; Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1780-6.1781, 6.1798; Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, paras. 1217, 1220, 1414(l)(o)-(p); and Panel Report, *EC and certain member States – Large Civil Aircraft*, paras. 7.1750, 7.1828, 7.1845, 8.2(d)), and 256-259.

⁴⁹⁸ See section 6.3.1 above.

⁴⁹⁹ See section 6.3.3.2.1 above.

⁵⁰⁰ This is so whether or not our ultimate goal will be to determine a present-day value of the adverse effects determined to exist.

⁵⁰¹ European Union's written submission, paras. 263, 265-268, 271, 275, and 283-290; responses to Arbitrator question No. 29, paras. 425-434, and No. 78, paras. 254, 263-264, and 266-270; and comments on the United States' response to Arbitrator question No. 111, paras. 143-146 (citing United States' responses to Arbitrator question No. 73, para. 90, No. 115, para. 55, and No. 126, para. 119).

concerning future deliveries could be proxied by the historical cancellation rates across all LCA sales made by Boeing for the 2006 to 2017 time-period.⁵⁰²

6.338. Although the European Union argues that its suggested three-component discount rate best captures the economic circumstances surrounding the individual lost sales at issue, it also mentions the possibility of using Boeing's weighted average cost of capital (WACC) at the time of the lost sales as a reasonable approximation of Boeing's discount rate.⁵⁰³

6.339. In response to an Arbitrator question, the European Union rejects the use of Boeing's cost of debt, which is one of the WACC components, as Boeing's discount rate because it fails to meet two of the three requirements that the European Union considers a proper discount rate should meet. More specifically, according to the European Union, the cost of debt does not reflect price and cost inflation that is either specific to the production of Boeing LCA models involved in the counterfactual orders or to the LCA industry generally. Nor does the European Union consider that the cost of debt reflects the probability that the respective LCA customer cancels the order.⁵⁰⁴

6.340. The United States responds that all of the European Union's criticisms regarding the use of the ten-year T-Bond rate as the discount rate are inapposite, because they do not address the relevant issue under Article 7.10 of the SCM Agreement, namely that adverse effects are being caused to the interests of the United States government (as a WTO member), not Boeing. The United States is therefore of the view that the valuation exercise is properly conducted from the perspective of the United States, not Boeing. The United States further argues that the ten-year T-Bond rate is conservative because ten years is longer than the time between the counterfactual orders and nearly all of the estimated counterfactual deliveries at issue here, while the interest rate on shorter bonds would be lower, resulting in higher order-year values of delivery-year prices.⁵⁰⁵

6.341. The United States also argues that if the Arbitrator nevertheless wished to determine the order-year values of the lost sales from Boeing's perspective, then the Arbitrator could simply use the price of the aircraft in order-year US dollar terms specified in the counterfactual Boeing sales contracts without escalating that price to the time of delivery and then discounting the delivery price back to the order year. However, in response to an Arbitrator question, the United States also states that Boeing, in the normal course of business, values its [***]. The United States further observes that Boeing sometimes uses its WACC to discount anticipated future cash flows to determine their present value. However, the United States maintains that this relates to a different context from the valuation of the level of countermeasures. The United States does not address what discount rate should be used in a discounting exercise undertaken from Boeing's perspective if the WACC were found to be an inappropriate discount rate in the context of this proceeding.⁵⁰⁶

6.342. Finally, the United States is also of the view that the European Union's assertion that a discount rate must include a risk of order cancellation "is both unsupported and needlessly introduces technical deficiencies".⁵⁰⁷

6.343. The Arbitrator notes that the parties disagree on whether, if discounting were to be performed, the discount rate should reflect Boeing's or the United States government's perspective. As explained in section 6.3.4.3.3, we consider that the valuation of lost sales must be carried out from Boeing's perspective. It follows that the discounting exercise must also be conducted from Boeing's perspective, and that any selected discount rate must reflect Boeing's perspective.

6.344. The question now arises as to the appropriate discount rate to use from Boeing's perspective. As a first step, we briefly describe the purpose of discounting in the present context. Concluding an

⁵⁰² European Union's written submission, paras. 267-268 and 290; and response to Arbitrator question No. 29, paras. 425-434.

⁵⁰³ European Union's response to Arbitrator question No. 29, paras. 435-436. A company's capital can consist of debt and equity. The WACC measures the company's cost of debt and equity weighted by the value of the respective share of debt and equity in the company's total capital.

⁵⁰⁴ European Union's response to Arbitrator question No. 111, paras. 225-239; and comments on the United States' response to Arbitrator question No. 111, paras. 141-151.

⁵⁰⁵ United States' methodology paper, para. 51; written submission, paras. 227-230; and responses to Arbitrator question No. 69, para. 46, and No. 72, para. 66.

⁵⁰⁶ United States' responses to Arbitrator question No. 78, paras. 98-99 and 102, No. 111, para. 36-37, and No. 175, para. 20; and Boeing WACC Data for 2012, 2013 (Exhibit USA-120 (BCI)).

⁵⁰⁷ United States' response to Arbitrator question No. 73, paras. 88-90.

LCA sales contract represents an investment for Boeing, i.e. Boeing must mobilize (a large amount of) capital and invest that capital in the production of the ordered LCA. In return for that investment, Boeing contracts for the receipt of future revenues linked to the future delivery of the ordered LCA. However, collecting future revenues entails risks. Whether it is worth taking those risks in the light of the initial investment amount controls, in theory, Boeing's decision whether to conclude the contract in the first place. Indeed, if a company could, for instance, take an initial investment amount and simply invest it in risk-free bonds and in doing so realize a greater return over time than it could with an alternative investment contract for future revenues, this would argue against concluding the contract. Thus, the discounted present value of future revenues arising from an investment can be expected to be a key component of a company's investment decisions. This also illustrates why a discount rate applied to anticipated future revenue streams should take into account a company's relevant costs and risks of waiting for those streams in order to compare that discounted present value to the initial investment value. This is the essence of a net-present-value (NPV) analysis. The key issue thus becomes how Boeing's costs and risks, associated with realizing future revenue streams in an LCA sales contract scenario, can be captured with a view to determining their NPV at the time of order.

6.345. We consider that Boeing's risks and costs come in different forms. In particular, inflation may erode the value of Boeing's future revenue flows relative to the order date. Boeing also incurs the opportunity cost of allocating funds to the production of the ordered LCA rather than putting those funds to alternative potential uses. Therefore, in our view, the discount rate that we look for here should capture the risks posed by inflation and the opportunity cost of waiting to receive the payment for the production and delivery of an aircraft. Another risk that Boeing faces is that the order may also be cancelled, and thus the future revenue streams may never be realized. We have already decided in section 6.3.4.3.4.2 above to make appropriate adjustments for this risk by using the survival rate. We therefore consider that we need not capture this risk again in a discount rate.

6.346. The United States submits that if the value of the lost sales were considered from Boeing's perspective, there would be no reason to use a discount rate to express the delivery-year prices in order-year values because the Arbitrator could simply use the order-year prices of the counterfactually ordered Boeing aircraft specified in the relevant counterfactual sales contract instead.⁵⁰⁸ In support of this argument, the United States asserts that "Boeing in the normal course [[***]]".⁵⁰⁹ While a review of Boeing's financial statements does indicate that Boeing values its LCA order backlog, i.e. its *estimated future revenues*, using escalated prices⁵¹⁰, this does not answer the question of how Boeing would express those *estimated future revenues* to determine their *order-year value* (i.e. the discounted value of post-order scheduled deliveries of aircraft in order-year dollar terms). Hence, using order-year contractual prices is an appropriate alternative to determining the order-year value of delivery-year prices (expressed in delivery-year US dollar terms).⁵¹¹

6.347. In addressing this argument, we recall that, in this proceeding, the value of lost sales is essentially controlled by the revenues that Boeing would most likely have realized from the lost sales had Boeing won them. As discussed, it is undisputed that in the counterfactual Boeing would have realized these revenues, for the most part, years after the relevant counterfactual order dates. Indeed, Boeing specifically bargained for these post-order revenue streams, as illustrated by the delivery and payment schedules in the counterfactual sales contracts. As further discussed in the paragraphs above, waiting for future revenues entails risks for which Boeing would account when determining their order-year NPV. However, there is nothing on the record that indicates to us that the order-year price of any LCA is necessarily equivalent to the order-year value of counterfactual delivery-year prices to be received by Boeing years following the order. The order-year price is simply a price that the customer would pay on the order date if the delivery could also occur on that date (which it will not be, pursuant to the contractual delivery schedule). We therefore reject the United States' suggestion to use order-year prices.

⁵⁰⁸ United States' response to Arbitrator question No. 78, paras. 98-99 and 102.

⁵⁰⁹ United States' response to Arbitrator question No. 175, para. 20.

⁵¹⁰ Boeing Annual Report 2017 (excerpt), (Exhibit USA-34); and Boeing 2013 Annual Report (Exhibit USA-102).

⁵¹¹ In fact, the United States itself recognizes that the value of a delivered aircraft expressed in delivery-year US dollars reflects the expected value of the aircraft that the United States industry would have sold, but arguably does not reflect the value at the time of sale (i.e. the time that the sale was lost). (United States' methodology paper, para. 49).

6.348. Taking into account the above observations, we therefore agree with the European Union that if the discount rate is to reflect Boeing's perspective, it would be desirable to use a project-specific discount rate that takes into account Boeing's opportunity cost of waiting to receive the payment for the production and delivery of an aircraft, and also expected inflation. However, we question the validity of the comparator order-specific discount rate that the European Union proposes and that is composed of the (a) real interest rate, (b) expected LCA price inflation, and (c) Boeing's risk of order cancellation. We note that the first two components together correspond to a nominal interest rate, since, according to the Fisher Equation, the real interest rate is equal to the nominal interest rate minus expected inflation.⁵¹² In our view, it would be unusual to construct a discount rate by adding a measure of expected inflation to a real interest rate, rather than discounting expected future cash flows expressed in nominal terms using directly a nominal interest rate, or discounting expected future cash flows expressed in real terms using a real discount rate.⁵¹³ We also note that the three-component discount rate proposed by the European Union is only project-specific because of the inclusion of the escalation factor as a proxy for the expected LCA price inflation. Yet, according to the European Union, the discount rate should be project-specific to account for the default risk of the airline, not because different *[[***]]* are used for different *[[***]]*. In other words, the European Union did not provide a project-specific discount rate that accounts for the specific default risk of the airline. In the absence of such project-specific discount rates, we consider that a Boeing-specific discount rate is the best available alternative.

6.349. We thus turn to address Boeing's WACC, which the European Union proposed as an alternative to a comparator order-specific discount rate. To recall, the United States explained that "Boeing *sometimes* [but not always] uses its WACC to discount anticipated future cash flows in order to determine their present value", but observed that "[t]hat is a different context from the level-of-countermeasures valuation exercise at issue here".⁵¹⁴ However, the evidence on the record is insufficient for us to establish what Boeing's customary approach – if it has one – to discounting these future revenue streams would be. We further observe that the WACC is a constructed rate. Its value differs depending on how certain WACC components, in particular the cost of equity, are calculated and on the data sources that are used to make those calculations. Both parties provided values of Boeing's WACC that differ substantially, with the differences ranging from *[[***]]* to *[[***]]* percentage points. Some of these differences likely reflect the fact that the parties have provided Boeing's WACC with reference to different points in time (i.e. July 2012 and July 2013 (United States) versus December 2012 and December 2013 (European Union)). But some of these differences could also be the result of different approaches and data sources that the parties might have used to calculate the WACC. For these various reasons, we are not persuaded that the WACC would be an appropriate discount rate for the valuation of lost sales in this proceeding.

6.350. We also note that both parties have mentioned the possibility of using the escalation factors found in Boeing's counterfactual sales contracts that would have governed the lost sales had Boeing won them as the discount rate applicable to each lost sale. We nevertheless note that, according to the European Union, such an approach would not account for the risk of cancellations. As explained by the European Union, applying the escalation factor as a discount rate to the projected net delivery-year prices to determine their discounted values at the time of order, is tantamount to calculating the net delivery prices in order-year US dollar terms using the corresponding escalation factor (i.e. order-year prices). Yet we note, and this is acknowledged by both parties, that escalation is conceptually distinct from discounting. Escalating serves to determine the amount of US dollar revenue that Boeing would ultimately receive upon aircraft delivery in connection with an LCA order in the counterfactual. In contrast, discounting is a means by which we can express the value of those post-order revenues in order-year values. In fact, we note that using the escalation factor as a discount rate implicitly would assume that Boeing would have a zero-opportunity cost of time and would place less value on immediate benefits than on future benefits, because the escalation factor only accounts for expected changes in labour and material costs (i.e. inflation). We find such an assumption unreasonable. Consistent with our previous decision to reject the use of order-year prices, we reject the use of escalation factors as the discount rate.

⁵¹² European Union's written submission, fn 295.

⁵¹³ Moreover, as explained in section 6.3.4.3.4.2, we agree with the European Union that the risk of future cancellations should be taken into account in the valuation of lost sales, but we question the validity of the approach proposed by the European Union, which consists of combining rates based on different metrics, namely the nominal discount rate relating to the monetary value of time preferences and the cancellation rate relating to risk-taking in terms of cancelled aircraft deliveries.

⁵¹⁴ United States' response to Arbitrator question No. 175, para. 20. (emphasis added)

6.351. As the parties' suggested discount rates appear to us inappropriate in the circumstances of this proceeding and given the lack of common ground between the parties on this particular issue, we proceed to select an alternative discount rate to discount Boeing's counterfactual anticipated post-order cash flows.

6.352. As explained above, an appropriate discount rate should in our view (a) reflect Boeing's opportunity cost of waiting to receive the payment for the production and delivery of an aircraft, and (b) account for inflation. With that in mind, we proposed to the parties the cost of debt as a discount rate. The cost of debt measures the effective interest rate that Boeing pays on its current debt. It is calculated as the sum of a T-Bond rate and Boeing's spread.⁵¹⁵ The spread, defined as the difference between the yield of a T-Bond and Boeing's bond, is a measure of Boeing's risk of default.

6.353. The United States opposes using the cost of debt as a discount rate, but it did not provide any direct explanation as to why it could not be used.⁵¹⁶ We also note the European Union's assertion that the cost of debt does not capture price and cost inflation.⁵¹⁷ We disagree, since one of the components of the cost of debt is the ten-year T-Bond rate, which is a nominal interest rate. We also note that the ten-year T-Bond rate accounts for the opportunity cost of waiting in a risk-free setting.⁵¹⁸ As indicated above, according to the Fisher Equation, a nominal interest rate captures expected inflation.⁵¹⁹ We are aware that the inflation reflected in the T-Bond rate refers to the US consumer price index (CPI) and not [***]. However, we note that the 2012-2018 correlation between [***] is very high.⁵²⁰

6.354. In the light of all of the above, we find that Boeing's cost of debt with a ten-year maturity⁵²¹ which is available from the record, is a suitable discount rate to use in the circumstances of this proceeding.⁵²²

6.3.4.3.7 Conclusion

6.355. This concludes our assessment of technical aspects of the United States' methodology for valuing lost sales. As noted in section 6.1 above, we will apply these findings further below in section 6.4.2 when we calculate the actual value of the lost sales.

6.3.4.4 Issues surrounding the valuation of impedance

6.356. In section 6.3.4.4, we assess the approach proposed by the United States for determining the value of adverse effects in the form of impedance. We also address the technical criticisms that the European Union raised against specific steps contained in the United States' approach to quantifying impedance, and any alternatives to those specific steps that the European Union proposed.

6.357. The Appellate Body has explained that "the phenomenon of impedance 'refers to situations where the exports or imports of the like product of the complaining Member would have expanded

⁵¹⁵ Boeing 2013 Annual Report, (Exhibit USA-120 (BCI)).

⁵¹⁶ United States' response to Arbitrator question No. 111.

⁵¹⁷ As explained above in section 6.3.4.3.4.2, we rejected the European Union's approach to include the average risk of cancellation in the discount rate. Instead, we account for the risk of future cancellations by applying the survival rate.

⁵¹⁸ As pointed out by the European Union, the opportunity cost of waiting is often assumed to be constant across individuals and situations. (European Union's response to the Arbitrator question No. 78, para. 253).

⁵¹⁹ European Union's written submission, fn 295.

⁵²⁰ The 2012-2018 correlation between [***] is equal to 0.987, which is very close to the 2012-2018 correlation of 0.969 [***] and the 2012-2018 correlation of 0.98 [***]. (See Boeing e-mail from [***] (Dec. 13, 2018), (Exhibit USA-36 (BCI)); Boeing Escalation Slide, (Exhibit USA-37 (BCI)); [***], (Exhibit USA-40 (BCI)); [***], (Exhibit USA-41 (BCI)); and Transaero (2013) comparator campaign: projected versus actual escalation rates, (Exhibit EU-77 (HSBI))).

⁵²¹ We chose a ten-year maturity because there is, on average, a [***] gap between the order year and the counterfactual delivery year. The [***] figure was computed as the weighted average of the number of years between order and counterfactual delivery, where the weights are the share of aircraft to be delivered on a given date. As discussed in section 6.3.4.3.5.1, the counterfactual delivery schedules are based on Airbus' contractually agreed delivery schedules.

⁵²² Boeing WACC Data for 2012, 2013, (Exhibit USA-120 (BCI)).

had they not been "obstructed" or "hindered" by the subsidized product".⁵²³ In the compliance proceedings, the panel found that challenged subsidies caused impedance in the VLA product market⁵²⁴ in six geographic markets based on LCA delivery data reflected in Table 12 below. The table reflects deliveries of Airbus A380 aircraft and Boeing 747-8I aircraft⁵²⁵ in these six geographic markets in the 2011-2013 Reference Period. These two aircraft models were the only LCA in the VLA product market in the 2011-2013 Reference Period.

Table 12: Market for very large LCA⁵²⁶

Delivery Data	European Union			Australia			China		
	Dec. 2011	2012	2013	Dec. 2011	2012	2013	Dec. 2011	2012	2013
Boeing Volume (Units)	0	5	5	0	0	0	0	0	0
Boeing Market Share	-	55.6%	55.6%	0.0%	-	-	0.0%	0.0%	0.0%
Airbus Volume (Units)	0	4	4	1	0	0	1	2	1
Airbus Market Share	-	44.4%	44.4%	100%	-	-	100%	100%	100%
Delivery Data	Korea			Singapore			United Arab Emirates		
	Dec. 2011	2012	2013	Dec. 2011	2012	2013	Dec. 2011	2012	2013
Boeing Volume (Units)	0	0	0	0	0	0	0	0	0
Boeing Market Share	-	0.0%	0.0%	-	0.0%	-	0.0%	0.0%	0.0%
Airbus Volume (Units)	0	1	2	0	5	0	2	11	13
Airbus Market Share	-	100%	100%	-	100%	-	100%	100%	100%

6.358. The Appellate Body modified the compliance panel's reasoning in this regard, but ultimately found that "the 'product effects' of the LA/MSF subsidies existing in the post-implementation period are a genuine and substantial cause of impedance of US LCA in the VLA markets in the European Union [under Article 6.3(a) of the SCM Agreement], [and] Australia, China, Korea, Singapore, and the United Arab Emirates" under Article 6.3(b) of the SCM Agreement.⁵²⁷ Thus, both the compliance panel and the Appellate Body found that the United States' LCA industry's LCA deliveries into these six geographic markets would have been "higher" during the 2011-2013 Reference Period in the counterfactual.⁵²⁸ Importantly, however, neither the compliance panel nor the Appellate Body specified *how much higher* those deliveries would have been in any particular geographic market.⁵²⁹

⁵²³ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.738 (quoting Appellate Body Report, *EC and certain member States – Large Civil Aircraft*, para. 1161).

⁵²⁴ The compliance panel had found that challenged subsidies caused displacement and/or impedance in all three product markets (i.e. single-aisle, twin-aisle, and VLA), but these findings were reversed on appeal *vis-à-vis* the single-aisle and twin-aisle product markets, as were the compliance panel's displacement findings *vis-à-vis* the VLA product market.

⁵²⁵ There are two versions of the Boeing 747-8, the 747-8F (freighter) and the 747-8I (passenger). (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 2323). We note, however, that the product markets in the compliance proceedings included only passenger aircraft, and thus no findings were requested or made regarding impedance of deliveries of 747-8F aircraft.

⁵²⁶ The table is a reproduction of Table 22 in the compliance panel report and Table 13 in the Appellate Body report.

⁵²⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.42(a).

⁵²⁸ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.41. We thus note that an increase in absolute numbers of Boeing's deliveries to the six geographic markets is how Boeing's relevant "exports or imports ... would have expanded".

⁵²⁹ European Union's written submission, para. 198 (making this point); and United States' written submission, para. 165 (noting that "[t]he United States and the EU agree that the compliance appellate report found that the US LCA industry would have achieved a higher volume of deliveries and market share than its actual level in the post-implementation period. However, the parties disagree as to the implications of this finding"). (fn and quotation marks omitted)

6.359. We note that the United States, in its methodology, takes the position that the actual deliveries of Airbus A380 aircraft that occurred in the six geographic markets during the 2011-2013 Reference Period (which, for ease of reference, we will refer to as the A380 Impedance Deliveries) would have been replaced, on a one-to-one basis, with counterfactual deliveries of Boeing 747-8I aircraft (i.e. the closest competing Boeing model to the A380 aircraft) in the 2011-2013 Reference Period.⁵³⁰ The United States thus computes the value of impedance in a given geographic market k in a given month or year s in the Reference Period, as the average net delivery price of Boeing 747-8I aircraft in that month or year multiplied by the number of 747-8I aircraft that would have been delivered to that geographic market k in year s in the counterfactual⁵³¹:

$$\text{Impedance}_{\text{Market } k, \text{delivery year } s}^{\text{in delivery year } s \text{ USD}} = \text{AverageBoeingNetPrice}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}} \times \text{NumberOfAircraft}_{\text{Market } k, \text{delivery year } s} \quad (8)$$

where s : delivery month/year in the Reference period

$\text{AverageBoeingNetPrice}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}}$: average net delivery price of the 747-8I model delivered in year s and expressed in US dollar terms of delivery year s

$\text{NumberOfAircraft}_{\text{Market } k, \text{delivery year } s}$: number of 747-8I aircraft delivered to airline(s) in country market k in year s .

6.360. The parties contest two main subjects in this context, (a) how much higher Boeing's counterfactual deliveries would have been and what Boeing LCA models would have been delivered, and (b) the prices of Boeing's additional counterfactual deliveries. This section addresses each in turn, after a brief word on the representativeness of the 2011-2013 Reference Period for purposes of valuing impedance.

6.3.4.4.1 Representativeness of the 2011-2013 Reference Period

6.361. The Arbitrator recalls that in paragraph 6.203, we indicated that we would conduct an inquiry into the representativeness of the 2011-2013 Reference Period, including for purposes of our quantification of adverse effects in the form of impedance. We note in this respect that the VLA delivery volumes for notably one of the six relevant geographic markets were high for both 2012 and 2013. It is unlikely that the exact same number of VLA deliveries or the same customers would have been observed in different years. However, this situation is not inconsistent with the nature of the LCA industry.⁵³² We thus discern nothing about the number of A380 Impedance Deliveries, or about any record data relating to the A380 Impedance Deliveries and market conditions in the 2011-2013 Reference Period, that could be objectively characterized as so anomalous as to render the 2011-2013 Reference Period unrepresentative of the short-term adverse effects (in the form of impedance) resulting from the European Union's failure to comply by the end of the implementation period.

