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## **Report on the review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol of Ukraine**

**Note by the expert review team**

### *Summary*

According to decision 2/CMP.8, each Party with a quantified emission limitation and reduction commitment inscribed in the third column of Annex B to the Kyoto Protocol, as contained in annex I to decision 1/CMP.8, shall submit to the secretariat a report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol. In accordance with decision 22/CMP.1, annex I, paragraph 11, in conjunction with decision 4/CMP.11, the report to facilitate the calculation of the assigned amount is subject to a review. This report presents the results of the technical review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol, conducted by an expert review team in accordance with the “Guidelines for review under Article 8 of the Kyoto Protocol”. The review took place from 5 to 10 September 2016 in Bonn, Germany.

GE.17-06266(E)



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## I. Introduction<sup>1</sup>

1. The review of the report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol (hereinafter referred to as the report to facilitate the calculation of the assigned amount) of Ukraine was organized by the UNFCCC secretariat, in accordance with the “Guidelines for review under Article 8 of the Kyoto Protocol”.<sup>2</sup> The review took place from 5 to 10 September 2016 in Bonn, Germany, and was coordinated by Ms. Sevdalina Todorova (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of Ukraine.

2. A draft version of this report was communicated to the Government of Ukraine, which provided no comments.

Table 1

**Composition of the expert review team that conducted the review of Ukraine**

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
Generalists	Mr. Nagmeldin Elhassan	Sudan
	Mr. Marcelo Rocha	Brazil
Energy	Ms. Elena Gavrilova	The former Yugoslav Republic of Macedonia
	Mr. Michael Smith	New Zealand
	Mr. Daniel Tutu Benefoh	Ghana
IPPU	Mr. Mauro Meirelles de Oliveira Santos	Brazil
	Mr. Erhan Unal	Turkey
Agriculture	Mr. Steen Gyldenkærne	Denmark
	Ms. Alice Ryan	New Zealand
LULUCF	Mr. Craig Elvidge	New Zealand
	Ms. Sanaa Enkhtaivan	Mongolia
	Mr. Sandro Federici	San Marino
	Mr. Sabin Guendehou	Benin
Waste	Mr. Martiros Tsarukyan	Armenia
	Ms. Tatiana Tugui	Republic of Moldova
Lead reviewers	Ms. Elena Gavrilova	

<sup>1</sup> At the time of publication of this report, Ukraine had not yet submitted its instrument of ratification of the Doha Amendment, and the Amendment had not yet entered into force. The implementation of the provisions of the Doha Amendment is therefore considered in this report in the context of decision 1/CMP.8, paragraph 6, pending the entry into force of the Amendment.

<sup>2</sup> Decision 22/CMP.1 and its annex and any revisions contained in decision 4/CMP.11 and its annex I.

Mr. Marcelo Rocha

*Abbreviations:* IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry.

## II. Summary of the reporting on mandatory elements in the report to facilitate the calculation of the assigned amount

3. Table 2 provides a summary of the ERT’s assessment of the reporting of mandatory elements by Ukraine in its report to facilitate the calculation of the assigned amount. Key data and elections by the Party are included in table 4.

Table 2

### Expert review team’s assessment of the reporting of mandatory elements by Ukraine in its report to facilitate the calculation of the assigned amount

<i>Item</i>	<i>Comment</i>	
<i>General Party information</i>		
Dates of submission		Original submission: 10 June 2016 <sup>a</sup>
Are there any missing categories or issues related to completeness <sup>b</sup> in the reporting of GHG emissions by sources and removals by sinks for the base year or period?	Yes	For further information, see FCCC/ARR/2016/UKR
Was the GHG inventory recalculated in accordance with decision 4/CMP.7 for all years from 1990 to the most recent year available?	Yes	
Did the Party report the base year for NF <sub>3</sub> ?	Yes	See annex I, table 4
<i>Information related to the assigned amount and the commitment period reserve</i>		
Was the assigned amount in the original submission calculated in accordance with Article 3, paragraph 8, of the Kyoto Protocol, Article 3, paragraphs 7 bis and 8 bis, as contained in the Doha Amendment, and decision 13/CMP.1 in conjunction with decision 3/CMP.11?	No	See annex I, table 4. For further information, see ID# 1 in table 3
Has the Party reported in the original submission the difference between the assigned amount for the second commitment period and average annual emissions for the first three years of the first commitment period, multiplied by 8?	No	See annex I, table 4. For further information, see ID# 5 in table 3
Has the Party indicated in the original submission the approach <sup>c</sup> used to calculate average annual emissions for the first three years of the first commitment period?	No	See annex I, table 4. For further information, see ID# 6 in table 3
Did land-use change and forestry constitute a net source of GHG emissions in the base year, and therefore did the Party include emissions from deforestation in the calculation of the assigned amount?	No	
Was the commitment period reserve in the original submission calculated in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1, the annex to decision	No	See annex I, table 4. For further information, see

<i>Item</i>		<i>Comment</i>
13/CMP.1, paragraph 8 quinquies, and decision 1/CMP.8, paragraph 18?		ID# 2 in table 3
<i>Information related to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol</i>		
If the Party identified activities elected under Article 3, paragraph 4, of the Kyoto Protocol, are these elections in accordance with decision 2/CMP.7, annex, paragraphs 6–8?	NA	See annex I, table 4
Do the activities elected under Article 3