6.362. In conclusion, we find no basis upon which to conclude that the 2011-2013 Reference Period is unrepresentative in the context of valuing impedance and that we should therefore use only a temporal subset of the 2011-2013 Reference Period rather than the entire 25-month Reference Period.

6.3.4.4.2 Number and models of increased Boeing counterfactual LCA deliveries

6.363. As already mentioned above, the United States takes the position that the actual deliveries of Airbus A380 aircraft that occurred in the six geographic markets during the 2011-2013 Reference

⁵³⁰ United States' methodology paper, para. 82.

⁵³¹ With the exception of the European Union market, the impedance findings regarding each of the remaining five geographic markets at issue concern a single airline. For instance, the impedance findings regarding the 2012 deliveries of A380 aircraft to Singapore refers to Singapore Airlines. Conversely, the impedance findings regarding the 2013 deliveries of A380 aircraft to the European Union refer to deliveries to Air France and British Airways.

⁵³² Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1719 (explaining that LCA "orders tend to be very large and sporadic", thus naturally resulting in non-uniform delivery volumes of particular LCA to particular customers over time).

Period (which, for ease of reference, we will refer to as the A380 Impedance Deliveries) would have been replaced, on a one-to-one basis, with counterfactual deliveries of Boeing 747-8I aircraft (i.e. the closest competing Boeing model to the A380 aircraft) in the 2011-2013 Reference Period.⁵³³

6.364. The European Union contests that position⁵³⁴, arguing that an economic model is needed to determine how much higher Boeing's counterfactual LCA deliveries to the six geographic markets would have been during the 2011-2013 Reference Period, taking into account supply- and demand-side factors. According to the European Union, these counterfactual deliveries would not necessarily have been Boeing 747-8I aircraft but could have taken the form of other aircraft models, such as other Boeing twin-aisle aircraft like the 777-300ER. The European Union asserts that because the United States has not provided any economic model, the United States fails to properly substantiate its arguments with proper evidence.⁵³⁵

6.365. The United States responds that the European Union's arguments are inconsistent with the findings of the compliance panel and Appellate Body, thus amounting to an attempt to re-litigate the compliance proceedings with respect to impedance, and are unsupported by proper evidence. The United States, however, leaves open the possibility that Boeing may have replaced certain of the A380 Impedance Deliveries with LCA models other than the 747-8I model, such as the Boeing 777-300ER model.⁵³⁶

6.366. The Arbitrator notes at the outset that neither the compliance panel report nor the Appellate Body report in the compliance proceedings explicitly specified how much "higher" Boeing's LCA deliveries into each of the six relevant geographic product markets would have been in the counterfactual. Thus, in principle, we consider it appropriate to examine the European Union's arguments to determine how much "higher" Boeing's deliveries would have been. At the same time, we appreciate the United States' concern that, particularly given the low number of A380 deliveries into certain of the six geographic markets above (e.g. Australia with one A380 delivery), anything less than a counterfactual one-to-one replacement of Airbus deliveries by Boeing deliveries in such markets may either invalidate at least certain of the impedance findings, or may appear contrary to apparent assumptions underlying the relevant analyses in the compliance proceedings. Furthermore, it would in our view be implausible and inconsistent, in the absence of supporting findings or evidence, to assume that, in the relevant geographic markets in which many A380 Impedance Deliveries occurred, Boeing would have made fewer additional counterfactual LCA deliveries than Airbus in fact made, whereas in a relevant geographic market in which only one delivery was made (e.g. Australia), Boeing would have counterfactually delivered the same (or a greater) number of aircraft than Airbus did.⁵³⁷

6.367. In this case, what is clear to us is that whatever approach we adopt, we must not invalidate the Appellate Body's findings that impedance occurred in the VLA product market in each of the six geographic markets, individually⁵³⁸, during the 2011-2013 Reference Period.⁵³⁹ We consider, however, that an examination of the European Union's arguments in this instance is not incompatible with that imperative. We therefore examine the European Union's arguments in order to come to a view about how much "higher" Boeing's LCA deliveries would have been into each of the six

⁵³³ United States' methodology paper, para. 82.

⁵³⁴ We recall that the European Union presents its arguments in this section in the alternative to its preferred approach that the Arbitrator ignore impedance entirely in making its valuation. That approach was determined to be improper earlier in this Decision. (See sections 6.3.1 and 6.3.3 above).

⁵³⁵ European Union's written submission, paras. 197-203.

⁵³⁶ United States' written submission, para. 234; responses to Arbitrator question No. 46, para. 114, No. 87, para. 122, and No. 88, para. 128; and comments on the European Union's responses to Arbitrator question No. 113, para. 217, and No. 151, para. 263.

⁵³⁷ We note in this context the United States' correct observation that neither the compliance panel nor the Appellate Body engaged in any geographic-market-specific reasoning in the impedance context. (United States' comments on the European Union's response to Arbitrator question No. 113, paras. 221-222).

⁵³⁸ See Articles 6.3(a) and (b) of the SCM Agreement (referring to "the market of the subsidizing Member" and "a third country market", respectively). (emphasis added)

⁵³⁹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.740 and 5.742 (agreeing with findings by the compliance panel that "the volume of deliveries and market shares that would have been achieved by the United States' LCA industry between 1 December 2011 and the end of 2013 would have been higher" in the absence of LA/MSF). (emphasis added)

geographic markets at issue during the 2011-2013 Reference Period⁵⁴⁰, and what models of Boeing LCA those additional deliveries would have been.

6.368. This section first addresses the European Union's basic argument that an economic model is needed to assess the relevant counterfactual situation. It then examines the supply- and demand-side factors that the parties identify as material in this context.

6.3.4.4.2.1 Absence of an economic model

6.369. The European Union argues that the Arbitrator must use an economic model to determine how much higher Boeing's market share and deliveries would have been in each of the six geographic markets at issue within the 2011-2013 Reference Period. The European Union asserts that, without such a model, the Arbitrator lacks an objective basis to test the United States' counterfactual assumption that Boeing would have replaced the A380 Impedance Deliveries with an equal number of 747-8I deliveries within the 2011-2013 Reference Period. The European Union argues that such a model would, at a minimum, need to address certain supply- and demand-side factors. In the European Union's view, in the absence of such a model, the United States' position that the A380 Impedance Deliveries would have been replaced, on a one-to-one basis, with deliveries of Boeing 747-8I aircraft in the counterfactual remains "an extreme and unsupported assumption"⁵⁴¹, not based on a "credible or evidence-based approach" for calculating the value of impedance deliveries.⁵⁴² The European Union thus asserts that the United States fails to demonstrate that its quantification exercise yields a level of countermeasures *vis-à-vis* impedance that satisfies the "commensurate" standard in Articles 7.9 and 7.10 of the SCM Agreement.⁵⁴³

6.370. The United States argues that its assumption that, in the counterfactual, Boeing would have replaced all the A380 Impedance Deliveries with an equal number of 747-8I aircraft deliveries within the 2011-2013 Reference Period is reasonable based on the adopted findings in this dispute and the evidence on the record. The United States recalls that the A380 and 747-8I models were found to be sufficiently substitutable, were the only two VLA available for delivery in the 2011-2013 Reference Period, and that customer demand for LCA is inelastic. Based on these considerations, in the United States' view, customers would most likely demand deliveries of the same number of counterfactual 747-8I aircraft as they actually did A380 aircraft. The United States further asserts that the European Union has failed to present evidence demonstrating otherwise. Thus, the United States argues that the use of an economic model in this context is unnecessary. Moreover, in the United States' view the use of such a model would entail speculation about "endless variables".⁵⁴⁴ The United States' position is that "[t]o engage in such speculation would only provide a misleading appearance of exactitude. In truth, it would make the calculation dependent on highly speculative inputs and the interplay between them".⁵⁴⁵ Thus, the United States' asserts that there is no reason to believe that a model would yield more reliable results than the United States' approach. The United States further notes that the compliance panel rejected the notion that quantitative econometric analyses were instrumental for determining product markets, and instead relied on qualitative evidence.⁵⁴⁶

6.371. The Arbitrator notes that its mandate is to quantify the degree and nature of the adverse effects determined to exist with a view to determining whether the proposed level of countermeasures is commensurate with these adverse effects. Article 7.10 of the SCM Agreement

⁵⁴⁰ We agree with the European Union that, in the impedance context, we should not include, in setting a maximum amount of Annual Suspension, any Boeing counterfactual deliveries that would have occurred outside the 2011-2013 Reference Period. (European Union's comments on the United States' response to Arbitrator question No. 144, paras. 445-451).

⁵⁴¹ European Union's response to Arbitrator question No. 3, para. 92.

⁵⁴² European Union's written submission, para. 202.

⁵⁴³ See, e.g. European Union's written submission, paras. 197-203; and responses to Arbitrator question No. 3, paras. 91-95, No. 5, No. 6, No. 46, and No. 84.

⁵⁴⁴ United States' written submission, para. 194.

⁵⁴⁵ United States' written submission, para. 194. The United States raises this argument with respect to determining when deliveries would have occurred as a result of the lost sales, but we consider these arguments would also apply with respect to a more complex inquiry regarding what LCA customers would have ordered and when deliveries of such LCA would have occurred in the impedance context.

⁵⁴⁶ United States' written submission, paras. 164, 171, 173, 177, 191-194, 231, and 236; and comments on the European Union's response to Arbitrator question No. 151, para. 265.

is silent on the methodology that arbitrators should use to fulfil this mandate, thus leaving a degree of discretion to an arbitrator in selecting an appropriate methodology. In making this selection, the starting point is the methodology offered by the complaining party, in this instance the United States, in its methodology paper.

6.372. In its methodology paper, the United States asks the Arbitrator to assume that, in the counterfactual, all A380 Impedance Deliveries would have been replaced by an equal number of 747-8I deliveries occurring within the same relevant time-period, i.e. the 2011-2013 Reference Period. The European Union bears the burden to submit arguments and evidence sufficient to establish that this approach leads to a level of countermeasures not commensurate with the six instances of impedance found to exist in the compliance proceedings, and is, consequently, inconsistent with Article 7.10. To do so, the European Union must engage with the methodology presented by the United States; it is "not sufficient merely to assert that another methodology is more appropriate".⁵⁴⁷ While the European Union has engaged with the United States' methodology and has asserted that an economic model would be more appropriate, it has not produced any such model supporting its arguments.

6.373. Thus, to form a view on whether an approach involving economic modelling would be more appropriate than the United States' approach, we now assess whether, in the light of the evidence on the record, the assumption underlying the United States' approach, i.e. that Boeing would have replaced all A380 Impedance Deliveries with an equal number of deliveries of 747-8I aircraft within the 2011-2013 Reference Period, is reasonable. If that is the case, economic modelling would in our view not constitute an inherently more appropriate methodology. We find it convenient and effective to organize our assessment around the supply- and demand-side factors identified by the parties. We examine these factors below.

6.3.4.4.2.2 Supply- and demand-side factors

6.374. The parties' submissions, have identified the following supply- and demand-side factors that the parties argue the Arbitrator must consider in its analysis of how much "higher" Boeing's counterfactual LCA deliveries would have been into each of the six geographic markets during the 2011-2013 Reference Period: (a) inelasticity of LCA demand, (b) demonstrated customer demand for A380 deliveries during the 2011-2013 Reference Period, (c) the substitutability of the 747-8I and the A380 models, (d) Boeing's 747-8I production capacity, (e) market presence of the A380 aircraft, (f) competition from twin-aisle LCA, leasing companies, and the LCA second-hand market, (g) aggressive bidding by Airbus in certain sales campaigns, (h) Airbus' and Boeing's costs, prices and deliveries, (i) foregone learning-by-doing efficiencies, (j) customers deferring purchases, and (k) different customer preferences in the counterfactual. We address each in turn.

6.375. In doing so, we recall that the volume of adopted findings in this dispute from the original and compliance proceedings run into hundreds of pages, and that the relevant findings for purposes of this arbitration proceeding concern claims made under Part III of the SCM Agreement, which required the identification of adverse effects within the meaning Articles 5 and 6. That being the case, we note that a significant portion of the voluminous adopted findings in this dispute describe the conditions of competition in the LCA industry during relevant time periods, the causal mechanism through which A380 and A350XWB LA/MSF caused adverse effects generally, and the circumstances surrounding the occurrence of the lost sales and impedance in question specifically. We are bound by such findings and we thus operate within those bounds. In assessing the validity of the European Union's arguments in this context, we therefore note that we conduct this assessment not only in the light of the evidence on the record of this arbitration proceeding, but also in the light of the significant volume of adopted findings in this dispute bearing on the market conditions in which the relevant instances of impedance arose.⁵⁴⁸

⁵⁴⁷ Decisions by the Arbitrator, *US – COOL (Article 22.6 – United States)*, para. 4.14.

⁵⁴⁸ See Appellate Body Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*; *EC and certain member States – Large Civil Aircraft*; Panel Reports, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*; and *EC and certain member States – Large Civil Aircraft*. We note that in many arbitrations conducted under other provisions (e.g. Article 4 of the SCM Agreement and/or Article 22.6 of the DSU), such findings may not be available, as relevant underlying violations may be related to structural aspects of measures rather than their market effects.

Inelasticity for LCA demand

6.376. The parties agree that, as a general matter, demand for LCA is inelastic.⁵⁴⁹ We consider that this supports the view that, if the customers to whom the A380 Impedance Deliveries were made could not have had A380 aircraft delivered to them during the 2011-2013 Reference Period in the counterfactual, they would likely have demanded LCA deliveries of some kind to have been delivered to them in this same time-period instead, and particularly if a model of LCA were available for delivery at that time that was sufficiently substitutable with the A380 aircraft.

Demonstrated VLA customer demand

6.377. We further note that, in reality, the customers to whom the A380 Impedance Deliveries were made wanted to have A380 aircraft delivered to them in the relevant quantities within the 2011-2013 Reference Period. In the absence of evidence that these customers would have for some reason changed this revealed preference, we consider it reasonable to assume that in the counterfactual these same customers would have wanted to have the same number of sufficiently substitutable LCA delivered to them within the 2011-2013 Reference Period.

Substitutability of the 747-8I and A380 models

6.378. The United States notes that in the compliance proceedings, the A380 and 747-8I models were the only two LCA in the VLA product market in the 2011-2013 Reference Period, and were the only two VLA available for delivery during that period of time.⁵⁵⁰ The three product markets (single-aisle, twin-aisle, VLA) identified during the compliance proceedings were found to "represent the three segments within which most competitive interactions between the relevant aircraft will commonly take place".⁵⁵¹ Moreover, in the compliance proceedings the substitutability between the 747-8I and the A380 models was a key consideration in the impedance findings.⁵⁵² We thus consider that the substitutability between the 747-8I and the A380 models strongly supports the notion that, if the customers that received the A380 Impedance Deliveries could not have had A380 aircraft during the 2011-2013 Reference Period in the counterfactual, they would likely have wanted 747-8I aircraft instead.

Boeing 747 production capacity

6.379. The European Union argues that, in the counterfactual, Boeing would have had insufficient production capacity to replace all A380 Impedance Deliveries with 747-8I deliveries within the 2011-2013 Reference Period. The European Union asserts in this regard that Boeing would not have delivered its first counterfactual 747-8I aircraft to a commercial customer before April 2012 (i.e. the month in which the actual first delivery of a 747-8I aircraft to a commercial customer – i.e. Lufthansa in the European Union market – occurred), and thus Boeing could not have replaced pre-April-2012 A380 Impedance Deliveries with counterfactual 747-8I deliveries. The European Union further argues that the remaining 21 months in the 2011-2013 Reference Period would have been insufficient for Boeing to replace the A380 Impedance Deliveries with an equal number of 747-8I deliveries. In the European Union's view, increasing Boeing's VLA production capacity to the required extent may have presented Boeing with an unmanageable production workload, may not have been economically worthwhile, and/or may have required sacrificing resources *vis-à-vis* other LCA operations to an unacceptable degree. Additionally, the European Union asserts that Boeing could not have effectively transferred production capacity from the 747-8F programme to the 747-8I programme and that Boeing's decision to [[***]] meant that Boeing would have had insufficient resources to commit to the 747-8I programme in the counterfactual to speed up the 747-8I programme's development and production. The European Union, however, leaves open the

⁵⁴⁹ United States' written submission, paras. 173, 177, and 186; and European Union's response to Arbitrator question No. 5, para. 132.

⁵⁵⁰ See paragraph 6.370 above; Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.548; and Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, Table 18. We further note that the identification of these product markets was the result of complex and extensive analyses.

⁵⁵¹ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1416.

⁵⁵² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.734, 5.740, and 6.41.

possibility that Boeing may have been able to replace some A380 Impedance Deliveries with Boeing 777 aircraft deliveries. The European Union generally submits that only an economic model could show how many relevant additional Boeing LCA deliveries would have occurred in the counterfactual and what Boeing LCA models would have comprised those additional deliveries. According to the European Union, any United States' arguments to the contrary are speculative and based on insufficient evidence.⁵⁵³

6.380. The United States first raises a procedural objection to the European Union's arguments in this context. According to the United States, the impedance findings in the compliance proceedings were predicated on the assumption that Boeing could have increased counterfactual 747-8I production capacity, and the European Union's arguments that Boeing could not have done so were considered and rejected in both the original and compliance proceedings. Thus, in the United States' view, the European Union's arguments amount to a "collateral attack" on adopted findings in that they seek to re-litigate settled issues.⁵⁵⁴

6.381. Regarding the substance of the European Union's arguments, the United States asserts that it is reasonable to conclude that Boeing could and would have increased counterfactual 747-8I production so as to allow Boeing to replace all the A380 Impedance Deliveries with 747-8I deliveries within the 2011-2013 Reference Period. The United States argues that, if faced with significantly more counterfactual 747-8I orders in the years leading up to the 2011-2013 Reference Period, Boeing would have faced strong incentives to allocate more resources to the 747-8I programme such that Boeing could have both made its first 747-8I deliveries to commercial customers before April 2012, and increased 747-8I production capacity overall. The United States indicates that production capacity is generally driven by demand levels, and that Boeing's ability to deliver 747-8F aircraft before 2012 demonstrates that Boeing would have had the capacity to deliver 747-8I aircraft by December 2011. The United States further argues that Boeing could have traded off production capacity from the 747-8F programme in favour of the 747-8I programme. In any event, in the United States' view, if Boeing had faced any production capacity constraints that would have prevented Boeing from delivering 747-8I aircraft at the same times as any of the earlier A380 Impedance Deliveries occurred, Boeing simply would have made the 747-8I deliveries a few months later, or delivered 777-300ER aircraft, or perhaps another model of 747 aircraft, to the relevant customers instead.⁵⁵⁵

6.382. The United States argues that empirical evidence regarding Boeing's historical production capacity levels concerning a previous version of the Boeing 747 model – the Boeing 747-400 – strongly indicates that Boeing would have had the ability to produce 747-8I aircraft in the necessary quantities so as to replace all A380 Impedance Deliveries with 747-8I deliveries during the 2011-2013 Reference Period. The United States submits that the European Union fails to adequately explain why the Arbitrator should not rely on these historical 747 production data, and that the remainder of the European Union's arguments are speculative and unsupported by sufficient evidence.⁵⁵⁶

6.383. Finally, the United States asserts that the Arbitrator may find that Boeing's ability to make counterfactual 747-8I deliveries in the 2011-2013 Reference Period is immaterial because the purpose of the Arbitrator's exercise is to calculate the future adverse effects caused by relevant subsidies, and Boeing can deliver ample 747-8I aircraft going forward.⁵⁵⁷

6.384. In response to the United States argument that the European Union's production-capacity arguments amount to a "collateral attack" on adopted findings in this dispute, the European Union

⁵⁵³ European Union's written submission, paras. 197-200 and 300-305; responses to Arbitrator question No. 6, para. 147, No. 85, and No. 88; and comments on the United States' responses to Arbitrator question No. 116, paras. 196-198, and No. 130.

⁵⁵⁴ United States' responses to Arbitrator question No. 7 and No. 46, para. 110; and comments on the European Union's response to Arbitrator question No. 98, para. 80.

⁵⁵⁵ United States' written submission, paras. 178, 193, and 240-243; responses to Arbitrator question No. 7, para. 10, No. 46, para. 114, No. 71, No. 87, No. 88, No. 127, and No. 130; and comments on the European Union's responses to Arbitrator question No. 112, paras. 212-213, No. 113, para. 219, and No. 146.

⁵⁵⁶ United States' written submission, para. 242; response to Arbitrator question No. 71; and comments on the European Union's response to Arbitrator question No. 146.

⁵⁵⁷ United States' written submission, para. 239.

asserts that its arguments are aimed at the inquiry regarding the *degree* of impedance rather than the *existence* of impedance in the six geographic markets.⁵⁵⁸

6.385. Replying to the United States' position that Boeing's historical 747-400 production rates can evidence Boeing's production capacity of 747-8I aircraft during the 2011-2013 Reference Period, the European Union argues that comparing historical production rates of the 747 programme with the counterfactual production capacity for the 747-8I model is inappropriate. This is because the 747-400 model was made during a time when the market and production circumstances facing Boeing were different, and because the 747-400 and 747-8I models are very different aircraft. In the European Union's view, historical production rates of the 777-300ER and A380 aircraft are more probative in this context because they are long-range LCA being developed at roughly the same time as the 747-8I aircraft was being developed. The European Union also stresses that in order to be meaningful, the Arbitrator should use historical production rates of an LCA programme during its initial ramp-up phase rather than production rates when the programme is "mature".⁵⁵⁹

6.386. Finally, in response to the United States' argument that Boeing can deliver ample 747-8I aircraft going forward, the European Union asserts that this argument is "entirely extraneous" to quantifying the adverse effects determined to exist during the 2011-2013 Reference Period.⁵⁶⁰

6.387. The Arbitrator at the outset rejects the United States' argument concerning Boeing's *prospective* 747-8I production capacity. As explained in section 6.3.1 above, we value the lost sales and impedance found to exist *during the 2011-2013 Reference Period* in order to determine a maximum level of Annual Suspension. Thus, we must determine how much higher Boeing's LCA deliveries would have been in that time-period.

6.388. Next, we note the United States' procedural objection to the European Union's production-capacity arguments. We indicated above in paragraph 6.366 that the United States makes this objection more generally *vis-à-vis* the European Union's arguments in the impedance context. We see no reason to depart in this specific context from our general conclusions reached in that paragraph. The original proceedings did not establish how much higher Boeing's deliveries would have been in any relevant geographic market during the 2011-2013 Reference Period. In the compliance proceedings, although the compliance panel and Appellate Body rejected an argument by the European Union that production delays in the 747-8I programme *prevented* findings of impedance in the VLA product market, neither the compliance panel nor the Appellate Body stated that this factor could not alter the *degree* of impedance in any relevant geographic market. In particular, the findings left open the question of how Boeing's 747-8I production delays would have affected the extent to which Boeing would have replaced A380 Impedance Deliveries with 747-8I aircraft and/or 777 aircraft – an important issue for our valuation purposes, as these aircraft display [[***]] delivery prices.⁵⁶¹

6.389. We turn, then, to the parties' substantive arguments. As a first step, we examine whether, in the counterfactual, Boeing would have been able to deliver 747-8I aircraft to commercial customers before April 2012, i.e. the month in which Boeing actually delivered its first 747-8I aircraft to a commercial customer. This issue matters because certain A380 Impedance Deliveries occurred before that month in the 2011-2013 Reference Period. Thus, if Boeing could not have made those pre-April-2012 counterfactual deliveries with 747-8I aircraft, this would impact the counterfactual speed with which Boeing would have had to ramp up 747-8I production. This would mean that Boeing would have had to ramp up the production of 747-8I aircraft more quickly to produce the number of 747-8I aircraft required to replace all A380 Impedance Deliveries in the 2011-2013 Reference Period.

⁵⁵⁸ See, e.g. European Union's comments on the United States' response to Arbitrator question No. 153, fn 2 (explaining that "there remains disagreement between the Parties as to the *degree* of impedance – i.e., the counterfactual market share that Boeing VLA would have been able to capture in the absence of the MSF subsidies at issue", and citing previous portions of the European Union's submissions).

⁵⁵⁹ European Union's response to Arbitrator question No. 146; and comments on the United States' response to Arbitrator question No. 116, para. 194.

⁵⁶⁰ European Union's response to Arbitrator question No. 85.

⁵⁶¹ Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)).

6.390. We note that the first 747-8I deliveries were initially planned for 2010.⁵⁶² However, several factors led to delays in the programme, such that deliveries to commercial customers could be made only in April 2012: (a) supply chain issues, (b) late design changes, (c) performance issues found during testing, (d) an eight-week labour strike, (e) limited engineering resources, and (f) [[***]] only a limited number of 747-8I orders materialized following launch.⁵⁶³

6.391. In our view, four aspects of these factors are noteworthy. First, the *occurrences* of these problems appear generally unrelated to the effects of LA/MSF, and thus we consider that these problems (with the possible exception of limited engineering resources, as explained in the following paragraph) would likely have occurred in the counterfactual.

6.392. Second, while such problems may have *occurred* in the counterfactual, it appears reasonable to us to assume that Boeing would have *addressed* at least certain of these problems more rapidly than Boeing did in fact. This was so because Boeing [[***]] at the same time.⁵⁶⁴ In the face of higher order numbers that would have resulted in the counterfactual, we find it reasonable to assume that Boeing would have increased its resource allocation to the counterfactually [[***]] 747-8I programme, most likely by increasing its overall resource base.⁵⁶⁵

6.393. Third, these problems appeared to arise during the development and initial production phases of the 747-8 programme, resulting in Boeing's delayed ability to assemble and deliver a final 747-8I aircraft in April 2012 rather than earlier. However, we note that Boeing did in fact deliver additional 747-8I aircraft following April 2012, thus indicating that Boeing had essentially resolved issues encountered during the 747-8I development and initial production phases.⁵⁶⁶

6.394. Finally, Boeing's ability to deliver 747-8F aircraft beginning in October 2011 and Boeing's ability to deliver 747-8I [[***]] aircraft to customers before April 2012⁵⁶⁷ suggest to us that it should in principle have been possible for Boeing to have realized pre-April-2012 deliveries of 747-8I aircraft to commercial customers in the counterfactual, in particular in the assumed presence of additional resources being allocated to the 747-8I programme in the counterfactual.⁵⁶⁸

6.395. In the light of these various observations, we consider it likely that in the counterfactual Boeing would have been able to deliver its first 747-8I aircraft to commercial customers before April 2012, although the precise time at which that first delivery would have occurred is uncertain. Nevertheless, for present analytical purposes, we assume that, in the counterfactual, Boeing would *not* have delivered any 747-8I aircraft to commercial customers before April 2012. We expressly note, however, that we consider this to be a conservative assumption.

6.396. We next consider whether Boeing's assumed inability to make pre-April-2012 747-8I deliveries to the A380 Impedance Deliveries customers would likely have prevented such customers

⁵⁶² Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI)).

⁵⁶³ United States' responses to Arbitrator question No. 88, para. 126, and No. 131; Boeing 2008 Annual Report, (Exhibit EU-116); Boeing e-mail from [[***]] (Dec. 10, 2018), (Exhibit USA-56 (BCI)); Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI)); and Machinists Back Contract With Boeing; 8-Week Strike Ends, New York Times (Nov. 2, 2008), (Exhibit USA-86 (BCI)).

⁵⁶⁴ Boeing 747 Family, Boeing website, (Exhibit USA-54) (indicating that in 2009 Boeing was re-evaluating its commitment to the 747-8I programme because only one customer, i.e. Lufthansa, had ordered the 747-8I aircraft by that time).

⁵⁶⁵ Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI)) (indicating that a counterfactual increase in resources allocated to the 747-8I programme would mean that [[***]]); and The Seattle Times, "747-8 delay causes doubts about Boeing", 7 October 2009, (Exhibit EU-117) (discussing these problems). We note that we assume such a counterfactual increase in 747-8I orders to be significant, as we generally conclude later in this section that it is reasonable to assume that Boeing would have replaced all of the A380 Impedance Deliveries on a one-to-one basis with deliveries of 747-8I aircraft.

⁵⁶⁶ The Seattle Times, "747-8 delay causes doubts about Boeing", 7 October 2009, (Exhibit EU-117) (discussing such problems in some detail); and Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI)) (indicating that delays in the 747-8 programme were primarily the result of "*development and initial production phases*"). (emphasis added)

⁵⁶⁷ Boeing 747 deliveries (2000-2013), Excel download from Boeing website, (Exhibit USA-53); and Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI)).

⁵⁶⁸ The 747-8I and 747-8F are produced on the same final assembly line and share significant commonalities. (United States' response to Arbitrator question No. 88; and Boeing E-mail regarding Questions 130-131, (Exhibit USA-84 (BCI))).

from ordering 747-8I aircraft in the first place. We answer this question in the negative. The record indicates that, immediately after the launch of the 747-8 programme in 2005⁵⁶⁹, Boeing envisioned delivering its first 747-8I to commercial customers in 2010. It was only after developmental issues arose primarily in the subsequent 2008-2011 time-frame that this date was delayed.⁵⁷⁰ As the counterfactual 747-8I deliveries that would have replaced the A380 Impedance Deliveries (and especially the pre-April 2012 A380 Impedance Deliveries) would have been the first 747-8I deliveries, we consider it reasonable to assume that they would generally correspond to the earliest-in time orders received as well, i.e. orders most likely received before the 2008-2011 period. Thus, we do not consider it reasonable to assume that any relevant customer would not have ordered 747-8I aircraft due to the above-discussed developmental problems with the 747-8 programme.⁵⁷¹ Moreover, both parties agree that, once ordered, customers will generally wait for the delivery of their ordered LCA model even in the face of years of delivery delays.⁵⁷² We discern nothing on the record to indicate that these dynamics would have been any different with respect to any relevant customer in this context in the counterfactual. We therefore consider that it is reasonable to conclude that the customers that received the pre-April-2012 A380 Impedance Deliveries would have wanted deliveries of 747-8I aircraft in April 2012 or as soon as possible thereafter.

6.397. At this point, therefore, we note that for Boeing to have been able to replace all the A380 Impedance Deliveries with an equal number of 747-8I aircraft deliveries within the 2011-2013 Reference Period, we assume that Boeing would have had to do so within the 21-month period from the date of the first counterfactual delivery (i.e. April 2012) through December 2013, inclusive. For ease of reference, we will refer to this period as the counterfactual 747-8I Ramp-Up Period.

6.398. In assessing whether Boeing could have achieved the necessary production ramp-up, we first address the counterfactual demand for 747 aircraft deliveries in the 747-8I Ramp-Up Period. For analytical purposes, and in the light of certain of the parties' arguments on how far 747-8F production may have to be taken into account, we sum the *actual* deliveries of 747-8I and 747-8F aircraft during the relevant 21-month time-period with the A380 Impedance Deliveries occurring during the entire 2011-2013 Reference Period.⁵⁷³ Further, for ease of treatment of the data later on in this Decision, we further break out these data by calendar year. We summarize this counterfactual demand data in Table 13 below.

⁵⁶⁹ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1220; and Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)).

⁵⁷⁰ United States' response to Arbitrator question No. 112, para. 44; and Boeing E-mail regarding Question 112, (Exhibit USA-62 (BCI)). The European Union does not dispute that these problems mainly arose in the 2008-2011 time-frame.

⁵⁷¹ We therefore further note that we do not believe, as the European Union argues, that delays in the 747-8I would have meant that relevant customers who would otherwise have preferred to take deliveries of 747-8I aircraft would instead have ordered and taken deliveries of, for example, Airbus twin-aisle LCA. (European Union's response to Arbitrator question No. 64, para. 121). We note that all the orders from which the A380 Impedance Deliveries came were placed in or before 2008. (Updated Ascend Database, (Exhibit EU-79)).

⁵⁷² United States' response to Arbitrator question No. 112; and European Union's response to Arbitrator question No. 112.

⁵⁷³ The 747-8I and 747-8F were the only 747 models available for deliveries in the 747-8I Ramp-Up Period.

Table 13: 747 counterfactual demand in 747-8I Ramp-Up Period

	April – Dec 2012 (747-8I / 747-8F)	2013 (747-8I / 747-8F)	Total (747-8I / 747-8F)
Actual A380 Impedance Deliveries ⁵⁷⁴	27 ⁵⁷⁵	20	47
Actual 747-8 worldwide deliveries ⁵⁷⁶	25 (11 / 14)	24 (5 / 19)	49 (16 / 33)
Total Counterfactual 747-8 demand ⁵⁷⁷	52 (38 / 14)	44 (25 / 19)	96 (63 / 33)

6.399. As is clear from the above table, the issue presented is whether it is reasonable to conclude that Boeing could have delivered 96 747-8 aircraft during the 21-month 747-8I Ramp-Up Period (i.e. the 49 747-8 deliveries actually made plus an additional 47 counterfactual 747-8I deliveries).

6.400. The parties have produced evidence regarding the ability of Airbus and Boeing to deliver particular volumes of other LCA models during particular periods of time as a proxy for estimating Boeing's counterfactual production capacity. Beyond such delivery data, there is little other empirical evidence on the record on which to base our analysis. We thus use this empirical data to assess Boeing's ability to produce 96 747 aircraft in the 21-month counterfactual 747-8I Ramp-Up Period.

6.401. We note that the parties rely on different historical LCA delivery rates in this context. The European Union advocates that we rely on historical delivery rates of the A380 and 777-300ER aircraft, whereas the United States advocates that we rely on historical delivery rates of the 747-400. We consider that Boeing's historic delivery rates of the 747, and in particular the 747-400, would best represent Boeing's ability to produce and deliver 747 aircraft in the counterfactual 747-8I Ramp-Up Period.⁵⁷⁸ This is so, first, because both the 747-8I and 747-400 were produced by the same company, i.e. Boeing. Also, both are in the 747 family of aircraft. Moreover, the 747-400 is the predecessor passenger version of the 747-8I.

6.402. The 747-400 model was launched in 1985 and delivered until 2005.⁵⁷⁹ Under the 21-month counterfactual 747-8I Ramp-Up Period, Boeing would have produced two 747 models, the 747-8I and 747-8F. We thus believe that it would be meaningful to compare the counterfactual 747-8I Ramp-Up Period to the first 21 months following the first delivery of the 747-400, during which Boeing was also producing other models of the 747, albeit in much more limited numbers than the 747-400. For ease of reference, we will refer to this period as the 747-400 Ramp-Up Period. We

⁵⁷⁴ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, Table 13.

⁵⁷⁵ This number is the sum of the A380 Impedance Deliveries made from December 2011 through December 2012, under the assumption that customers who wanted 747-8I deliveries before April 2012 but could not get those delivery slots would want those deliveries still within calendar-year 2012.

⁵⁷⁶ Boeing 747 deliveries (2000 – 2013), Excel download from Boeing website, (Exhibit USA-53); Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)); and Boeing 747 Family, Boeing website, (Exhibit USA-54). We note that these numbers include the [***] deliveries as described in the United States' response to Arbitrator question No. 116, paras. 56-57, that occurred after April 2012. We further note that, apparently due to the inconsistent presence of the [***] deliveries in these exhibits, the total number of 747 deliveries in this row sometimes vary across the parties' exhibits.

⁵⁷⁷ This row sums the numbers in the previous two rows above.

⁵⁷⁸ See, e.g. Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, paras. 4.7 (preferring "a starting point grounded on historical, verified facts, even if adjustments may have to be made") and 4.15 (noting that "since they considered it more appropriate to use figures grounded on facts than deductions or inferences, the Arbitrators generally gave preference to approaches which relied as much as possible on historical figures").

⁵⁷⁹ Boeing 747 deliveries (2000–2013), Excel download from Boeing website, (Exhibit USA-53) (indicating the last passenger version of the 747-400 was delivered in 2005); Boeing 747 Family, Boeing website, (Exhibit USA-54) (indicating the 747-400 launch date as 1985); Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)) (same); and Boeing, Lufthansa Announce Order for 747-8 Intercontinental, Boeing Press Release, (Exhibit USA-57) (indicating that the 747-8 is the successor of the 747-400).

consider that assessing Boeing's total 747 production capacity during the 747-400 Ramp-Up Period will yield a reasonable estimate of Boeing's total 747 production capacity during the counterfactual 747-8I Ramp-Up Period.

6.403. We recognize the European Union's argument that a comparison of the counterfactual 747-8I Ramp Up Period and the 747-400 Ramp-Up Period is inappropriate because the circumstances and conditions of competition facing Boeing during these two time-periods were different, and because the 747-400 and 747-8I models are dissimilar. According to the European Union, this is due, in particular, to the more advanced technologies used in the 747-8I model as compared to the 747-400 model. We accept that there are differences as between these two ramp-up periods and the aircraft involved. We discern no convincing reason, however, why the general conditions of competition or circumstances of Boeing in the two time-periods invalidates a comparison between the two time-periods for our purposes.

6.404. We also consider that the fact that the 747-8I aircraft is more technically advanced than its 747-400 predecessor does not invalidate this comparison.⁵⁸⁰ This is so because the record of this dispute contains extensive discussions about how the accumulation of "learning effects" helps to improve an LCA producer's capacity to produce successively more complex LCA. Simply put, the Boeing company in the counterfactual 747-8I Ramp-Up Period would have been more skilled at producing 747 aircraft than the Boeing company that existed in the 747-400 Ramp-Up Period. Thus, we do not consider that it necessarily follows that Boeing could not have produced 747 aircraft as efficiently during the counterfactual 747-8I Ramp-Up Period as it could in the 747-400 Ramp-Up Period simply because the 747-8I is a more complex model than the 747-400.

6.405. Further to the point immediately above, we recall that we have already described the issues that Boeing had with the 747-8I development, some of which were possibly due to the 747-8I aircraft's technological complexity and production management. We noted, however, that these issues appeared generally to pertain to the initial development phases of the 747-8I programme, rather than ongoing issues with production. We further note that Boeing was able to deliver 89 787 aircraft in the first 25 months following first delivery.⁵⁸¹ As we understand it, the 787 model is also a technologically complex aircraft. This, in our view, is indicative of Boeing's ability to significantly ramp up production of technologically advanced LCA in a time-period similar to that of the 2011-2013 Reference Period.

6.406. We thus set out in the table below Boeing's 747 deliveries in the 747-400 Ramp-Up Period, organized by deliveries made in the first nine months following the first delivery of a 747-400 aircraft and the following 12 months, consistent with how we organized the data related to the counterfactual 747-8I Ramp-Up Period above in Table 14:

Table 14: 747 deliveries in the 747-400 Ramp-Up Period

LCA programme	Deliveries in first nine months ⁵⁸² (747-400 / other 747 models)	Deliveries in next 12 months ⁵⁸³ (747-400 / other 747 models)	Total deliveries in first 21 months (747-400 / other 747 model)
747 deliveries ⁵⁸⁴	32 (29 / 3)	68 (63 / 5)	100 (92 / 8)

⁵⁸⁰ See e.g. Boeing, Lufthansa Announce Order for 747-8 Intercontinental, Boeing Press Release, (Exhibit USA-57) (noting the features in the 747-8I aircraft that are more technically advanced than its counterparts in the 747-400 aircraft).

⁵⁸¹ Updated Ascend Database, (Exhibit EU-79).

⁵⁸² This is the first three quarters of 1989.

⁵⁸³ This is the fourth quarter of 1989 and the first three quarters of 1990.

⁵⁸⁴ Boeing Historical Deliveries through October 2018, Boeing website, (Exhibit USA-43); Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)); Boeing Website, 747-400 Deliveries Pre-1990, (Exhibit USA-115); and Updated Ascend Database (Exhibit EU-79). The number of 747-400 aircraft delivered during these time-periods are derived from Exhibits USA-115 and EU-79. We note that Boeing delivered four 747 aircraft other than the 747-400 in 1989. (Boeing Historical Deliveries through October 2018, Boeing website, (Exhibit USA-43) (listing the total number of 747 variants delivered in 1989, i.e. 45); and Boeing Website, 747-400 Deliveries Pre-1990, Exhibit USA-115 (listing the number of 747-400

6.407. We therefore note that Boeing was able to deliver 100 747 aircraft to all customers in the 21-month 747-400 Ramp-Up Period – 92 of which were 747-400 aircraft. We recall that, in the counterfactual, Boeing would have had to deliver a total of 96 747-8 aircraft – 63 of which would have been 747-8I aircraft – in order to replace all A380 Impedance Deliveries within that period in addition to making the pre-existing 747-8 deliveries within that same period.

6.408. Furthermore, we take account of the following elements. First, we discern no significant evidence on the record that Boeing's 747 production rate during the 747-400 Ramp-Up Period had reached a hard ceiling.⁵⁸⁵ Second, it is important to note that Boeing makes 747 aircraft to order and not for inventory, and thus its production capacity is generally controlled by demand levels, which means that the production capacity is increased as and when demand levels increase.⁵⁸⁶ Third, we have previously made an expressly conservative assumption that Boeing would have had only 21 months, rather than up to 25 months, in which to make the necessary additional 47 747-8 deliveries. In the light of the above data and elements, we consider it reasonable to conclude that Boeing would have been able to make the necessary 96 747-8 deliveries (which includes both 747-8I and 747-8F deliveries) not only within the 2011-2013 Reference Period, but most likely within the counterfactual 747-8I Ramp-Up Period as well.

6.409. We note that under our approach Boeing would have faced a counterfactual demand for 38 747-8I deliveries in 2012, i.e. at the beginning of the counterfactual 747-8I Ramp-Up Period, that is higher than the demand for 25 747-8I deliveries that it would have faced in 2013. We note that this contrasts with observed LCA production ramp-ups during which the delivery numbers tend to increase over time. It is instructive in this context to compare data concerning the number of aircraft of specified LCA models that Boeing delivered in the first nine months of each programme following first delivery with data concerning the number of the same aircraft Boeing delivered in the following 12 months. The Boeing LCA models for which we consider such data are the 747-400 model (deliveries approximately doubled from the first nine months to the following 12 months); 777-300ER model (deliveries approximately doubled from the first nine months to the following 12 months); and the 787 model (deliveries approximately quadrupled from the first nine months to the following 12 months).⁵⁸⁷ In the light of this data, we doubt that a delivery structure of 38 deliveries of 747-8I aircraft in the first nine months of the 747-8I Ramp-Up Period and the smaller number of 25 747-8I aircraft deliveries in the following 12 months of the 747-8I Ramp-Up Period would be likely. A delivery volume of 38 aircraft for the first nine months also significantly exceeds the number of 747-400 aircraft that Boeing was able to deliver in the first nine months of the 747-400 Ramp-Up Period (which number was 29). Thus, we consider that a reasonable assumption is that Boeing could have delivered 29 747-8I aircraft in the latter nine months of 2012 (i.e. the same number that Boeing was able to deliver for the 747-400 model in the first nine months of the 747-400 Ramp-Up Period) and delivered the remaining 34 747-8I aircraft in 2013.⁵⁸⁸ Taking into

variants delivered during 1989, i.e. 41)). We cannot definitively determine from these exhibits the months in which the four non-747-400 variants of the 747 model were delivered, however. Thus, we evenly distribute the four deliveries over 1989, i.e. on average one delivery in each quarter of 1989. This yields three deliveries of non-747-400 variants of the 747 in the first nine months of 1989 and one in the last quarter of the year, and we allocate these deliveries as such in the table above. We note that Exhibit EU-79 also contains the numbers of 747 aircraft deliveries of variants other than the 747-400 model for the first nine months of 1990. The United States has explained, however, that this exhibit does not contain two 747 aircraft deliveries that Boeing made to the US military in 1990. (United States' response to Arbitrator question No. 170, para. 4). The European Union has not disputed the United States' assertion. Although we cannot tell from these exhibits in what months those two deliveries were made, we believe it reasonable to allocate one such delivery to the first nine months of 1990. We allocate that delivery as such in the above table.

⁵⁸⁵ We note that in the compliance proceedings, the European Union submitted evidence indicating Airbus' ability to continuously increase A330 and A320 production capacity to keep pace with demand levels. With respect to the A320, Airbus increased the number of its final assembly lines in order to do so. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1325 and 6.1520).

⁵⁸⁶ Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.2101 and fn 5196.

⁵⁸⁷ Updated Ascend Database, (Exhibit EU-79). The Boeing 777-300ER is a long-range aircraft and the largest version of the Boeing 777. It was launched in 2000. The Boeing 787 is an advanced twin-aisle aircraft launched in 2004. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, Table 17 and para. 6.1220; Boeing E-mail regarding Questions 116, 118, 121, 124(c), 125, 128-129, 132, (Exhibit USA-66 (HSBI)) (stating the 777-300ER launch date)). Accordingly, these two LCA share similarities with the 747-8I in both certain key features and the time of launch, which in our view makes the use of the above data reasonable under the circumstances.

⁵⁸⁸ Under this assumed temporal delivery structure, deliveries of 747-8I aircraft would therefore less than double as between the first nine months following the first delivery and the following twelve months.

account the numbers of actual 747-8I aircraft delivered in those two time-periods (i.e. 11 and 5, respectively), this would yield an additional 18 747-8I deliveries in 2012 and an additional 29 747-8I deliveries in 2013.⁵⁸⁹ Thus, even assuming that, in the counterfactual, Boeing would have lacked the capacity to deliver 747-8I aircraft as quickly as Airbus delivered A380 aircraft to the six relevant geographic markets in reality, we find it reasonable to assume that Boeing could nonetheless have replaced all of the A380 Impedance Deliveries with an equal number of deliveries of 747-8I aircraft within the 2011-2013 Reference Period.⁵⁹⁰ We summarize these conclusions in the following table:

Table 15: Counterfactual deliveries of 747-8I aircraft in the 747-8I Ramp-Up Period

	Apr. – Dec. 2012 (actual / additional)	2013 (actual / additional)	Total (actual / additional)
747-8I counterfactual deliveries	29 (11 / 18)	34 (5 / 29)	63 (16 / 47)

6.410. We note the European Union's arguments that it may be uncertain: (a) whether, in the counterfactual, Boeing would have been able to properly manage production of an increased number of 747-8I aircraft, (b) whether upstream suppliers could have satisfied demand for additional 747-8I components, (c) whether the impact of increased 747-8I production would have had negative impacts on Boeing's overall production operations, including with regard to other LCA programmes, that Boeing would have found unacceptable, and (d) whether Boeing would simply have opted to extend the delivery schedules for 747-8I aircraft for other reasons.⁵⁹¹ However, these considerations appear to us as speculative, particularly in the light of the volumes of 747 aircraft that Boeing was in fact able to produce in the 747-400 Ramp-Up Period. Moreover, we recognize that, if more orders had materialized from the beginning of the 747-8I programme – i.e. several years before the 2011-2013 Reference Period – Boeing would have had a substantial amount of lead time to increase its production resources overall, thus limiting the need to make compromises in other LCA programmes, especially [***], for the benefit of increasing 747-8I production.⁵⁹²

6.411. In conclusion, based on the foregoing, we thus assume that Boeing's counterfactual 747-8 production capacity would have allowed Boeing to replace all of the A380 Impedance Deliveries with an equal number of 747-8I deliveries in the 2011-2013 Reference Period. More specifically, we conclude that a reasonable estimate is that, in the counterfactual, Boeing would have delivered an additional 18 747-8I aircraft in 2012 and an additional 29 747-8I aircraft in 2013 to the six geographic markets in question taken as a whole.

Market presence of the A380 aircraft

6.412. The European Union argues that, in the counterfactual, Boeing might not be able to replace all A380 Impedance Deliveries with 747-8I deliveries because Airbus could still have made some of these deliveries with A380 aircraft in the counterfactual. The European Union argues that this is a reasonable conclusion because the Appellate Body left the counterfactual launch date of the A380 model open, and because in the European Union's view the counterfactual launch of the A380 model would have occurred shortly after its actual launch in 2000.⁵⁹³ The European Union asserts that the Appellate Body's findings of lost sales and impedance in the 2011-2013 Reference Period are not inconsistent with the A380 model being available for order and/or delivery in the 2011-2013

⁵⁸⁹ We see little basis upon which to conclude that Boeing would have altered the dates of any 747-8F aircraft deliveries in the counterfactual, an aircraft which Boeing had begun to deliver months before the 747-8I. We recall that under our assumptions Boeing would have had the capacity to deliver the required number of 747-8I and 747-8F aircraft within the 2011-2013 Reference Period. We therefore see no reason to further examine the European Union's argument that the Arbitrator would have to consider the "trade-offs" in production capacity between the 747-8I and 747-8F aircraft in the counterfactual. (European Union's comments on the United States' response to Arbitrator question No. 130, paras. 306-309).

⁵⁹⁰ We consider that such counterfactual delivery dates would have been acceptable to 747-8I customers. (See paragraph 6.396 above).

⁵⁹¹ European Union's written submission, para. 304.

⁵⁹² See United States' response to Arbitrator question No. 131, para. 140 (making this point).

⁵⁹³ European Union's response to first set of Arbitrator questions, para. 28; responses to Arbitrator question No. 3, paras. 87-88, No. 4, No. 5, paras. 132 and 134, No. 7, paras. 155-158, No. 10, paras. 204-205, No. 14, paras. 314-316, and No. 46, paras. 475-476.

Reference Period in the counterfactual because Airbus could have launched the A380 model soon after its actual launch date in 2000. According to the European Union, this delayed launch would have meant, "[f]or example, in light of later availability of delivery positions, and/or the [A380 model's] less well-established market position or maturity, [that] certain customers would not have ordered the aircraft", thus resulting in the lost sales observed during the 2011-2013 Reference Period.⁵⁹⁴

6.413. The United States argues that the Appellate Body found that the A380 aircraft would not have been available for either order or delivery before the end of the 2011-2013 Reference Period, and thus Airbus could not have captured any of the A380 Impedance Deliveries in the counterfactual with deliveries of A380 aircraft. The United States asserts that, in particular, because the Appellate Body found that the A380 aircraft would not have been available for *order* in the 2011-2013 Reference Period, then, *a fortiori*, Airbus could not have *delivered* the A380 in the 2011-2013 Reference Period. The United States also rejects the European Union's arguments purportedly reconciling the findings of lost sales and impedance caused by A380 LA/MSF in the 2011-2013 Reference Period and a counterfactual launch of the A380 model before the 2011-2013 Reference Period. In the United States' view, the European Union's arguments in that context have no support in the findings in the compliance proceedings.⁵⁹⁵

6.414. The Arbitrator notes that the key disagreement between the parties in this context is whether the Appellate Body report in the compliance proceeding resolved the issue of whether the A380 aircraft would have been available for sale in the counterfactual such that Airbus could still have captured some of the A380 Impedance Deliveries with deliveries of A380 aircraft. In assessing this issue, we examine five issues addressed in the Appellate Body's report in the compliance proceedings: (a) the effects of A380 LA/MSF on the A380 programme, (b) whether those effects caused lost sales in the VLA product market in the 2011-2013 Reference Period, (c) whether those effects caused impedance in the VLA market in the 2011-2013 Reference Period, (d) the effects of A380 and A350XWB LA/MSF on the A350XWB programme, and (e) whether those effects caused lost sales in the twin-aisle product market in the 2011-2013 Reference Period. We address each in turn.

Effects of A380 LA/MSF on the A380 aircraft

6.415. We thus examine first the Appellate Body's findings concerning the effects of A380 LA/MSF on the A380 programme. In that context, and by way of background, we find it helpful to recall that throughout this dispute, the United States had relied on a "product" theory of causation.⁵⁹⁶ The Appellate Body explained that "[u]nder this product theory of causation, market distortion and *adverse effects flow directly from Airbus' entry at a particular time with a particular aircraft*, which in the United States' view would not have been possible but for the subsidies".⁵⁹⁷ In the compliance

⁵⁹⁴ European Union's response to Arbitrator question No. 4, paras. 116-117. See also European Union's responses to Arbitrator question No. 5, para. 127, No. 64, para. 210, and No. 101, para. 102 (making similar statements); and comments on the United States' response to Arbitrator question No. 112, fn 226 (same).

⁵⁹⁵ United States' written submission, paras. 165-178; response to Arbitrator question No. 7(b), para. 15; and comments on the European Union's responses to Arbitrator question No. 112, paras. 207-209, and No. 113, para. 216.

⁵⁹⁶ In the original dispute the United States also offered a "price" theory of causation, which was rejected by the original panel and not pursued on appeal by the United States. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 1618).

⁵⁹⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.587. (internal quotation marks and citation omitted; emphasis original) See also Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.416 (describing "product effects" as "the effects of such subsidies on the ability of Airbus to launch and bring to market particular Airbus LCA models as and when it did") (emphasis original) and fn 1496 (explaining that "the Panel used the term 'product effects' to refer to the effects of LA/MSF subsidies on the ability of Airbus to launch and bring to market an Airbus LCA as and when it did"). We note that the term "bring to market" *vis-à-vis* a particular LCA is not a technical term, but, rather, has been used as a shorthand to describe an LCA manufacturer's general ability to develop and sell a particular LCA. (See, e.g. Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.367 (explaining that "[c]onsequently, bringing a new LCA model to market requires long-term planning and advance assessment of a wide variety of factors, including future manufacturing needs, market trends, customer demand and prices. This means that at the time a decision is taken to develop a new LCA model and to incur start-up costs, the eventual success of the project remains subject to a high degree of uncertainty"). The term is often paired with the term "launch" as well (i.e. the

proceeding, the compliance panel found that, in the absence of the "product effect" of *all pre-A350XWB LA/MSF* (arising from the "indirect" effects⁵⁹⁸ of pre-A380 LA/MSF and "direct" effects⁵⁹⁹ of A380 LA/MSF), the A380 aircraft would not have existed before or during the 2011-2013 Reference Period. The compliance panel's findings of lost sales and impedance in the VLA product market were predicated on that non-existence.⁶⁰⁰ The Appellate Body, however, found that *only* the effects of *A380 LA/MSF* could be considered *vis-à-vis* the A380 programme in the counterfactual. The Appellate Body thus had to perform a new analysis aimed to "ascertain[] whether the Panel's analysis regarding the 'product effects' of [A380 LA/MSF alone] support a finding of a genuine and substantial causal relationship between these subsidies ... and the market phenomena identified in the post-implementation period" in the VLA product market.⁶⁰¹

6.416. The Appellate Body determined what the "product effects" of A380 LA/MSF were *vis-à-vis* the A380 programme by examining the findings from the original proceedings and those made by the compliance panel.⁶⁰² The Appellate Body concluded that A380 LA/MSF had a "genuine impact on Airbus' ability to fund the timely launch of the A380"⁶⁰³, that "these 'direct effects' of A380 LA/MSF continued after the original reference period", which ended in 2006, and that "the Panel's understanding of the 'direct effects' of A380 LA/MSF on Airbus' ability to launch, bring to market, and continue developing the A380 *as and when it did* [had] a sufficient evidentiary basis".⁶⁰⁴ Elsewhere in its report, the Appellate Body also characterized the "product effects" of A380 LA/MSF as follows: (a) A380 LA/MSF "enabled Airbus ... to bring to market and to continue developing the A380", an event that was "crucial to renew and sustain Airbus' competitiveness in the post-implementation period"⁶⁰⁵, (b) in the absence of A380 LA/MSF "Airbus would not have been able to offer the A380 at the time it did"⁶⁰⁶, (c) "A380 LA/MSF subsidies continued to have effects on Airbus' ability to bring to market and to continue developing the A380 *after* the original reference period"⁶⁰⁷, and (d) A380 LA/MSF "made it possible ... to bring to market the A380".⁶⁰⁸

6.417. Thus, the Appellate Body clearly found that A380 LA/MSF had an impact not only on Airbus' ability to undertake a timely launch of the A380, but to continue to develop the A380 aircraft after

ability of an LCA manufacturer to "launch and bring to market" a particular LCA model), a construction that has essentially the same meaning.

⁵⁹⁸ "Indirect effects" are the "learning", scope and financial effects that any given LA/MSF subsidy provided specifically for one model of LCA may have on Airbus' ability to launch and bring to market another, subsequent model of LCA. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.563 and 5.594).

⁵⁹⁹ "Direct effects" are the effects of any given LA/MSF subsidy on Airbus' ability to launch and bring to market the particular model of Airbus LCA specifically funded by that LA/MSF loan. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.563).

⁶⁰⁰ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 7.1(d)(xii).

⁶⁰¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.599.

⁶⁰² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 5.6.3.5.1.

⁶⁰³ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.647.

⁶⁰⁴ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.609. (emphasis original) The Appellate Body also considered it "important ... that the A380 programme suffered 'extensive' production delays in 2005 and 2006", during which time "Airbus continued to receive disbursements" under A380 LA/MSF measures. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.608). See also Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.646 (stating that "A380 LA/MSF had 'direct effects' on Airbus' ability to launch, bring to market, and continue developing the A380 *as and when it did*, given that the A380 LA/MSF subsidies had not expired, as well as the fact that Airbus continued to receive disbursements under the French, German, and Spanish LA/MSF contracts at a time when it was experiencing severe financial difficulties resulting from the extensive production delays in the A380 programme" and concluding that A380 LA/MSF "made it possible ... to bring to market the A380"). (emphasis original)

⁶⁰⁵ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.647 and 6.23.

⁶⁰⁶ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.766, 5.769, and 5.773.

⁶⁰⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.635.

⁶⁰⁸ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.646.

the original reference period, which ended in 2006.⁶⁰⁹ This illustrates that A380 LA/MSF had effects not only on Airbus' ability to decide to launch the A380 programme at all, but to actually develop the aircraft post-launch. Relatedly, and as noted above, the Appellate Body directly stated that A380 LA/MSF "made it possible ... to bring to market the A380". We interpret this statement as more categorically asserting that the A380 aircraft would not have been brought to market *at all* in the absence of A380 LA/MSF.

6.418. In sum, taken in their entirety, the Appellate Body's descriptions of the "product effects" of A380 LA/MSF strongly suggest that the A380 aircraft would not have been available for order or delivery by the end of the 2011-2013 Reference Period.⁶¹⁰

Causation of VLA lost sales

6.419. We next turn to examine the Appellate Body's analysis of whether the "product effects" of A380 LA/MSF caused lost sales in the VLA product market during the 2011-2013 Reference Period.⁶¹¹ This analysis is significant in our view because LCA deliveries result from previous LCA orders. Thus, insofar as the Appellate Body's analysis of lost sales indicates that Airbus would not have been able to *offer* the A380 aircraft by the end of the 2011-2013 Reference Period in the counterfactual then, *a fortiori*, Airbus could not have captured any of the A380 Impedance Deliveries in the counterfactual with deliveries of A380 aircraft, since such deliveries would result from orders placed well before the deliveries would have been made.

6.420. We note in particular four aspects of the Appellate Body's VLA lost sales analysis. First, the Appellate Body never stated that the A380 aircraft would have been available for order in the 2011-2013 Reference Period, or at any time beforehand. Relatedly, the Appellate Body never explained how A380 LA/MSF could have been a "genuine and substantial" cause of lost sales in the 2011-2013 Reference Period if the A380 aircraft would have been available for offer in the 2011-2013 Reference Period in the absence of A380 LA/MSF. This is significant in our view because, in the absence of any other explanation by the Appellate Body regarding the causal mechanism through which A380 LA/MSF caused lost sales, it would appear reasonable to conclude that the causal mechanism was that described in the compliance panel report, i.e. the A380 aircraft was absent from the market and unavailable for order during the 2011-2013 Reference Period. Based on the totality of the Appellate Body's report, the only reasonable explanation that we discern for the absence of such explanations is that they were unnecessary because in the counterfactual the A380 aircraft would not have been available for order in the 2011-2013 Reference Period.

6.421. Second, the Appellate Body stated that "the Panel's findings ... indicate that Airbus' competitiveness in the VLA market, gained through earlier LA/MSF subsidies, was renewed and sustained beyond the original reference period and into the post-implementation period due to the subsidies it continued to receive after the original reference period and into the post-implementation period".⁶¹² This was so because A380 LA/MSF "enabled Airbus to bring the A380 to market and continue its development in the face of extensive production delays".⁶¹³ The Appellate Body went on to explain that, "[i]n other words, in the absence of [A380 LA/MSF], Airbus would not have been able to be 'present in [both] of the relevant sales campaigns as exactly the same competitor selling identical aircraft' in the post-implementation period".⁶¹⁴ We therefore note that the Appellate Body again stated that A380 LA/MSF "enabled Airbus to bring the A380 to market and continue its development", without ever implying that the A380 aircraft could have been brought to market and developed otherwise. Most significantly, perhaps, the Appellate Body plainly stated that Airbus, in

⁶⁰⁹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.558.

⁶¹⁰ For clarity, when this section refers to the A380 aircraft, it refers to the A380 aircraft that was in fact ordered and delivered in the 2011-2013 Reference Period.

⁶¹¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 5.6.4.6.4.1. The lost sales in the VLA product market were the 2012 Transaero order for four A380 aircraft and the 2013 Emirates order for 50 A380 aircraft.

⁶¹² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.725.

⁶¹³ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.725.

⁶¹⁴ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.726 (quoting Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1789) (second alteration original).

the counterfactual, would not have been able to present, in the sales campaigns leading to the Transaero and Emirates lost sales, an aircraft "identical" to the A380 aircraft that was in fact brought to market. We take this as a direct statement that Airbus could not have offered the A380 aircraft in the 2011-2013 Reference Period. Moreover, the Appellate Body's statement that A380 LA/MSF "renewed and sustained" Airbus' "competitiveness in the VLA market" in the counterfactual post-implementation period is consistent with the conclusion that, without A380 LA/MSF, the A380 aircraft would not have been available for order in the 2011-2013 Reference Period.

6.422. Third, we note the manner in which the Appellate Body rejected the European Union's argument that the compliance panel improperly dismissed certain of the European Union's non-attribution factors:

The European Union argued before the Panel that Transaero Airlines and Emirates Airlines chose the A380 over the 747-8 in the orders they placed in 2012 and 2013 because of, *inter alia*, the A380's more advanced technologies and greater size compared with the 747-8, which enabled it to satisfy both customers' very specific requirements. However, similar to our analysis in the context of lost sales in the twin-aisle LCA market, *we do not view these factors as unrelated to the effects of the subsidies*. Rather, our review of findings from the original proceedings and the Panel's findings shows that, absent the LA/MSF subsidies existing in the post-implementation period, Airbus would not have been able to launch and bring to market the A380 at the time it did. Therefore, like the Panel, we have doubts as to whether Airbus' pre-existing commonality advantages and other product-related advantages over Boeing could be characterized as non-attribution factors that could be said to "dilute" the causal link between the LA/MSF subsidies existing in the post-implementation period and the relevant market phenomena.⁶¹⁵

6.423. This passage, in our view, further demonstrates that the A380 aircraft would not have been available for offer in the 2011-2013 Reference Period in the counterfactual. Indeed, this appears a reasonable conclusion if these features of the A380 aircraft, i.e. "more advanced technologies and greater size", that were offered in reality during the 2011-2013 Reference Period were not "unrelated to the effects of [A380 LA/MSF] subsidies".

6.424. Finally, we underline that, in its VLA lost sales analysis, the Appellate Body affirmed the VLA lost sales findings of the compliance panel, which were predicated on the market absence of the A380 aircraft, and provided no alternative reasoning as to how A380 LA/MSF caused VLA lost sales in the 2011-2013 Reference Period.⁶¹⁶

6.425. These four aspects of the Appellate Body's VLA lost sales analysis in the compliance proceeding, in our view, support the conclusion that Airbus would not have been able to offer the A380 aircraft by the end of the 2011-2013 Reference Period, and thus, *a fortiori*, that Airbus would not have been able to capture any of the A380 Impedance Deliveries during the 2011-2013 Reference Period with deliveries of A380 aircraft.

Causation of VLA impedance

6.426. We next turn to examine the Appellate Body's analysis of whether the "product effects" of A380 LA/MSF caused impedance in the six geographic markets. In this context, we find nothing in the Appellate Body's analysis indicating that the A380 aircraft would have been available for order or delivery in the 2011-2013 Reference Period in the counterfactual. Indeed, the Appellate Body never stated that the A380 aircraft would have been available for delivery in the 2011-2013 Reference Period, or at any time beforehand. Relatedly, the Appellate Body never explained how A380 LA/MSF could have been a "genuine and substantial" cause of impedance in the 2011-2013

⁶¹⁵ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.729. (fn omitted; emphasis added) We note that other reasons that the European Union alleged led Transaero and Emirates to order the A380 aircraft over the 747-8I aircraft appeared to be HSBI. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 3275 (citing HSBI versions of submissions and HSBI exhibits when discussing the European Union's arguments in this context)).

⁶¹⁶ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.37.

Reference Period if the A380 aircraft would have been available for delivery during that same time-period in the absence of A380 LA/MSF. Moreover, the Appellate Body affirmed that even the low number of A380 Impedance Deliveries present in Australia (a single A380 delivery), China (four A380 deliveries), Korea (three A380 deliveries), and Singapore (five A380 deliveries) during the 2011-2013 Reference Period could support findings of impedance in each such geographic market.⁶¹⁷

6.427. Additionally, we note the manner in which the Appellate Body rejected the European Union's argument that the compliance panel improperly dismissed the European Union's alleged non-attribution factor regarding delays in the 747-8I programme. Before looking at the Appellate Body's rejection of the European Union's argument, we need to recall the following statement by the compliance panel in the context of assessing the validity of the United States' impedance claims in the VLA product market:

[W]e do not see the delays in the development and production of ... the 747-8 to mean that, in the absence of the "product" effects of the LA/MSF subsidies, Boeing or the United States' LCA industry would not have won the orders corresponding to the deliveries made in the ... market [] for ... very large LCA. The fact that Airbus would not have existed in the absence of the LA/MSF subsidies means that customers that could not wait for the 787 and 747-8 to become available would have turned to either Boeing's other twin-aisle LCA, the 767 and the 777.^[3326]

³³²⁶ We recall that ... there is evidence that the larger versions of the 777 may also at times challenge for sales in the market for very large LCA. (footnote original)⁶¹⁸

6.428. On appeal, the European Union argued that the compliance panel wrongly rejected its argument. As noted above, the Appellate Body rejected the European Union's appeal, reasoning as follows:

We recall that the Panel did not see these delays "to mean that, in the absence of the 'product' effects of the LA/MSF subsidies, Boeing or the United States' LCA industry *would not have won the orders* corresponding to the deliveries made in the different markets" for VLA. We also note the Panel's observation that "there is evidence that the larger versions of the 777 may also at times challenge for sales in the market for [VLA]". Thus, the Panel's reasoning that, *in the absence of Airbus' VLA offerings, customers would have turned to other Boeing LCA products – for instance, the larger versions of the 777 – appears to us to be reasonable*. Consequently, we see no reason to disturb the Panel's finding that this non-attribution factor would not be capable of diluting the genuine and substantial relationship of cause and effect between LA/MSF subsidies and the alleged market phenomena.⁶¹⁹

6.429. We note, therefore, that the Appellate Body affirmed reasoning by the compliance panel that expressly included an assumption regarding the "absence of Airbus' VLA offerings". Such an affirmation would have been incongruous if that portion of the compliance panel's reasoning were false. Indeed, in this passage, the Appellate Body affirmed that "customers that could not wait for the ... 747-8 to become available would have turned to ... Boeing's other twin-aisle LCA", and in

⁶¹⁷ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.739. See also United States' comments on the European Union's response to Arbitrator question No. 113, paras. 221-222 (noting the single VLA delivery into the Australian market during the Reference Period and stating, correctly, that "[t]here were no other facts or evidence analysis specific to the Australia market. And yet, there was a finding of impedance"). (fn omitted)

⁶¹⁸ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1816 and fn 3326.

⁶¹⁹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.735. (fn omitted; emphases added)

particular the 777-300ER aircraft.⁶²⁰ It was left unexplained, however, why, if the A380 aircraft had been in the market in the counterfactual such that it could have competed for orders that resulted in the A380 Impedance Deliveries, and if customers would have opted away from the 747-8I, which is a VLA, due to production delays, customers would have opted for a twin-aisle LCA that is not a VLA (i.e. the 777-300ER model) rather than simply purchased Airbus VLA (i.e. the A380 model) instead.⁶²¹ Based on the totality of the Appellate Body's report, we consider the most reasonable explanation to be that the A380 aircraft was assumed to be unavailable, thus essentially forcing customers to accept an LCA that only "at times" competed with VLA for sales, i.e. the twin-aisle 777-300ER aircraft.

6.430. Finally, we underline that, in its VLA impedance analysis, the Appellate Body affirmed the VLA impedance findings of the compliance panel, which were predicated on the market absence of the A380 aircraft, and provided no alternative reasoning as to how A380 LA/MSF caused VLA impedance in the 2011-2013 Reference Period.⁶²²

6.431. These aspects of the Appellate Body's VLA impedance analysis in the compliance proceeding in our view support the conclusion that Airbus would not have been able to deliver the A380 aircraft by the end of the 2011-2013 Reference Period, and thus that Airbus would not have been able to capture any of the A380 Impedance Deliveries during the 2011-2013 Reference Period with deliveries of A380 aircraft.

6.432. At this point, we recall the European Union's argument that the Appellate Body's report could be interpreted to mean that the A380 aircraft would have been available for both offer and delivery in the 2011-2013 Reference Period in the counterfactual, but still lost the Transaero and Emirates orders and failed to make at least some of the A380 Impedance Deliveries for other reasons, i.e. disadvantages related to delivery schedules or less well-established market position or maturity. In the light of the above discussions, we must reject these arguments. As explained above, the Appellate Body's findings indicate to us with sufficient clarity that Airbus would not have been able to offer or deliver the A380 aircraft during the 2011-2013 Reference Period.⁶²³

Effects of A380 and A350XWB LA/MSF on the A350XWB aircraft

6.433. Next, we examine the Appellate Body's analysis regarding the effects of A380 and A350XWB LA/MSF on the A350XWB programme and whether those effects caused lost sales in the twin-aisle product market in the 2011-2013 Reference Period. The impedance findings at issue concern deliveries of A380 aircraft, not A350XWB aircraft. However, the Appellate Body's analyses on the A350XWB aircraft may be relevant for our purposes here. We recall in this regard that (a) the

⁶²⁰ We consider that the phrase "larger versions of the 777" aircraft in footnote 3326 of the compliance panel's report, quoted further above, meant primarily the 777-300ER model in the light of the fact that the 777-300ER was the largest 777 model in the twin-aisle product market in the compliance proceedings, and considering footnote 2415 of the compliance panel's report according to which "[i]t is asserted in the Mourey Statement that the 747-8 may sometimes face competition from the smaller, but more 'efficient', 777-300ER, as well as the A350XWB-1000". (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 2415).

⁶²¹ We recognize that, for example, if customers only became aware of the delays in the 747-8I programme after having ordered the aircraft, they might have seen it as beneficial to convert those orders into another Boeing model, e.g. the 777-300ER model, rather than cancelling the order and purchasing Airbus VLA instead. However, such reasoning is absent from the causation findings *vis-à-vis* the A380 aircraft in the compliance proceedings, and thus we cannot conclude that such reasoning played any role in such findings.

⁶²² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.41 and 6.42.

⁶²³ The European Union also asserts that in the compliance proceeding certain A380 orders and deliveries in the 2011-2013 Reference Period were not found to represent lost sales or impedance. (European Union's responses to Arbitrator question No. 57, para. 104 and fn 158, and No. 113, para. 256). The European Union thus appears to argue that this means that the Appellate Body found that in the counterfactual the A380 aircraft was in the market in the 2011-2013 Reference Period. (European Union's responses to Arbitrator question No. 127, para. 290, and No. 257, para. 257). We disagree. To the extent that there were additional A380 orders and deliveries during the 2011-2013 Reference Period not subject to adverse-effects findings in the compliance proceeding, we note that the United States did not challenge such orders and deliveries. They are thus subject to no findings at all. Insofar as such additional orders and/or deliveries exist, they are therefore not material in establishing the market presence of the A380 aircraft in the counterfactual.

A350XWB aircraft was launched in 2006, whereas the A380 aircraft was launched in 2000⁶²⁴, and (b) the A350XWB aircraft incorporated a significant range of technologies that were developed, *inter alia*, as part of Airbus' experience with the A380 aircraft.⁶²⁵ In the light of this, we consider it a reasonable assumption that, in the counterfactual, had Airbus launched and brought to market the A350XWB aircraft, Airbus would likely have done so *after* Airbus launched and at least begun post-launch development of the A380 aircraft.⁶²⁶ Thus, insofar as the Appellate Body found that, in the counterfactual, the A350XWB aircraft would have been launched and available for order⁶²⁷ by the end of the 2011-2013 Reference Period, such a finding could indirectly support the inference that the A380 aircraft would have been available for order and/or delivery in the 2011-2013 Reference Period as well, as its development would likely have been further along than the development of the A350XWB aircraft at that time. In this way, examining the effects of LA/MSF on the A350XWB aircraft in the counterfactual may indirectly inform our understanding of the effects of LA/MSF on the A380 aircraft.⁶²⁸

6.434. In the compliance proceeding, the panel found that, in the absence of the "product effect" of *all* LA/MSF (arising from the "indirect" effects of pre-A350XWB LA/MSF and "direct" effects of A350XWB LA/MSF), the A350XWB aircraft would not have existed before or during the 2011-2013 Reference Period.⁶²⁹ The Appellate Body, however, found that only the effects of *A380 and A350XWB LA/MSF* could be considered *vis-à-vis* the A350XWB programme in the counterfactual, and thus had to perform a new analysis aimed to "ascertain[] whether the Panel's analysis regarding the 'product effects' of [A380 and A350XWB LA/MSF alone] support a finding of a genuine and substantial causal relationship between these subsidies ... and the market phenomena identified in the post-implementation period" in the twin-aisle product market.⁶³⁰

6.435. The Appellate Body confirmed the compliance panel's findings that (a) A350XWB LA/MSF had "direct effects" on the A350XWB programme, and in particular that "*without* A350XWB LA/MSF, the Airbus company that *actually existed* [in 2006-2010] could have pursued such a programme only by a narrow margin, with a high likelihood that it would, to some degree, have had to make certain compromises with respect to the pace of the programme and/or the features of the aircraft"⁶³¹, and (b) A380 LA/MSF had "indirect effects" on the A350XWB programme, and in particular the "A350XWB significantly benefitted from the 'learning effects' of the A380" and that "A380 LA/MSF had 'financial effects' on Airbus' ability to launch the A350XWB as and when it did".⁶³² The Appellate Body concluded that, "without the aggregated 'product effects' of the existing LA/MSF subsidies for the A380 and A350XWB programmes, Airbus would not have been able to launch the

⁶²⁴ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, fn 1715.

⁶²⁵ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.637. See also Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1747 (noting that "the A350XWB programme significantly benefitted from Learning effects arising from previous, subsidized Airbus LCA programmes, especially (but not only) the A380 programme").

⁶²⁶ The European Union's arguments are consistent with this basic assumption. (European Union's response to Arbitrator question No. 101, paras. 96-97 (arguing that both the A380 and A350XWB models would have been launched in the counterfactual shortly after their respective actual launch dates)).

⁶²⁷ The first A350XWB aircraft was not delivered until 2014. (Updated Ascend Database, (Exhibit EU-79)). Thus, in the counterfactual we focus on whether the A350XWB aircraft would have been available for order, and not delivery, in the 2011-2013 Reference Period.

⁶²⁸ We therefore note that in this context, we analyse the Appellate Body's findings regarding the effects of A380 and A350XWB LA/MSF in their own right, rather than in the light of the Appellate Body's findings regarding: (a) the effects of A380 LA/MSF on the A380 programme, (b) causation of VLA lost sales, or (c) causation of VLA impedance.

⁶²⁹ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 7.1(d)(xiii).

⁶³⁰ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.599.

⁶³¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.632 (quoting Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1717). (emphases original)

⁶³² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.637-5.638.

A350XWB as and when it did".⁶³³ In other words, A380 and A350XWB LA/MSF "enabled Airbus to proceed with the timely launch and development of the A350XWB" aircraft, an event that was "crucial to renew and sustain Airbus' competitiveness in the post-implementation period".⁶³⁴

6.436. The Appellate Body never stated when the A350XWB aircraft would have been launched and brought to market in the counterfactual. Certain of the Appellate Body's characterizations of the "product effects" of LA/MSF appear to leave open the possibility that the A350XWB aircraft could have been launched and brought to market by the 2011-2013 Reference Period. We therefore recall that although the A350XWB programme had been launched in 2006, the first delivery had not yet occurred by year-end 2013. Thus, even if Airbus did not have, in the counterfactual, the ability to proceed "with the timely launch and development of the A350XWB" aircraft, this does not mean that Airbus could not have had the counterfactual ability to do so at a later point in time, such that orders of A350XWB aircraft could still have occurred in the 2011-2013 Reference Period. We thus consider that the Appellate Body's findings regarding the effects of A380 and A350XWB LA/MSF on the A350XWB programme do not establish whether the A350XWB aircraft would have been launched by, and available for order in, the 2011-2013 Reference Period.

Causation of twin-aisle lost sales

6.437. We now turn to examine the Appellate Body's analysis of whether the "product effects" of LA/MSF caused lost sales, secured by the A350XWB aircraft, in the twin-aisle product market during the 2011-2013 Reference Period.⁶³⁵ In our view, this analysis will inform our understanding of whether the A350XWB aircraft would have been present in the market and available for order in the 2011-2013 Reference Period.⁶³⁶ We note in particular four aspects of this analysis. First, the Appellate Body did not state that the A350XWB aircraft would have been launched or available for order by any particular time. Relatedly, the Appellate Body never explained how LA/MSF could have been a "genuine and substantial" cause of lost sales in the twin-aisle market in the 2011-2013 Reference Period if the A350XWB aircraft would have been available for offer in the 2011-2013 Reference Period in the absence of A380 and A350XWB LA/MSF.⁶³⁷

6.438. Second, the Appellate Body stated that "in the absence of the [A380 and A350XWB] LA/MSF subsidies ... *Airbus would not have been able to offer the A350XWB at the time it did and with the features that the A350XWB contained.* In other words, in the absence of these subsidies, Airbus would not have been able to be 'present in all [three] of the relevant sales campaigns as exactly the same competitor *selling identical aircraft*' in the post-implementation period".⁶³⁸ We take these as direct statements that Airbus could not have offered the A350XWB aircraft in the 2011-2013 Reference Period.

⁶³³ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.639. These "aggregated" effects consisted of the "direct" effects of A350XWB LA/MSF and the "indirect" effects of A380 LA/MSF. The Appellate Body also stated elsewhere in its report that in the absence of A380 and A350XWB LA/MSF, Airbus "would have been unable to launch the A350XWB or an A350XWB-type aircraft by the end of 2006". (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.714).

⁶³⁴ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.647.

⁶³⁵ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, section 5.6.4.6.3.1. The lost sales in the twin-aisle product market were the 2012 Cathay Pacific Airways order for ten A350XWB-1000 aircraft, and the 2013 orders by Singapore Airways and United Airlines for 30 A350XWB-900 aircraft and ten A350XWB-1000 aircraft, respectively.

⁶³⁶ See paragraph 6.433 above.

⁶³⁷ We note, however, that certain of the Appellate Body's statements suggest that the Appellate Body considered that the *timely launch* of the A350XWB aircraft, rather than the *market presence* of the A350XWB aircraft in the 2011-2013 Reference Period, was in some way responsible for the competitiveness of the A350XWB in the 2011-2013 Reference Period. (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 5.631 (stating that "the Panel considered that an alternative aircraft with fewer features and/or offered later in time would not have been as competitive as a timely launched A350XWB") and 5.632 (stating that "we agree that the Panel considered that the features *and timing* of the A350XWB were crucial for its competitiveness and commercial success")). (emphasis added)

⁶³⁸ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.709. (emphases added)

6.439. Third, we note the manner in which the Appellate Body rejected the European Union's argument that the compliance panel improperly dismissed certain of the European Union's alleged non-attribution factors. The Appellate Body stated that "we share the Panel's view that most of the alleged non-attribution factors with regard to lost sales in the twin-aisle LCA market ... including Airbus' pre-existing commonality advantages *and other product-related advantages* over Boeing, are not factors 'unrelated' to the LA/MSF subsidies existing in the post-implementation period"⁶³⁹, and "agree with the Panel's assessment of the non-attribution factor concerning Singapore Airlines' wish to split orders between Boeing and Airbus. Indeed, *the fact that Airbus was in a position to offer the A350XWB in a timely manner* was, in itself, largely due to LA/MSF subsidies and their effect on the pace of the programme *and the features of the A350XWB*".⁶⁴⁰

6.440. Finally, we underline that, in its twin-aisle lost-sales analysis, the Appellate Body affirmed the twin-aisle lost-sales findings of the compliance panel, which were predicated on the market absence of the A350XWB aircraft, and the Appellate Body provided no alternative reasoning as to how LA/MSF caused twin-aisle lost sales in the 2011-2013 Reference Period.⁶⁴¹

6.441. The Appellate Body's findings with respect to the effects of LA/MSF on the A350XWB programme and whether those effects caused lost sales in the twin-aisle market in the 2011-2013 Reference Period do not indicate that the A350XWB aircraft would have been launched or available for order by the end of the 2011-2013 Reference Period. Indeed, the Appellate Body never stated when the A350XWB aircraft would have been launched in the counterfactual, and never clarified how, if the A350XWB aircraft had been available for order in the 2011-2013 Reference Period, A380 and A350XWB LA/MSF could have caused the lost sales in the twin-aisle LCA market. Moreover, certain other statements by the Appellate Body, in our view, establish that the A350XWB aircraft would not have been present in the market in the 2011-2013 Reference Period. In particular, we note that the Appellate Body (a) stated that, in the counterfactual, Airbus could not have been able to offer an aircraft "identical" to the A350XWB aircraft in the sales campaigns that resulted in the lost sales in the twin-aisle market during the 2011-2013 Reference Period, (b) found that the compliance panel properly rejected alleged "product-related advantages" as non-attribution factors because they were in fact attributable to LA/MSF subsidies, (c) directly implied that one of the reasons why Airbus was able to win the split order from Singapore Airlines in 2013 was the fact that LA/MSF subsidies put "Airbus ... in a position to offer the A350XWB in a timely manner", and (d) stated that "the fact that Airbus was in a position to offer the A350XWB in a timely manner was, in itself, largely due to LA/MSF subsidies and their effect on the pace of the programme and the features of the A350XWB".⁶⁴² We consider that these statements would be incongruous if the A350XWB aircraft would have been available for order in the 2011-2013 Reference Period in the counterfactual.

6.442. Thus, the Appellate Body's analyses involving the A350XWB aircraft examined above do not suggest to us that the A380 aircraft would have been available for either order or delivery in the 2011-2013 Reference Period.

Conclusion

6.443. In the light of the foregoing, we consider that the Appellate Body's analyses concerning the effects of LA/MSF on the A380 and A350XWB programmes, and whether such effects caused relevant adverse effects in the 2011-2013 Reference Period, establish that Airbus would not have been able to offer or deliver the A380 aircraft during the 2011-2013 Reference Period. If this were not the case, multiple aspects of the Appellate Body's reasoning would in our view become incongruous.

⁶³⁹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.714. (emphasis added) We note that the Appellate Body did not specify which alleged non-attribution factors examined by the compliance panel were, in the Appellate Body's view, unrelated to A380 and A350XWB LA/MSF. However, as discussed above, other aspects of the Appellate Body's analysis appear to clarify that the A350XWB aircraft, as it existed, would not have been available for order in the 2011-2013 Reference Period.

⁶⁴⁰ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.714. (emphasis added)

⁶⁴¹ Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.31.

⁶⁴² Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.714.

Competition from twin-aisle LCA, leasing companies, and the second-hand market

6.444. The European Union argues that, in the counterfactual, the LCA customers that received the A380 Impedance Deliveries might not have ordered Boeing LCA, such that Boeing would not have captured all the A380 Impedance Deliveries with deliveries of new Boeing LCA. Instead, the European Union argues that in the counterfactual these customers had a variety of options, including (a) to purchase new Airbus or Boeing twin-aisle LCA, (b) lease LCA from leasing companies, and/or (c) buy LCA on the second-hand market.⁶⁴³

6.445. The United States generally asserts that the European Union's arguments are at odds with the findings of the Appellate Body in the compliance proceedings, in particular with respect to findings regarding the market absence of the A380 aircraft in the 2011-2013 Reference Period and the substitutability between the A380 and 747-8I aircraft, which were the only two LCA available for delivery in the VLA product market in the 2011-2013 Reference Period. The United States also asserts that even if in the counterfactual VLA customers that received the A380 Impedance Deliveries would have opted for twin-aisle LCA they would have chosen Boeing, not Airbus, twin-aisle LCA.⁶⁴⁴

6.446. The Arbitrator notes that the LCA customers that received the A380 Impedance Deliveries purchased new and technologically advanced VLA, i.e. the A380 aircraft. In the absence of compelling evidence to the contrary, we find it reasonable to assume that, in the counterfactual, the same customers would have been interested in *purchasing* (rather than leasing) *new* (rather than second-hand)⁶⁴⁵ and technologically advanced *VLA* (rather than twin-aisle LCA).⁶⁴⁶ The only other such VLA that was available for delivery in the 2011-2013 Reference Period was the 747-8I aircraft. We discern nothing in the adopted findings of this dispute, or in the arguments of the parties in this proceeding, that indicates that the customers that received the A380 Impedance Deliveries would have opted for anything other than 747-8I deliveries during the 2011-2013 Reference Period. Indeed, a contrary conclusion would appear at odds with the findings in the compliance proceeding that the 747-8I and A380 aircraft were the only two LCA in the VLA product market in the 2011-2013 Reference Period.⁶⁴⁷

⁶⁴³ European Union's written submission, para. 200; responses to Arbitrator question No. 3, paras. 87-88, No. 4, No. 5, paras. 126, 132, and 134, No. 7, paras. 156 and 158, No. 10, paras. 204-205, No. 46, paras. 475-476, No. 64, paras. 211-212, No. 84, para. 302, No. 112, para. 249, No. 113, para. 261, and No. 151; and comments on the United States' responses to Arbitrator question No. 114, para. 185, and No. 127, para. 291.

⁶⁴⁴ United States' written submission, section V.A.2; and comments on the European Union's response to Arbitrator question No. 151, para. 268.

⁶⁴⁵ We note that before the original panel, the European Union argued "that in a significant number of sales campaigns, competition is with a potential purchase of used LCA or a lease, rather than with the other manufacturer. [Thus] ..., to the extent that Boeing is not involved in these sales, an Airbus 'win' cannot be considered a 'loss' to Boeing". (Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1723). The original panel rejected this argument, instead finding that "[w]hile it may well be that there is not clear head-to-head competition for each and every sale of LCA, it is apparent to us that, with only two manufacturers in the market, there is overall competition between Boeing and Airbus for all sales of LCA". (Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1724. See also Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1722 (elaborating on the pervasive competition between Airbus and Boeing for LCA sales)).

⁶⁴⁶ We recall that twin-aisle LCA and VLA comprise different product markets. Further, we recall that in the compliance proceedings "the European Union did not argue ... that the 747-8I and the 777-300ER and the A350XWB-1000 should have been placed into the same product market". (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.544).

⁶⁴⁷ The Appellate Body explained that "while the three product markets the United States had chosen to rely upon [(i.e. the single-aisle, twin-aisle, and VLA)] to bring its complaint did 'not exhaustively capture how competition [took] place between aircraft in the LCA sector at all times', [the compliance panel] was satisfied that 'they represent[ed] the three segments within which *most competitive interactions* between the relevant aircraft [would] commonly take place". (Appellate Body Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 5.544 (quoting Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1416)). (emphasis added by Appellate Body) We further recall our conclusion above that the A350XWB aircraft would not have been available for order or delivery in the 2011-2013 Reference Period. We further discern nothing in the adopted findings of this dispute or the arguments of the parties in this proceeding materially indicating that there would have been any other models of VLA in the 2011-2013 Reference Period in the counterfactual.

6.447. The European Union offers an article that in its view supports the position that, absent the A380 aircraft, Airbus would have captured some of the A380 Impedance Deliveries with twin-aisle LCA such as the A330 aircraft. We note that this exhibit, in relevant part, purports to demonstrate the impact that the introduction of the A380 aircraft would have on demand for other types of LCA using data from 1969-1998.⁶⁴⁸ The 747-8I aircraft was not available for either order or delivery during the 1969-1998 time-period and the exhibit does not consider the impact that the market presence of the 747-8I aircraft would have had on the analysis contained in the exhibit. Thus, the conditions of competition upon which the exhibit's analysis are based significantly differ from those in the years leading up to and during the 2011-2013 Reference Period in the counterfactual. We therefore consider that this article cannot properly be used to determine to what extent customers would have demanded deliveries of A330 instead of 747-8I aircraft in the 2011-2013 Reference Period had the A380 aircraft been absent from the market before and during that time.⁶⁴⁹

Aggressive bidding by Airbus in certain sales campaigns

6.448. The European Union argues that, in the counterfactual, Airbus may still have captured some of the A380 Impedance Deliveries through more aggressive bidding in certain key sales campaigns. In other words, "[t]o incentivise prospective customers and to prevent them from switching over to Boeing, Airbus might have been tempted to offer steeper discounts in that counterfactual"⁶⁵⁰, and with such a strategy by Airbus, "in a world in which A380 deliveries were delayed, airlines may well have contemplated purchasing two A330s and using them in higher frequencies in order to replace a single A380".⁶⁵¹

6.449. The United States generally responds that this European Union argument is among those that essentially seek to "negate in part or in full" the findings regarding impedance from the compliance proceedings.⁶⁵²

6.450. The Arbitrator notes that the record reflects that Boeing and Airbus are generally in strong competition in the global LCA marketplace. Nevertheless, there is no evidence or findings that we discern to provide a basis upon which to assume that Airbus would have captured any of the A380 Impedance Deliveries via aggressive bidding of LCA in the counterfactual. We recall that the A380 and 747-8I aircraft were the only LCA available for either order or delivery in the VLA product market in the 2011-2013 Reference Period, and that we have concluded that in the counterfactual the A380 aircraft would not have been available for either order or delivery in the 2011-2013 Reference Period. Also, if it were reasonable to assume that Airbus would have bid more aggressively in certain relevant sales campaigns, it would appear equally reasonable to assume that Boeing would likewise have (had to) bid more aggressively in the same sales campaigns, and could thus still have won the sales. As concerns the European Union's assertion that airlines might have purchased A330 aircraft rather than A380 aircraft, we refer to our considerations in the immediately preceding section. For all these reasons, we reject the European Union's position on the grounds that it is speculative and unsupported by material evidence.

Airbus' and Boeing's costs, prices, and deliveries

6.451. The European Union argues that in order to determine the degree of impedance in the 2011-2013 Reference Period, the Arbitrator would need to consider the economic mechanisms through which the LA/MSF subsidies at issue affected Airbus' (and Boeing's) production costs, prices, and delivery schedules of VLA and how these same parameters would have been affected in a counterfactual involving withdrawal of these subsidies. According to the European Union, for example, in the absence of the A380 LA/MSF, if Boeing had made additional sales and deliveries of

⁶⁴⁸ Irwin, Douglas A., Pavcnik, Nina, 2004. "Airbus versus Boeing revisited: international competition in the aircraft market", *Journal of International Economics*, Elsevier, vol. 64(2): 223-245, (Exhibit EU-138), p. 224.

⁶⁴⁹ We further recall that, in the compliance proceedings, the Appellate Body confirmed that the A380 and 747-8I aircraft are "sufficiently substitutable". There is no such finding on the record regarding the degree of substitutability between the A330 and the 747-8I aircraft.

⁶⁵⁰ European Union's response to Arbitrator question No. 84, para. 307.

⁶⁵¹ European Union's response to Arbitrator question No. 84, para. 305. See also European Union's written submission, para. 200; responses to Arbitrator question No. 6, para. 148, No. 84, para. 307, and No. 88, para. 326; and comments on the United States' response to Arbitrator question No. 130, para. 308.

⁶⁵² United States' written submission, para. 178.

747-8I aircraft in the counterfactual, Boeing would have brought down prices via the accumulation of additional "learning-curve effects", i.e. Boeing would have become more efficient and shared (or would have been forced to share) its cost savings at least in part with sophisticated customers through lower prices. Also, the European Union argues that if in the counterfactual Boeing had been in a monopoly position in the VLA product market, it would have had incentives to raise prices and/or restrict supply of 747-8I aircraft to maximize profits.⁶⁵³

6.452. The United States responds that the European Union's argument regarding counterfactual monopoly pricing by Boeing is a vague and generalized assertion, unsupported by evidence, and does not account for the conditions of competition that would prevail in the VLA product market absent the effects of LA/MSF subsidies. In the United States' view, the evidence on the record shows that, in the counterfactual, Boeing would not have faced incentives to decrease the production of 747-8I aircraft or raise prices to an extent that customers would have opted out of buying that aircraft. Moreover, the United States asserts that the historic production rates and prices of the 747-400 aircraft shows that when the 747 aircraft family did not face competition from the A380 aircraft, Boeing "priced and produced the 747 to meet customer demand [and] did not choke off demand in an attempt to reap unusually high profits on a smaller number of sales".⁶⁵⁴ The United States further asserts that the adopted findings in this dispute nowhere suggest that LA/MSF subsidies affected Boeing's prices. Finally, the United States argues that, even assuming that Boeing would have raised prices in response to its monopoly position in the VLA product market in the counterfactual, the European Union would further have to demonstrate that the revenue loss associated with decreased sales exceeded the revenue gained by increased prices, which the European Union has not done.⁶⁵⁵

6.453. The Arbitrator discerns no material quantitative or qualitative evidence on the record that can be used to reasonably predict how any changes in Airbus' and/or Boeing's costs or prices would have ultimately affected Boeing's or Airbus' LCA deliveries in the counterfactual. Indeed, we recall that the LCA marketplace is characterized by complex dynamics of supply and demand. Moreover, as noted by the European Union, Boeing would not only have faced incentives to increase 747-8I aircraft prices in the counterfactual (due to theoretical monopolistic behaviour), but there are reasons to consider that Boeing would have, at the same time in the counterfactual, faced pressures to increase production to satisfy the higher demand, which would likely have reduced the costs and possibly the prices of 747-8I aircraft (due to pressures to share the lower costs with sophisticated customers that would have been aware of Boeing's lower costs). We note that such lower costs would likely have been realized because, as described by the European Union, "the more [LCA] units that are produced [by Boeing], the lower the recurring costs per unit".⁶⁵⁶ Even assuming the validity of both propositions, we discern nothing on the record indicating how such competing pressures would have played out. We thus consider that any conclusions regarding the resulting net effect of these incentives and pressures identified by the European Union would be speculative.

Foregone "learning-by-doing efficiencies"

6.454. We note the European Union's statement that any impedance analysis would need to "factor in Airbus' actions in the VLA market in the absence of the MSF subsidies at issue, including foregone learning-by-doing efficiencies".⁶⁵⁷ As this argument is raised *vis-à-vis* "Airbus' actions", we interpret the phrase "foregone learning-by-doing efficiencies" as meaning that Airbus would have sold fewer

⁶⁵³ European Union's written submission, paras. 200 and 241-242; and responses to Arbitrator question No. 65, paras. 219-223, and No. 113, paras. 262-263. The European Union also argues that the Arbitrator would need to consider "Airbus' actions in the VLA market in the absence of the MSF subsidies at issue". (European Union's written submission, para. 200). The European Union does not specify what those actions would have been, other than those already discussed in this section. We thus do not consider this argument further.

⁶⁵⁴ Boeing E-mail regarding Question 113, (Exhibit USA-63 (BCI)).

⁶⁵⁵ See United States' response to Arbitrator question No. 113, para. 45; comments on the European Union's responses to Arbitrator Question No. 113, paras. 214-215, No. 151, para. 272, fn 373 (noting that the original panel and Appellate Body reports affirmatively found that it could not be concluded that the United States had demonstrated that challenged subsidies caused significant price suppression and price depression of United States LCA (citing Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1996)) and fn 374.

⁶⁵⁶ European Union's written submission, para. 241 (citing Panel Report, *EC and certain member States – Large Civil Aircraft*, para. 7.1936 and fn 5643 (discussing, *inter alia*, how production of an increased number of LCA leads to "economies of scope and scale")).

⁶⁵⁷ European Union's written submission, para. 200.

LCA in the counterfactual (as Boeing would have won the lost sales and not suffered impedance), with the consequence that Airbus would not have realized the "learning" effects associated with producing as many LCA as it did in reality.⁶⁵⁸ The European Union has not explained how these dynamics would have resulted in Boeing realizing fewer deliveries in the six geographic markets in the counterfactual. It is not readily apparent to us how this could have been the case. We therefore reject the European Union's argument as unsubstantiated by argument or evidence.

Customers deferring LCA purchases

6.455. We note the European Union's argument that, in the absence of the A380 aircraft, potential VLA customers would have "simply waited for the A380 launch", or, alternatively stated, "deferred purchases", rather than purchase Boeing LCA.⁶⁵⁹ We recall our earlier finding that the A380 aircraft would not have been launched or available for offer before the end of the 2011-2013 Reference Period. We further recall that any additional counterfactual deliveries that Boeing would have made in the six geographic markets in the counterfactual would have been the result of earlier orders. We see no basis upon which to assume that LCA customers would have had any expectation of an A380 launch at any time before the 2011-2013 Reference Period. Thus, we discern no basis upon which to conclude that customers who were in the market for VLA before 1 December 2011, and who demonstrated a desire to have technologically advanced VLA delivered during the 2011-2013 Reference Period, would "simply ... wait" or defer purchases of VLA in the counterfactual until the A380 aircraft was launched. This is particularly so since another VLA, i.e. the 747-8I aircraft, was available for order before the 2011-2013 Reference Period such that it would have been available for delivery in the 2011-2013 Reference Period. We therefore reject the European Union's argument as speculative and unsupported by material evidence.

Different customer preferences

6.456. The European Union generally asserts that customer preferences for LCA would have been different in the counterfactual such that it is unreasonable to assume that Boeing would have captured all the A380 Impedance Deliveries with 747-8I deliveries.⁶⁶⁰

6.457. The Arbitrator notes that the record reflects that customers' demand for particular LCA at a given time is very complex and entails considerations that are subjective, idiosyncratic, and containing unquantifiable judgments.⁶⁶¹ We therefore do not exclude the possibility that customer demand preferences would have been different in some way in the counterfactual. However, there are no findings, nor is there evidence on the record, that provides a basis upon which to reasonably assume that any customer that received the A380 Impedance Deliveries would have had different preferences in the counterfactual, such that it would not have purchased VLA⁶⁶² and not had them delivered during the 2011-2013 Reference Period.⁶⁶³ We thus reject the European Union's position as speculative and unsupported by material evidence.

6.3.4.4.2.3 Conclusion

6.458. In the light of the foregoing, we consider that the United States' assumption that Boeing would have replaced all of the A380 Impedance Deliveries with deliveries of an equal number of 747-8I aircraft within the 2011-2013 Reference Period is reasonable in the light of the adopted findings of this dispute, and the evidence and arguments offered by the parties. In particular, we note that this conclusion takes into account the fact that (a) the relevant customers desired a

⁶⁵⁸ Insofar as the European Union uses this phrase with reference to how changes in "learning effects" in the counterfactual might have influenced Boeing's prices, this argument is addressed in paragraph 6.453 and footnote 656 above.

⁶⁵⁹ European Union's written submission, para. 200; and response to Arbitrator question No. 64, para. 212.

⁶⁶⁰ European Union's written submission, para. 200; and responses to Arbitrator question No. 3, para. 89, and No. 5.

⁶⁶¹ See, e.g. Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, paras. 6.1185-6.1189 and 6.1216-6.1223.

⁶⁶² We recall that we have found above that the A380 aircraft would not have been available for delivery in the 2011-2013 Reference Period.

⁶⁶³ Indeed, if it were reasonable to assume that customers' preferences would have been different, it would seem just as reasonable to assume that different customers' preferences would have led them to buy *more* Boeing VLA than they would have bought in the counterfactual.

confirmed number of A380 aircraft during this time-period (evidenced by the A380 Impedance Deliveries), (b) Boeing would have had the means with which to replace all such deliveries with deliveries of 747-8I aircraft in the counterfactual, and (c) the 747-8I and A380 aircraft were the only two VLA available for delivery in the 2011-2013 Reference Period. As discussed above, the factors determining LCA supply and demand are complex, often involving unquantifiable factors. However, we discern no reasonable basis upon which to assume that the counterfactual number and general timing of relevant counterfactual 747-8I deliveries would have been different from the number and general timing of the A380 Impedance Deliveries. In fact, the European Union offers no alternative number Boeing LCA that would have been counterfactually delivered to the six geographic markets at issue during the 2011-2013 Reference Period.

6.459. At this point, we revert to the European Union's argument that we must use an economic model to determine how much higher Boeing's LCA deliveries would have been in the counterfactual.

6.460. We believe that in the light of the extensive discussions above, which examine a range of supply- and demand-side factors, we can conclude that the United States' assumption in this context is reasonable. This conclusion is based on extensive adopted findings regarding the conditions of competition in the LCA industry and the effects of LA/MSF, and a significant amount of both qualitative and quantitative evidence. We also recall that a significant aspect of those findings was that the A380 aircraft would not have been available for order or delivery in the years leading up to and in the 2011-2013 Reference Period, leaving the 747-8I aircraft as the only VLA available for delivery in that time-period. Any other particular number of counterfactual Boeing deliveries within the 2011-2013 Reference Period in our view finds no sufficient basis in the record.⁶⁶⁴

6.461. Moreover, the European Union, as the proponent of economic modelling in this proceeding could have, but did not, propose any specific model and offer sufficient supporting evidence (including regarding the assumptions to be made and parameters to be used), and data with which to run a model calculation. The European Union chose not to do so, leaving us with the information on the record upon which to base our decision in this context.

6.462. Additionally, in this very dispute, conclusions regarding complex economic issues concerning the conditions of competition in the LCA marketplace and the economic effects of challenged subsidies to LCA manufacturers have been reached in the absence of any economic modelling. The compliance panel and Appellate Body were able to make several critical determinations without the assistance of any economic modelling: (a) the precise number of orders, representing the lost sales that the United States LCA industry suffered in the counterfactual⁶⁶⁵, (b) that the United States LCA industry's deliveries would have been higher in each of the six relevant geographic markets in the absence of subsidies, and (c) the relevant product markets, even though the competitive dynamics between different models of LCA is highly complex.

6.463. Further to this last point, we take special note that the compliance panel rejected a similar argument by the European Union, i.e. that the United States had to establish the existence of product markets using *quantitative* economic evidence. In the compliance panel's view, even if it had had a significant volume of historic pricing data with which to work (which it did not):

[T]he task of performing a reliable econometric analysis of the demand for LCA products would face a number of significant methodological and data challenges. These include deciding how to appropriately model demand for LCA products, which is itself highly complex and influenced by a multiplicity of factors that are sometimes subjective and "unquantifiable". When these and other particular characteristics of LCA demand are considered in the light of the recognized difficulties associated with identifying relevant product markets made up of differentiated products, it is apparent that producing

⁶⁶⁴ We note that a one-to-one A380-to-747-8I replacement ratio may, in fact, be conservative. This is so because the 747-8I aircraft actually has significantly fewer seats than an A380 aircraft on average. (Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, Table 18 (indicating that the "typical" number of seats in an A380-800 aircraft was well over 500 seats whereas the 747-8I aircraft has well under 500 seats)). Thus, it does not seem implausible that a larger number of 747-8I aircraft could have been needed to fulfil the same customer needs as a smaller number of A380 aircraft. (See United States' comments on the European Union's response to Arbitrator question No. 113, para. 219 (raising this point)).

⁶⁶⁵ See paragraph 6.221 above.

accurate and reliable quantitative evidence of the degree of demand-side substitution between different LCA products would be a formidable task.⁶⁶⁶

6.464. We note that according to the panel, as here, "[t]he European Union [did] not venture[] any suggestions about what such a model might look like. However, one economist who [had] endeavoured to undertake such analysis has recognized that 'demand for aircraft is very complex, and estimating the demand for aircraft is a formidable research agenda in itself'.⁶⁶⁷ We discern no lesser challenge in our proceeding, i.e. modelling *both* supply and demand considerations to determine precise numbers of VLA deliveries in particular geographic product markets in a discrete period of time and in a counterfactual scenario.

6.465. Finally, we observe that economic models have not been treated as a *sine qua non* of arbitrations of this sort. As far as we know, no arbitrator has suggested that an economic model must necessarily be performed. Rather, as we understand the approaches taken by previous arbitrators, they have depended on the particular facts and circumstances of a given record, including the adopted findings by the DSB and the methodologies and arguments that the parties have put forward in the arbitration proceeding.

6.3.4.4.3 Delivery prices

6.466. In the impedance context, the United States defines the value of each additional counterfactual Boeing LCA delivery in a given calendar year of the 2011-2013 Reference Period as the average net delivery price of all the 747-8I aircraft actually delivered in that calendar year expressed in delivery-year US dollar terms. As shown in Equation (9), according to the United States, the global (worldwide) average per-aircraft delivery price for a given year is calculated by dividing the sum of all net prices for 747-8I aircraft delivered in that calendar year by the number of 747-8I aircraft delivered in that year.

$$\text{AverageBoeingNetPrice}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}} = \sum_j \frac{\text{BoeingNetPrice}_{\text{Airline } j, \text{delivery year } s}^{\text{in delivery year } s \text{ USD}}}{\text{NumberOfAircraft}_{\text{delivery year } s}} \quad (9)$$

where $\text{AverageBoeingNetPrice}_{\text{delivery year } s}^{\text{in delivery year } s \text{ USD}}$: net delivery price of Boeing 747-8I model delivered to airline j in month/year s and expressed in US dollar terms of delivery year s

$\text{NumberOfAircraft}_{\text{delivery year } s}$: number of Boeing 747-8I aircraft delivered in year s .

6.467. We recall our finding that no relevant additional Boeing counterfactual deliveries of 747-8I aircraft could have occurred in December 2011, and thus only counterfactual Boeing deliveries in the years 2012 and 2013 are relevant to our valuation here.⁶⁶⁸

6.468. With respect to 2012 and 2013, the United States computes the respective global average per-aircraft delivery price of Boeing 747-8I aircraft based on [[***]] of all 747-8I aircraft actually delivered in 2012 and 2013, respectively⁶⁶⁹; these 2012 and 2013 global average per-aircraft net delivery prices are by construction expressed in 2012 and 2013 US dollar terms, respectively.⁶⁷⁰ The United States explains that in both 2012 and 2013 Boeing only made deliveries of 747-8I aircraft to Lufthansa pursuant to a 2006 order for 20 747-8I aircraft, which means that these 2012 and 2013

⁶⁶⁶ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1205.

⁶⁶⁷ Panel Report, *EC and certain member States – Large Civil Aircraft (Article 21.5 – US)*, para. 6.1186.

⁶⁶⁸ In that context, we note that the parties disagree regarding the method for calculating the 2011 average delivery price. (European Union's response to Arbitrator question No. 83 para. 295; comments on the United States' responses to Arbitrator question No. 139, paras. 424-432, No. 140, para. 433, No. 142, para. 435, and No. 143, para. 436; and United States' written submission, para. 252). However, given that we have found that no additional counterfactual Boeing deliveries would have occurred in 2011, such disagreements are moot.

⁶⁶⁹ United States' methodology paper, paras. 86-87.

⁶⁷⁰ Second Revised 747-8I Global Delivery Prices for 2012 and 2013 (revision to Exhibit USA-26 (HSBI)), (Exhibit USA-103 (HSBI)).

global average per-aircraft net delivery prices actually represent Lufthansa's average per-aircraft net delivery prices of 747-8I aircraft for those two years.⁶⁷¹

6.469. The European Union initially argued that the United States should have based its impedance calculations on customer- and campaign-specific price information, similar to the approach proposed by the United States to valuing lost sales.⁶⁷² However, the European Union subsequently agreed with the United States that the 2006 Lufthansa order for 20 Boeing 747-8I aircraft constitutes a representative, reliable, and robust basis to obtain counterfactual 2012 and 2013 747-8I delivery prices.⁶⁷³ The European Union further observes that there is no need for the Arbitrator to pursue any alternative approach.

6.470. The Arbitrator notes that both parties agree that the Arbitrator should base its valuation of impedance on global average delivery prices calculated on the basis of delivery prices for the 2006 Lufthansa order of 20 747-8I aircraft. Those prices could then be used to derive counterfactual 2012 and 2013 747-8I delivery prices. We further recall that the reason why the European Union initially disagreed with the approach based on average delivery prices was that, based on available information at that time, the European Union believed that it artificially inflated Boeing's counterfactual delivery prices. However, after gaining access to more information in the context of this proceeding and following the United States' agreement to exclude delivery prices [[***]] from the 2012 average delivery price, the European Union revised its judgment on this particular point.

6.471. Although there is an argument to be made for using the same (comparator-order) approach for the valuation of both lost sales and impedance, we consider that there are sound reasons to adopt a different, global-average-price approach in the impedance context. After a careful review of the different comparators proposed by the parties in the impedance context we consider that a customer- and campaign-specific approach for the valuation of impedance would not have produced a more accurate estimate of impedance. We recall in this respect that the customer's identity (the airline concerned) is our main criterion to select relevant comparator orders. Yet, relatively few customers to whom the A380 Impedance Deliveries were made also ordered 747-8I aircraft, and thus there are very few potential comparator orders placed by the same airline to choose from. In those circumstances, using global average prices for actual 747-8I deliveries in 2012 and 2013 appears to us a reasonable alternative method to estimate the counterfactual delivery prices of additional 747-8I deliveries in those years.

6.472. In the light of the above, we agree to follow the approach supported by both parties and thus value impedance using global average delivery prices for the additional counterfactual deliveries of 747-8I aircraft to the relevant six geographic markets in 2012 and 2013.

⁶⁷¹ The European Union initially argued that the United States significantly inflated the 2012 global average per-aircraft net delivery prices of 747-8I aircraft by including prices for [[***]] aircraft sales. (European Union's written submission paras. 322-328). The United States, to minimize areas of disagreement between the parties wherever possible, responded to the European Union's argument by excluding deliveries of [[***]] models from its calculation of the 2012 global average net delivery price for 747-8I aircraft. (United States' written submission paras. 247-248).

⁶⁷² European Union's written submission, para. 312. In response to the European Union's initial suggestion to use customer- and campaign-specific price information for the valuation of impedance, the United States identified comparators, including [[***]], and provided the corresponding calculations of the value of impedance, while arguing that such an approach would not be necessary. (United States' responses to Arbitrator question No. 153, paras. 4-9, and No. 154, paras. 10-23; comments on the European Union's response to Arbitrator question No. 158, paras. 11-12; Calculation of Delivery Prices for Comparator Orders, (Exhibit USA-61 (HSBI)); and Net Price Calculations for Questions 153 and 154(d) Alternative Impedance Valuations, (Exhibit USA-106 (HSBI))).

The European Union rejected the choice of some of the comparators put forward by the United States and proposed alternative comparators. (European Union's written submission, paras. 243-246 and 318-320; and responses to Arbitrator question No. 83, paras. 297-299, and No. 158, paras. 5-10.)

The European Union also rejected the approach taken by the United States for calculating the relevant delivery prices for impedance. (European Union's responses to Arbitrator question No. 83, paras. 297-299, and No. 158, para. 9; and comments on the United States' response to Arbitrator question No. 153, para. 9).

⁶⁷³ European Union's responses to Arbitrator question No. 83, para. 295, and No. 158, para. 4; and comments on the United States' response to Arbitrator question No. 153, para. 5.

6.3.4.4.4 Conclusion

6.473. This concludes our assessment of technical aspects of the United States' methodology for valuing impedance. As noted in section 6.1 above, we will apply these findings further below in section 6.4.3 when we calculate the actual value of impedance.

6.4 Calculation of countermeasures commensurate with the adverse effects determined to exist

6.474. In the preceding sections, we have accepted certain aspects of the United States' proposed methodology but found shortcomings in other aspects requiring adjustments to be made. In section 6.4, we apply those conclusions to calculate the maximum level of Annual Suspension that is "commensurate with the degree and nature of the adverse effects determined to exist".⁶⁷⁴ In keeping with the content of the above sections and our mandate, this section proceeds in five parts. First, we explain our general methodology. Second, we determine values for lost sales in 2012 and 2013 US dollar terms. Third, we determine values for impedance in 2012 and 2013 US dollar terms. Fourth, we determine the total annualized value of lost sales and impedance stated in 2013 US dollar terms in order to determine the maximum level of Annual Suspension. Finally, we determine a level of countermeasures commensurate with the previously determined annualized value of the adverse effects determined to exist.

6.4.1 General approach

6.475. In section 6.4.1 we describe the approach that we consider best suited to establish the value of adverse effects determined to exist. In accordance with our findings made thus far, we measure the value of the adverse effects determined to exist as the sum of the value of lost sales and the value of impedance. We follow a three-step approach to value the adverse effects determined to exist, whereby we calculate (a) lost sales and (b) impedance separately, and (c) annualize their sum over the Reference Period to obtain the average annual value of the adverse effects determined to exist expressed in 2013 US dollar terms. In implementing this approach, we in some instances modify the United States' proposed methodology to take into account some of the arguments that the European Union advanced and our own concerns regarding the United States' methodology.

6.476. One important departure from the United States' proposed approach is that we use all the relevant information that the parties provided as of June 2019 to value lost sales and impedance, so long as the information pertains to, and sheds light on, the value of the adverse effects determined to exist during the Reference Period.

6.4.2 Valuation of lost sales

6.477. As explained in section 6.3.4.3.4, the Arbitrator assumes that absent A380 and A350XWB LA/MSF subsidies, for each of the five lost sales at issue, Boeing in the counterfactual would have initially sold during the same year in the Reference Period the same number of aircraft as Airbus, and that Boeing would have sold the closest competing Boeing model *vis-à-vis* the Airbus LCA model actually sold. However, we adjust the counterfactual delivery numbers of these ordered Boeing aircraft to take into account actual cancellations (as of June 2019) of some of the aircraft ordered from Airbus that would also have occurred in the counterfactual. Specifically, we make such adjustments where these order cancellations were the result of the airline customer's decision, were independent of Airbus' will and happened for reasons not specific to the Airbus company or Airbus' aircraft.

6.478. In the light of those considerations, Table 16 below summarizes Boeing's counterfactual orders and deliveries that would have occurred had Boeing won the five lost sales. With respect to the Transaero lost sale, as discussed in section 6.3.4.3.4.1, we assume that although Boeing would

⁶⁷⁴ As noted above in section 3, should we determine that the methodology proposed by the United States for calculating the level of countermeasures, or any alternative methodology proposed by the European Union, has shortcomings and is not appropriate, we could either make appropriate adjustments or develop another, appropriate, methodology ourselves. As one previous arbitrator has explained "previous arbitrators developed their own appropriate methodologies, based either on elements of methodologies proposed by the parties, or on an altogether different approach". (Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 116). (fns omitted)

have won the order for four 747-8I aircraft, the entirety of the order would have been cancelled, and thus no deliveries would have occurred. Similarly, as discussed in section 6.3.4.3.4.1, we have removed the counterfactual deliveries of [[***]] 747-8I aircraft to Emirates on the grounds that those deliveries would also have been cancelled in the counterfactual.

Table 16: Boeing's counterfactual twin-aisle and VLA orders and deliveries

Lost sales campaign	Airbus model	Closest Boeing model	Order year	Number of counterfactual ordered aircraft	Number of counterfactual delivered aircraft
Cathay Pacific Airways	A350XWB-1000	777-300ER	2012	10	10
Transaero Airlines	A380	747-8I	2012	4	0
Singapore Airways	A350XWB-900	787-10	2013	30	30
United Airlines	A350XWB-1000	777-300ER	2013	10	10
Emirates	A380	747-8I	2013	50	[[***]]
Total				104	[[***]]

6.479. We follow an order-centric approach and value each lost sale in the year in which the corresponding order was lost. Additionally, and as explained in section 6.3.4.3.6.4, we obtain that value by calculating the discounted value, at the time that the order was lost, of the net delivery price of each Boeing aircraft counterfactually delivered at a scheduled post-order date and by adjusting, where appropriate, for the respective risk of future cancellation of the counterfactual delivery (as of 2019)⁶⁷⁵:

$$\begin{aligned}
 AdjustedLostSale_{Airline\ i, order\ year\ t}^{in\ order\ year\ t\ USD} = & \sum_{\substack{Delivery \\ year\ s}} \frac{BoeingNetPrice_{Airline\ i, delivery\ year\ s}^{in\ delivery\ year\ s\ USD}}{(1 + DiscountRate_{order\ year\ t})^{delivery\ year\ s - order\ year\ t}} \\
 & \times DeliveredAircraft_{Airline\ i, delivery\ year\ s} \\
 & \times SurvivalRate_{order\ year\ t, delivery\ year\ s}
 \end{aligned} \tag{10}$$

6.480. For each lost sales campaign at issue, we have selected a comparator firm order for Boeing's closest competing model placed by the same airline or a similar airline from which to draw on relevant contractual pricing information to estimate the net delivery price of each counterfactually delivered Boeing aircraft. Table 17 summarizes the Boeing comparator orders that we have selected to value lost sales. With the exception of the 2013 Emirates lost sale, each selected comparator order corresponds to a Boeing order placed by the same airline. As explained in section 6.3.4.3.6.1, we consider that the 2006 Lufthansa order for 747-8I aircraft constitutes the best available comparator order for the Emirates lost sale, given its large order size and the similarities between the two airlines.⁶⁷⁶

6.481. Regarding the relevant counterfactual Boeing delivery schedules, we use the contractually agreed delivery schedule contained in Airbus' respective contracts for the lost sales at issue.

⁶⁷⁵ For simplicity, we assume that any counterfactual order would occur in July of a given year in the Reference Period (i.e. 2012 or 2013) and any counterfactual delivery would occur in July in the expected delivery years (e.g. July 2020).

⁶⁷⁶ Cathay Pacific March 2011 777-300ER Order Documentation, (Exhibit USA-69 (HSBI)); Singapore Airlines 2013 787-10 Order Documentation, (Exhibit USA-73 (HSBI)); United 2015 777-300ER Order Documentation, (Exhibit USA-74 (HSBI)); Lufthansa 2006 747-8I Order Documentation, (Exhibit USA-79 (HSBI)); and Lufthansa Escalation Documentation, (Exhibit USA-87 (HSBI)).

Table 17: Selected comparator orders

Lost sales in the Reference Period				Comparator order			
Year	Airline	Model	Order size	Year	Airline	Model	Order size
2012	Cathay Pacific Airways	A350XWB-1000	10	2011	Cathay Pacific Airways order	777-300ER	10
2012	Transaero Airlines	A380	4*	2012	-	-	-
2013	Singapore Airlines	A350XWB-900	30	2013	Singapore Airlines order	787-10	30
2013	United Airlines	A350XWB-1000	10	2015	United Airlines order	777-300ER	30
2013	Emirates	A380	50+	2006	Lufthansa order	747-8I	20

Note: * 4 post-order cancellations
 + [[***]] post-order cancellations

6.482. For each lost sale, we use the pricing terms contained in the comparator order, [[***]] to calculate the net delivery price of the corresponding counterfactual aircraft delivery expressed in delivery-year US dollar terms.⁶⁷⁷ The net delivery price (expressed in delivery-year US dollar terms) is the difference between the gross delivery price and price concessions (expressed in base-year US dollar terms) multiplied by the escalation factor associated with the delivery date minus additional price concessions [[***]].⁶⁷⁸

6.483. To minimize the [[***]], and in the light of our decision to consider up-to-date information as of June 2019, we apply the [[***]] escalation rates for any counterfactual deliveries scheduled to take place before [[***]] and [[***]] escalation rates [[***]] for counterfactual deliveries scheduled to take place after [[***]].⁶⁷⁹

6.484. Unless we have already made a determination that a particular counterfactual Boeing order would have been cancelled in the counterfactual⁶⁸⁰, we assume that all other Boeing deliveries counterfactually scheduled for 2018 or earlier would have occurred. For counterfactual Boeing deliveries set for after 2018, we account for the probability that such orders might be cancelled before those deliveries occur. We do so by adjusting those calculated counterfactual Boeing net delivery prices by Boeing's order- and delivery-year specific survival rate. As discussed in section 6.3.4.3.4.2, Boeing's order- and delivery-year specific survival rates are based on Boeing's historic average cancellation rate for all its LCA sales between 2008 and 2011⁶⁸¹, as illustrated below:

$$SurvivalRate_{order\ year\ t, delivery\ year\ s} = \begin{cases} 100\% & \text{if delivery year } s \leq 2018 \\ (1 - AverageCancellationRate_{2008-2011})^{s-t} & \text{if delivery year } s > 2018 \end{cases} \quad (11)$$

6.485. Finally, we discount each adjusted counterfactual Boeing net delivery price to obtain the present value at the time of the lost sale in order-year US dollar terms. As discussed in section 6.3.4.3.6.4, in the light of our decision to conduct this discounting exercise from Boeing's perspective, we choose Boeing's cost of debt as the most appropriate discount rate available on the record.⁶⁸²

⁶⁷⁷ The pricing terms include the aircraft's gross price and price concessions (expressed in base year US dollar terms) as well as the escalation formula. Relevant [[***]] are also found in [[***]].

⁶⁷⁸ For some comparator orders, [[***]].

⁶⁷⁹ See [[***]], (Exhibit USA-38 (BCI)); [[***]], (Exhibit USA-39 (BCI)); [[***]], (Exhibit USA-40 (BCI)); [[***]], (Exhibit USA-41 (BCI)); Cathay Pacific March 2011 777-300ER Order Documentation, (Exhibit USA-69 (HSBI)); Singapore Airlines 2013 787-10 Order Documentation, (Exhibit USA-73 (HSBI)); United 2015 777-300ER Order Documentation, (Exhibit USA-74 (HSBI)); Lufthansa 2006 747-8I Order Documentation, (Exhibit USA-79 (HSBI)); and Lufthansa Escalation Documentation, (Exhibit USA-87 (HSBI)).

⁶⁸⁰ As discussed above, this would be the case for the Transaero lost sale and a portion of the Emirates lost sales.

⁶⁸¹ Survival Rate Calculation, (Exhibit USA-65 (HSBI)).

⁶⁸² Boeing WACC Data for 2012, 2013, (Exhibit USA-120 (BCI)).

6.486. For each lost sales campaign at issue, the net present-value delivery prices of all counterfactually ordered Boeing aircraft, adjusted, as appropriate, for the risk of future cancellation, are summed to obtain the estimated value of the lost sale to Boeing, expressed in order-year US dollar terms. Table 18 indicates the results of our valuation of the lost sales at issue.⁶⁸³

Table 18: Value of lost sales in the Reference Period

Lost sale	Order year	Closest competing Boeing model	Number of counterfactually ordered aircraft	Number of counterfactually delivered aircraft	Lost sale value (in order-year USD)
Cathay Pacific Airways	2012	777-300ER	10	10	[[HSBI]]
Transaero Airlines	2012	747-8I	4	0	0
Singapore Airways	2013	787-10	30	30	[[HSBI]]
United Airlines	2013	777-300ER	10	10	[[HSBI]]
Emirates	2013	747-8I	50	[[***]]	[[HSBI]]

6.4.3 Valuation of impedance

6.487. Turning to the valuation of the relevant instances of impedance in the six geographic markets, as explained in section 6.3.4.4.2, the Arbitrator assumes that absent A380 and A350XWB LA/MSF subsidies, Boeing would have replaced the A380 Impedance Deliveries with the same number of Boeing 747-8I aircraft in the 2011-2013 Reference Period, although the timing of Boeing's counterfactual 747-8I aircraft deliveries would have differed somewhat from the timing of the A380 Impedance Deliveries. As further explained in paragraphs 6.409 and 6.411, Boeing would have delivered an additional 18 747-8I aircraft in 2012 and an additional 29 747-8I aircraft in 2013 to the six geographic markets in question taken as a whole.⁶⁸⁴

6.488. Table 19 reproduces the A380 Impedance Deliveries and Boeing's counterfactual deliveries of 747-8I aircraft that we take into account in our valuation of impedance.

Table 19: A380 Impedance Deliveries and Boeing's counterfactual 747-8I deliveries

Delivery date	Number of Airbus A380 deliveries in the six relevant geographic markets	Number of counterfactual Boeing 747-8I deliveries in the six relevant geographic markets
December 2011	4	0
2012	23	18
2013	20	29
Total	47	47

⁶⁸³ Regarding the Transaero Airlines lost sale, we note that our task is governed by the 2018 DSB recommendations and rulings, which include a finding of adverse effects in respect of the Transaero Airlines lost sale. We must therefore value that lost sale. On a correct assessment, which takes into account the post-order cancellation of the entirety of the Transaero Airlines order, the value of the Transaero Airlines lost sale is zero. We note in this context that according to Article 3.8 of the DSU "there is normally a presumption that a breach of the rules has an adverse impact on other Members". However, we agree with the statement by another arbitrator that "[t]he *presumption* of nullification or impairment ... as set forth by Article 3.8 ... cannot in and of itself be taken simultaneously as *evidence* proving a particular level of nullification or impairment allegedly suffered by a Member requesting authorization to suspend concessions ... at a much later stage of the WTO dispute settlement system". We also agree with the same arbitrator's further observation that "[t]he review of the level of nullification or impairment ... from the objective benchmark foreseen by Article 22 of the DSU ... is independent from the finding of infringements of WTO rules by a panel or the Appellate Body". (Decision by the Arbitrator, *EC – Bananas III (US) (Article 22.6 – EC)*, para. 6.10 (emphasis original))

⁶⁸⁴ See paragraphs 6.408-6.411 above.

6.489. In the context of our valuation of impedance, we follow a delivery-centric approach and thus value impedance in the year in which the counterfactual deliveries would have been made. We obtain this value by multiplying the global (i.e. worldwide) average 747-8I per-aircraft net delivery price for the relevant year of the Reference Period by the number of counterfactual deliveries of 747-8I aircraft in the corresponding year.

6.490. The 747-8I per-aircraft net delivery global average prices for 2012 and 2013 are computed by dividing the sum of all the net delivery prices for 747-8I aircraft delivered in 2012 or 2013 by the number of 747-8I aircraft delivered in 2012 or 2013.⁶⁸⁵

6.491. Table 20 indicates the results of our valuation of the instances of impedance at issue, expressed in delivery-year US dollar terms.

Table 20: Value of impedance in the Reference Period

Delivery date	Number of counterfactual Boeing 747-8I deliveries in the six relevant geographic markets	Global average 747-8I per-aircraft net delivery price	Value of impedance in delivery-year USD
December 2011	0	-	0
2012	18	[[HSBI]]	[[HSBI]]
2013	29	[[HSBI]]	[[HSBI]]
Total	47		

6.4.4 Aggregated annualized value of lost sales and impedance

6.492. In sections 6.4.2 and 6.4.3 above, the Arbitrator determined the monetary values for impedance and lost sales during the 25-month Reference Period of December 2011-2013. There were no lost sales in December 2011, and we have found in the impedance context that no relevant counterfactual Boeing 747-8I deliveries would have occurred in December 2011. Therefore, at this point in our analysis the monetary values pertaining to both lost sales and impedance have been expressed in 2012 US dollar values and in 2013 US dollar values, as appropriate. Doing so is consistent with the United States' methodology. The United States' methodology proposes to annualize these values in 2013 US dollar values to determine an annualized value of adverse effects as a preliminary step towards determining the maximum level of Annual Suspension.

6.493. The United States obtains the annualized 2013 US dollar value by converting the 2012 US dollar values into 2013 US dollar values by adjusting these values for inflation using the PPI for CA Manufacturing and adding that amount to the pre-existing 2013 US dollar values to reach a total aggregate value of lost sales and impedance expressed in 2013 US dollar terms. The United States then divides that aggregate amount by 25 (i.e. the 25-month reference period) and multiplies it by 12 (i.e. the 12 months per year). This results in an annualized value of the adverse effects determined to exist expressed in 2013 US dollar terms. For ease of reference, we will refer to this amount as the "2013 Annualized Value".

6.494. According to the United States, the need for annualization of the value of the adverse effects determined to exist arises because the United States seeks to apply countermeasures up to the authorized maximum level on an annual basis (i.e. a 12-month period) instead of, for example, a 25-month period (i.e. the temporal length of the 2011-2013 Reference Period). In other words, the United States requests that the Arbitrator determines the maximum amount of countermeasures that the United States may take per calendar year so that the United States can implement its countermeasures accordingly. The United States cites administrability and the common practice of

⁶⁸⁵ Boeing Declaration, (Exhibit USA-5 (BCI)); and Second Revised 747-8I Global Delivery Prices for 2012 and 2013 (revision to Exhibit USA-26 (HSBI)), (USA-103 (HSBI)).

complaining parties under Article 22 of the DSU as reasons for proposing to take countermeasures on an annual basis.⁶⁸⁶

6.495. In 6.3.1 above, we determined that it is legally appropriate to grant countermeasures in the form of Annual Suspension as proposed by the United States in its methodology.⁶⁸⁷ As the United States seeks to be granted a maximum level that it can impose annually, we consider that annualizing the value of adverse effects determined over the 25-month Reference Period is appropriate. We note that other arbitrators likewise established maximum levels of suspension based on the relevant effects of the measures in question over one year.⁶⁸⁸ Accordingly, like the United States, we calculate an aggregated annualized value of the adverse effects for 2013 (the 2013 Annualized Value), 2013 being the most recent year of the 2011-2013 Reference Period.

6.496. Having decided that it is appropriate to determine the 2013 Annualized Value, the question before us is what is the appropriate inflation rate that we should use to adjust the 2012 value of lost sales and impedance with a view to expressing it in 2013 US dollar terms. As explained above, the United States proposes to use the PPI for CA Manufacturing.⁶⁸⁹ The United States provides mostly practical justifications for using the PPI for CA Manufacturing. The United States suggests that it has the advantage that it is a reasonable proxy for the increased dollar value of LCA over time; that it is a publicly available and regularly updated index, published by a government institution; and that it is unlikely to be subject to manipulation by industry participants. According to the United States, the PPI for CA Manufacturing is also not specific to airlines, unlike the [[***]]. According to the United States, using the [[***]] in calculating the annual countermeasures would make that calculation exceedingly and unnecessarily complex.⁶⁹⁰

6.497. The Arbitrator considers that there is no valid reason to use the PPI for CA Manufacturing besides the practical benefit of using a single non-HSBI index ratio. We note in this connection that the 2012 values of lost sales and impedance that need to be adjusted for inflation are values concerning Boeing aircraft. Their price evolution is in our view best captured by the [[***]] escalation formula. Based on [[***]], the escalation formula determines an escalation factor for each month of each year between the base year and the delivery year. This escalation factor reflects [[***]] changes in labour and material costs resulting from inflation and other economic changes. Accordingly, for each 2012 lost sale at issue and the 2012 value of impedance we use the corresponding 2013-to-2012 [[***]] escalation factor ratio to restate the 2012 values of lost sales and impedance in 2013 US dollar terms.

6.498. On this basis, we proceed to determine the aggregated annualized value of the adverse effects in 2013 US dollar terms.

6.499. First, for lost sales, we multiply the only remaining 2012 lost sale value – the Cathay Pacific lost sale value (expressed in 2012 US dollar terms) – by the [[***]] 2013-to-2012 escalation factor ratio associated with its comparator order. Second, for impedance, we apply the [[***]] 2013-to-2012 escalation factor ratio based on the escalation formula contained in the 2006 Lufthansa contract to the 2012 impedance value. Once we have expressed all the 2012 lost sales and impedance values in 2013 US dollar terms, we add them to the 2013 lost sales and impedance

⁶⁸⁶ United States' methodology paper, para. 90.

⁶⁸⁷ See paragraph 6.76 above.

⁶⁸⁸ Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*; *US – COOL (Article 22.6 – United States)*; *US – Upland Cotton (Article 22.6 – US II)*; *US – Gambling (Article 22.6 – US)*; *US – FSC (Article 22.6 – US)*; *Brazil – Aircraft (Article 22.6 – Brazil)*; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*; *EC – Hormones (Canada) (Article 22.6 – EC)*; *EC – Hormones (US) (Article 22.6 – EC)*; and *EC – Bananas III (US) (Article 22.6 – EC)*. We note in particular the approach of the arbitrator in *Brazil – Aircraft (Article 22.6 – Brazil)*. In that proceeding, after determining the present value of the prohibited subsidy granted over a six-year period (2000-2005), the arbitrator divided that aggregate amount by six (for the time-period of six years) to determine the average annualized present value of the subsidy. (Decision by the Arbitrator, *Brazil – Aircraft (Article 22.6 – Brazil)*, para. 3.93. See also Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, fn 78 (explaining that "compensations or suspensions of concessions or other obligations have been so far calculated on a twelve-month basis")).

⁶⁸⁹ Producer Price Indexes – Program Overview, U.S. Department of Labor, Bureau of Labor Statistics, (Exhibit USA-20).

⁶⁹⁰ United States' response to Arbitrator question No. 38, paras. 77-79.

values. This sum is then annualized by dividing it by 25 (the number of months in the Reference Period) and multiplying it by 12 (months).

$$\begin{aligned}
 AEDTE_{Dec.2011-Dec.2013}^{in\ 2013\ USD} = & \left(AdjustedLostSale_{CathayPacific,2012}^{in\ 2012\ USD} \times \frac{EscalationFactor_{CathayPacific}^{2013}}{EscalationFactor_{CathayPacific}^{2012}} \right. \\
 & + AdjustedLostSale_{SingaporeAirways,2013}^{in\ 2013\ USD} \\
 & + AdjustedLostSale_{UnitedAirlines,2013}^{in\ 2013\ USD} \\
 & + AdjustedLostSale_{Emirates,2013}^{in\ 2013\ USD} \\
 & + Impedance_{2012}^{in\ 2012\ USD} \times \frac{EscalationFactor_{Lufthansa}^{2013}}{EscalationFactor_{Lufthansa}^{2012}} \\
 & \left. + Impedance_{2013}^{in\ 2013\ USD} \right) \times \frac{12}{25}
 \end{aligned} \tag{12}$$

6.500. As summarized in Table 21 below, the total annualized value of the adverse effects determined to exist, expressed in 2013 US dollar terms, amounts to USD 7,496.623 million.

Table 21: Total annualized value of the adverse effects determined to exist

Reference Period year	Value of adverse effects determined to exist in order-/delivery-year USD	Value of adverse effects determined to exist in 2013 USD	Value of annualized adverse effects determined to exist over the Reference Period in 2013 USD
December 2011	0	0	
2012	[[HSBI]]	[[HSBI]]	
2013	[[HSBI]]	[[HSBI]]	
Total:		[[HSBI]]	7,496.623 million

6.4.5 Countermeasures commensurate with the annualized value of the adverse effects determined to exist

6.501. Consistent with Article 7.10 of the SCM Agreement, the maximum level of countermeasures that the United States may be authorized to impose annually (i.e. the maximum level of Annual Suspension) must be "commensurate" with the annualized value of adverse effects. We must therefore examine whether the level of countermeasures proposed by the United States is "commensurate" with the 2013 Annualized Value of adverse effects that we have determined above. If it is not, we need to determine what would be the commensurate level of Annual Suspension expressed in 2013 US dollar terms (for ease of reference, we will refer to this as the 2013 Annual Suspension Value).

6.502. The United States requests, however, that we not stop there and go on to adjust the 2013 Annual Suspension Value. Specifically, it requests that we adjust for inflation from 2013 up to the present day and thus express the level of Annual Suspension in 2019 US dollar terms (for ease of reference, we will refer to this as the 2019 Annual Suspension Value).

6.503. Additionally, the United States requests that it be authorized to adjust the 2019 Annual Suspension Value for inflation arising in future, post-2019, years in which the United States would apply countermeasures.

6.504. The Arbitrator addresses these three issues – the "commensurate" 2013 Annual Suspension Value and the adjustment for inflation up to 2019 and beyond – in separate sections below.

6.4.5.1 The "commensurate" 2013 Annual Suspension Value

6.505. At this point, we recall that the United States requests that the countermeasures that it will seek authorization to impose be based on the 2013 Annualized Value of adverse effects. The United States calculates the 2013 Annualized Value as USD 10,560 million. We have calculated it as USD 7,496.623 million. These two figures differ materially.

6.506. We note that the United States does not specifically propose the value of USD 10,560 million as the level of countermeasures that it is seeking authorization to impose. It is only after adjusting this 2013 Annualized Value for inflation and expressing it in 2019, 2020, etc. terms that the United States arrives at its proposed level of countermeasures for the relevant year (i.e. the value of Annual Suspension Value for the relevant year). However, for the purpose of determining the "commensurate" 2013 Annual Suspension Value, we compare the value of USD 10,560 million – that value being the annual suspension value that the United States would have proposed for 2013 – to our calculated 2013 Annualized Value.

6.507. The issue that we therefore now examine is whether the United States' value of USD 10,560 million that the United States has calculated may be considered "commensurate" with the 2013 Annualized Value of adverse effects that we have calculated.

6.508. As we have explained above⁶⁹¹, the phrase "commensurate with" as it appears in Article 7.10 of the SCM Agreement connotes a correspondence of a "less precise degree of equivalence than exact numerical correspondence" between the "adverse effects determined to exist" and "countermeasures" proposed.⁶⁹² Thus, the "commensurateness" standard may not require exact equivalence between the level of countermeasures that the United States could be authorized to take, on the one hand, and the value of the adverse effects determined to exist, on the other hand. However, the United States does not request that it be allowed to take countermeasures in the form of a maximum level of Annual Suspension in excess of the value of the annualized value of the adverse effects determined by us (except for inflation adjustments, which we discuss in more detail in the following sections). Nor does the European Union argue that we should establish an Annual Suspension Value that is higher than the Annualized Value of adverse effects. We further note that our calculated 2013 Annualized Value of adverse effects (i.e. USD 7,496.623 million) is significantly lower than the United States' 2013 Annual Suspension Value (i.e. USD 10,560 million). Even assuming that, as a general matter, the commensurateness standard could permit some limited degree of discrepancy between the proposed level of countermeasures and the value of the adverse effects determined to exist, an adjustment from USD 7,496.623 million to USD 10,560 million would in our view exceed, by far, any permissible degree of discrepancy. We are accordingly unable to accept USD 10,560 million as the "commensurate" 2013 Annual Suspension Value.

6.509. For the reasons indicated, we thus perceive neither a need nor a justification, in the particular circumstances of this proceeding, for establishing the 2013 Annual Suspension Value at a level that is higher than the 2013 Annualized Value of adverse effects that we have established. Accordingly, we determine that the "commensurate" 2013 Annual Suspension Value is USD 7,496.623 million.

6.4.5.2 Adjustment of the annualized value of adverse effects determined to exist for inflation to the present day

6.510. In furtherance of its request that the Arbitrator adjust the 2013 Annualized Value for inflation in order to determine an initial level of Annual Suspension in 2019 US dollar values, the United States notes that it will be authorized to begin taking countermeasures only several years after the period during which adverse effects were determined to exist (i.e. the 2011-2013 Reference Period). Therefore, to prevent the intervening inflation from diminishing the real value of the Annual Suspension to be granted and to ensure that the level of countermeasures that will be applied prospectively starting from 2019 onwards is commensurate with the value of adverse effects, the United States proposes that the Arbitrator adjust the value of the countermeasures for inflation at least initially as between the 2011-2013 Reference Period and the present day. As noted further above, the United States proposes to make this adjustment for inflation by using the PPI for CA

⁶⁹¹ See section 5 above.

⁶⁹² Decision by the Arbitrator, *US – Upland Cotton (Article 22.6 – US II)*, paras. 4.35-4.39. (emphasis omitted)

Manufacturing from the year preceding the year in which countermeasures will be applied. This means that, for example, the 2013 Annualized Value would be adjusted for inflation using the ratio of the PPI for CA Manufacturing figure for 2018 and the PPI for CA Manufacturing figure for 2013 to determine the maximum level of Annual Suspension for 2019.⁶⁹³

6.511. The European Union does not specifically object to the United States' request for inflation adjustment.⁶⁹⁴

6.512. The Arbitrator notes that in virtually all arbitration proceedings in which the maximum level of Annual Suspension was determined on the basis of the level of nullification or impairment or the value of adverse effects sustained during a past reference period – an approach that we also follow in this proceeding – the maximum level of Annual Suspension was the value of nullification or impairment or adverse effects found to exist during the past reference period, with no adjustment for inflation up until the year in which the countermeasures or suspension could be authorized.⁶⁹⁵ This has been the case also in arbitration proceedings where the temporal gap between the reference period and the year in which Annual Suspension could be authorized was significant.⁶⁹⁶

6.513. Considerable time has passed in this dispute since the time-period in respect of which adverse effects were determined to exist (i.e. the 2011-2013 Reference Period). However, we are not persuaded that in the circumstances of the present proceeding an adjustment for inflation is necessary to preserve the effectiveness of the countermeasures that the United States may seek authorization to impose.⁶⁹⁷

6.514. Based on the above considerations, we decline the United States' request that we adjust the Annual Suspension Value expressed in 2013 US dollar terms (i.e. USD 7,496.623 million) for inflation to the present day (2019).

6.4.5.3 Adjustment of the annualized value of adverse effects determined to exist for inflation for future years in which countermeasures are applied

6.515. As we noted above, the United States also requests that it be authorized to further adjust for inflation the maximum level of Annual Suspension for each year going forward in which the United States would apply countermeasures. The United States thus asks the Arbitrator to adopt a

⁶⁹³ United States' methodology paper, para. 100.

⁶⁹⁴ The European Union does, however, dispute the overall methodology proposed by the United States in calculating the 2019 Annualized Value (i.e. escalating base prices up to delivery-year prices, discounting delivery-year prices back to 2012 or 2013 US dollar values, and then inflating those values up to 2019). The European Union proposes a different approach to achieve 2019 values in its written submission. (European Union's written submission, paras. 336-344). We have already discussed why, in our view, it is appropriate to perform escalation and discounting exercises in the lost sales context to determine the value of the lost sales. (See sections 6.3.4.3.6.2 and 6.3.4.3.6.4 above). Therefore, we do not address these arguments again here.

⁶⁹⁵ See Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*; *US – COOL (Article 22.6 – United States)*; *US – Upland Cotton (Article 22.6 – US II)*; *US – Gambling (Article 22.6 – US)*; *US – FSC (Article 22.6 – US)*; *Brazil – Aircraft (Article 22.6 – Brazil)*; *EC – Bananas III (Ecuador) (Article 22.6 – EC)*; *EC – Hormones (Canada) (Article 22.6 – EC)*; *EC – Hormones (US) (Article 22.6 – EC)*; and *EC – Bananas III (US) (Article 22.6 – EC)*. We note that the arbitrator in *US – Washing Machines (Article 22.6 – US)* adjusted the level of Annual Suspension for inflation so as to protect the real value of that level. (Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.133). Since the approach adopted by that arbitrator is relevant to both what we discuss in this section (inflation adjustment up to the present day) and what we address in the next section (section 6.4.5.3) (inflation adjustment going forward), we revert to that arbitrator's approach in more detail in the next section.

⁶⁹⁶ See Decisions by the Arbitrators, *US – Tuna II (Mexico) (Article 22.6 – US)*; and *US – Upland Cotton (Article 22.6 – US II)*. In both these proceedings, the time period between the date by when the responding party should have come into compliance and the date of circulation of the arbitrator's decision was four years. The levels of Annual Suspension were determined by these arbitrators with reference to the short-term time-period immediately following the date by when the responding party should have come into compliance.

⁶⁹⁷ Additionally, we have difficulty accepting the United States' argument that the PPI for CA Manufacturing would be the appropriate inflation index to use. The PPI for CA Manufacturing, as the United States explains, is a measure of "price change from the perspective of the seller" and is specific to one industry – CA manufacturing. (United States' methodology paper, para. 94). However, the value that, according to the United States, needs to be protected from being eroded by inflation is the value of the countermeasures, which may be imposed by the United States government on a potentially wide range of goods and/or services imported from the European Union.

formula that allows the maximum level of Annual Suspension to be applied to a given year to change with reference to inflation data from the previous calendar year (e.g. the 2020 level of suspension would be based on inflation data from 2019).

6.516. The European Union has not specifically objected to the United States request to adjust for inflation the maximum level of Annual Suspension each year going forward.

6.517. The Arbitrator notes that the United States' request for setting an initial level of Annual Suspension in *present-day* dollar values (i.e. the 2019 Annualized Value) rather than in 2013 US dollar values (see section 6.3.4.1.3 above), and for adjusting *future* levels (i.e. 2020, 2021, etc.) of Annual Suspension, both seek to protect the real value of countermeasures from being eroded by inflation.⁶⁹⁸ We also recall that in the preceding section, we have declined to adjust the 2013 Annual Suspension Value for inflation until the present day (2019). In our view, the same considerations for not performing this initial inflation adjustment apply to the requested adjustment of future levels of Annual Suspension for inflation.

6.518. As noted above, with the exception of *US – Washing Machines (Article 22.6 – US)*, in no previous arbitration decision that determined a maximum level of Annual Suspension did the arbitrator find it appropriate to adjust the level of Annual Suspension for future years based on inflation. Rather, once determined, the maximum level of Annual Suspension was set at a fixed monetary level going forward.

6.519. As concerns the recent arbitration decision in *US – Washing Machines (Article 22.6 – US)*, it seems that the parties in that proceeding agreed that (a) suspension of concessions or other obligations could be in the form of Annual Suspension, and (b) that the maximum level of Annual Suspension for each year could be adjusted.⁶⁹⁹ The only disagreement between the parties in that context was with respect to *how* to perform that adjustment. Korea proposed that future levels of suspension should be adjusted for the growth in the United States washing machines market to take into account that the level of nullification or impairment that Korea would suffer in the future would increase in proportion to the growth in the United States washing machines market. The United States, on the other hand, submitted that the economic model that it had proposed for calculating the level of nullification or impairment could be re-run each year with updated data for determining the level of suspension for a given year. After having found that neither party had offered an acceptable adjustment mechanism, the arbitrator determined that the level of suspension may be adjusted for inflation on an annual basis.⁷⁰⁰ In doing so, the arbitrator noted that inflation adjustment constitutes a means to ensure that the "real value of the level of suspension is maintained over time".⁷⁰¹

6.520. We note that the arbitrator in *US – Washing Machines (Article 22.6 – US)* did not explain why the dispute before it warranted an approach that was significantly different from that followed by all previous arbitrators that had determined a maximum level of Annual Suspension.⁷⁰² For the reasons articulated above in paragraphs 6.512-6.513 and bearing in mind the approach followed by all other arbitrators in respect of future inflation, we do not find it appropriate, in the circumstances of the present proceeding, to adjust the maximum level of Annual Suspension for each year going forward so as to protect the real value of Annual Suspension from being eroded by future inflation.

6.521. The United States has not proffered any additional justification (other than what it offered for adjusting the 2013 value for inflation to the present day) as to why in the context of the present

⁶⁹⁸ See paragraphs 6.502 and 6.503 above.

⁶⁹⁹ Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.123.

⁷⁰⁰ Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, paras. 3.124-3.134.

⁷⁰¹ Decision by the Arbitrator, *US – Washing Machines (Article 22.6 – US)*, para. 3.133.

⁷⁰² It is also noteworthy in this context that in *US – Section 110(5) Copyright Act (Article 25)*, the arbitrator had to calculate only the level of nullification or impairment (i.e. it did not have to determine any level of suspension of concessions or other obligations). In undertaking this task, the arbitrator decided to reflect the evolution of the United States market. The arbitrator did so by taking into account the annual growth rate of the United States' Gross Domestic Product (GDP) up to the date of referral of the matter to arbitration, but not beyond that date. (See Award of the Arbitrator, *US – Section 110(5) Copyright Act (Article 25)*, paras. 4.23 and 4.72). That is to say, the arbitrator did not provide for an adjustment of the level of nullification or impairment for each year going forward based on the annual rate of growth of the United States' GDP.

proceeding we should provide for an adjustment of future levels of Annual Suspension. There notably is no evidence on the record suggesting a substantial rise in the near-term in prices for imports of European Union goods and services. We also note in this context that, as pointed out above⁷⁰³, countermeasures are intended as temporary measures. We should therefore not simply assume that the United States countermeasures in this dispute will (need to) remain in place for a multi-year time-period.⁷⁰⁴

6.522. On the basis of the above considerations, we thus also decline the United States' additional request that we adjust for inflation the maximum level of Annual Suspension for each year going forward.

6.5 The European Union's argument on the level of countermeasures that the Arbitrator's determination may not exceed in this proceeding

6.523. The European Union argues that the maximum level of countermeasures that the DSB can authorize the United States to take per year cannot exceed the maximum level contained in the United States Article 22.2 request. According to the European Union, the arbitrator in *EC – Bananas III (Ecuador) (Article 22.6 – EC)* confirmed that an Article 22.2 request must set out a specific level of suspension that constitutes the maximum level of suspension that can be determined by the arbitrator. The European Union notes that the maximum specific level of countermeasures contained in the United States Article 22.2 request is USD 10,000 million per year. As a result, the European Union submits that maximum level of countermeasures that the DSB could authorize the United States to impose is USD 10,000 million per year.⁷⁰⁵

6.524. The European Union also notes that the United States submitted its Article 22.2 request following the original proceeding in which adverse effects were determined to exist related to the A320 family, the A330 family, the A340 family and the A380 aircraft, whereas the findings of the compliance proceedings excluded adverse effects concerning the A320, A330 and A340 LCA families. Therefore, for the European Union, it follows that the level of countermeasures commensurate with the adverse effects determined to exist by the compliance panel and the Appellate Body must be substantially below the amount identified in the Article 22.2 request.⁷⁰⁶

6.525. The United States responds that the level of countermeasures to be determined by the Arbitrator can exceed USD 10,000 million per year. The United States argues that by agreeing in their bilateral Sequencing Agreement to suspend the arbitration proceeding until the DSB adopts a finding that the European Union failed to comply with the DSB recommendations and rulings in the original proceedings, the parties expressed their clear intention that the findings of the compliance proceedings would inform the work of the Arbitrator. According to the United States, implicit in this agreement is the understanding that the United States will update the level of countermeasures following the compliance proceedings. The United States also submits that the present arbitration proceeding is unlike that in *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, in which Ecuador was proposing to go beyond the level of suspension specified in its Article 22.2 request based on findings and information that were already in existence at the time that Ecuador had submitted its Article 22.2 request. The United States notes that, in contrast, its Article 22.2 request was followed by compliance proceedings that found that the European Union had, in addition to maintaining WTO-inconsistent measures, adopted new WTO-inconsistent measures.⁷⁰⁷

6.526. Additionally, the United States notes that its Article 22.2 request does not identify USD 10,000 million as the maximum level of countermeasures. Rather, it defines the level of countermeasures in "functional terms", as the annual level of adverse effects determined to exist caused to the interests of the United States by the European Union's failure to comply with the DSB's

⁷⁰³ See paragraph 6.56 above.

⁷⁰⁴ We recall in this connection the European Union's assertion that it has already taken appropriate steps to bring its measures fully into conformity with its WTO obligations. (Communication by the European Union, WT/DS316/34 (Second Compliance Communication), para. 1). We also recall that this issue is under examination by the second compliance panel.

⁷⁰⁵ European Union's written submission, paras. 83-87.

⁷⁰⁶ European Union's written submission, para. 88.

⁷⁰⁷ United States' written submission, para. 75.

recommendations and rulings. The amount of USD 10,000 million is explicitly stated as an "estimate" of this functional description that is based on "currently available data in a recent period".⁷⁰⁸

6.527. The European Union responds that the United States' argument, i.e. that its Article 22.2 request identifies the level of countermeasures in functional terms as the "annual level of adverse effects determined to exist", would imply that the Article 22.2 request fails to set out a specific level of suspension and therefore would not support the authorization of any countermeasures whatsoever. However, in the European Union's view, such a reading of the United States Article 22.2 request is "erroneous".⁷⁰⁹

6.528. The Arbitrator notes that the European Union's argument is that the DSB cannot authorize the United States to take countermeasures at a level that exceeds the maximum level of countermeasures specified in numerical terms in its Article 22.2 request. According to the European Union, the maximum level of countermeasure that is specified in the request is USD 10,000 million per year.

6.529. We note that the text of the United States' Article 22.2 request characterizes the USD 10,000 million per year level as an "estimate" of the level of countermeasures based on data that was available when the request was made (i.e. December 2011).⁷¹⁰ We also note that USD 10,000 million per year in 2011 US dollar terms is equal to USD 10,830 million in 2013 US dollar terms.

6.530. In section 6.4.4 above, we determined that the maximum level of Annual Suspension that the United States may implement per year, i.e. the "commensurate" 2013 Annual Suspension Value, is USD 7,496.623 million. This level is lower than USD 10,000 million per year (in 2011 US dollar terms) and USD 10,830 million per year, which is the 2013 US dollar term equivalent of USD 10,000 million in 2011 US dollar terms. Therefore, regardless of whether the figure of USD 10,000 million contained in the United States Article 22.2 request is taken to constitute an "estimate" of a functional description of the level of countermeasures (and thus could in principle be exceeded) or the maximum permissible level of countermeasures specified in the request in numerical terms, the level of Annual Suspension that we have determined to be commensurate with the degree and nature of adverse effects determined to exist does not exceed USD 10,000 million per year (in 2011 US dollar terms). As the European Union's argument is that the United States must not be allowed to seek authorization for a level of countermeasures that exceeds USD 10,000 million per year in 2011 US dollar terms, this argument is moot in view of our determination of the level of Annual Suspension. We therefore do not examine this argument further.

6.531. The European Union raises another argument, which is that the level of countermeasures commensurate with the adverse effects determined to exist must be substantially below the USD 10,000 million identified in the Article 22.2 request in view of the different scope of the findings in the original and compliance proceedings. This argument goes to the question of the correct determination of the level of Annual Suspension and not to the question of the maximum level of countermeasures specified in the Article 22.2 request. We have undertaken our determination of the level of Annual Suspension above in sections 6.3 and 6.4 and in quantifying the adverse effects determined to exist have taken into account the scope of the findings in the compliance proceedings. There is therefore no need to dwell further on this argument.

7 THE EUROPEAN UNION'S CLAIM CONCERNING THE PRINCIPLES AND PROCEDURES SET OUT IN ARTICLE 22.3 OF THE DSU (CROSS-RETALIATION)

7.1. As noted in section 1.2, the United States requested authorization to take countermeasures under the GATT 1994 as well as the GATS. In its request, the United States noted that it is neither practicable nor effective for the United States to suspend concessions or other obligations only on imports of goods from the European Union up to a value of approximately USD 10,000 million. The United States' request also states that, given the degree and nature of the adverse effects, the

⁷⁰⁸ United States' written submission, para. 74.

⁷⁰⁹ European Union's comments on the United States' response to Arbitrator question No. 133.

⁷¹⁰ For the relevant portion of the text of the Article 22.2 request, see paragraph 6.13 above. The Article 22.2 request further states that "it is neither practicable nor effective to suspend concessions or other obligations on imports of EU goods up to a value of approximately US \$10 billion". (Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18, fourth paragraph)

circumstances are "serious enough" within the meaning of Article 22.3(c) of the DSU.⁷¹¹ Therefore, the United States requested authorization to impose countermeasures consisting of one or more of the following:

- a. suspension of tariff concessions and related obligations (including most-favoured-nation obligations) under the GATT 1994 on a list of products of the European Union and certain member States to be drawn from the United States' Harmonized Tariff Schedule; and
- b. suspension of horizontal or sectoral commitments and obligations contained in the United States' Schedule of Specific Commitments with regard to all services defined in the Services Sectoral Classification List, except for financial services (sector 7).⁷¹²

7.2. As also noted, in having recourse to arbitration under Article 22.6, the European Union claimed that the United States did not follow the principles and procedures set forth in Article 22.3 in considering what countermeasures to take.⁷¹³

7.3. The European Union thus reserved the right to raise a claim before the Arbitrator that the United States had not followed the principles and procedures set forth in Article 22.3. As explained, it is for the European Union to make out a *prima facie* case that the United States did not follow the principles and procedures in Article 22.3.⁷¹⁴

7.4. However, the European Union did not put forward any claim under Article 22.3 in its written submission or oral statement. The only reference to Article 22.3 by the European Union is contained in the "procedural history" section of its written submission where it recalls that it had "claimed that the principles and procedures set forth in Article 22.3 of the DSU had not been followed" when it had recourse to Article 22.6 at the DSB meeting on 22 December 2011.⁷¹⁵

7.5. Since the European Union did not pursue its claim before the Arbitrator, we cannot examine this issue further in the present Decision. We note that in WTO dispute settlement practice, a Member's measure is treated as WTO-consistent until it has been proven otherwise.⁷¹⁶ We consider that, likewise, a complaining party's request under Article 22.3(c) must be treated as DSU-consistent until proven otherwise. Consequently, in the circumstances of the present arbitration, it must be presumed that the United States' request for cross-retaliation is not inconsistent with Article 22.3(c) of the DSU.

8 THE EUROPEAN UNION'S CLAIM THAT THE PROPOSED COUNTERMEASURES ARE NOT ALLOWED UNDER THE COVERED AGREEMENTS

8.1. As noted in section 1.2, in having recourse to arbitration under Article 22.6 of the DSU, the European Union also claimed that the United States' proposal is not allowed under the covered agreements.⁷¹⁷ We note in this respect that Article 22.5 of the DSU provides that "[t]he DSB shall not authorize suspension of concessions or other obligations if a covered agreement prohibits suspensions" and recall that in accordance with Article 22.7 of the DSU "[t]he arbitrator may ...

⁷¹¹ Article 22.3(c) provides that:

In considering what concessions or other obligations to suspend, the complaining party shall apply the following principles and procedures:

...

(c) if that party considers that it is not practicable or effective to suspend concessions or other obligations with respect to other sectors under the same agreement, and that the circumstances are serious enough, it may seek to suspend concessions or other obligations under another covered agreement.

⁷¹² Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18.

⁷¹³ DSB, Minutes of the meeting held on 22 December 2011, WT/DSB/M/309, para. 4.

⁷¹⁴ Decisions by the Arbitrators, *US – Upland Cotton (Article 22.6 – US II)*, para. 5.55; *US – Gambling (Article 22.6 – US)*, para. 2.27; and *EC – Bananas III (Ecuador) (Article 22.6 – EC)*, para. 59.

⁷¹⁵ European Union's written submission, para. 17.

⁷¹⁶ Appellate Body Report, *US – Carbon Steel*, para. 157.

⁷¹⁷ DSB, Minutes of the meeting held on 22 December 2011, WT/DSB/M/309, para. 4.

determine if the proposed suspension of concessions or other obligations is allowed under the covered agreement".

8.2. Thus, the European Union reserved the right to raise a claim before the Arbitrator that the United States' proposal is not allowed under the covered agreements. The onus is on the European Union to make a *prima facie* case in this regard.

8.3. However, the European Union did not put forward any such claim in either its written submission or its oral statement. Since the European Union did not pursue its claim before the Arbitrator, we do not examine this issue further in the present Decision. As no inconsistency has been proven, for purposes of the present proceeding it is to be presumed that the covered agreements at issue, i.e. the GATT 1994 and the GATS, do not prohibit the suspension contemplated by the United States' request for authorization to impose countermeasures (i.e. the suspension of United States' tariff concessions and related obligations under the GATT 1994 on a list of products of the European Union and certain member States, or the suspension of horizontal or sectoral commitments and obligations contained in the United States' GATS schedule with regard to all services defined in the Services Sectoral Classification List, except for financial services).⁷¹⁸

9 CONCLUSIONS

9.1. For the reasons set out above, the Arbitrator concludes as follows:

- a. with reference to Articles 7.10 of the SCM Agreement and 22.6 of the DSU, the level of countermeasures "commensurate with the degree and nature of the adverse effects determined to exist" during the 2011-2013 Reference Period amounts to USD 7,496.623 million per annum;
- b. with reference to Article 22.3 of the DSU, the European Union has not demonstrated that the United States failed to follow the principles and procedures set forth in Article 22.3 of the DSU in determining that it is not practicable or effective to suspend concessions or other obligations in trade in goods and that the circumstances are serious enough; and
- c. with reference to Article 22.5 of the DSU, the European Union has not demonstrated that the countermeasures proposed by the United States are not allowed under the covered agreements at issue, i.e. the GATT 1994 and the GATS.

9.2. The United States may therefore request authorization from the DSB to take countermeasures with respect to the European Union and certain member States, as indicated in document WT/DS316/18, at a level not exceeding, in total, USD 7,496.623 million annually. These countermeasures may take the form of (a) suspension of tariff concessions and related obligations under the GATT 1994, and/or (b) suspension of horizontal or sectoral commitments and obligations contained in the United States' services schedule with regard to all services defined in the Services Sectoral Classification List, except for financial services.

⁷¹⁸ Recourse to Article 7.9 of the SCM Agreement and Article 22.2 of the DSU by the United States, WT/DS316/18.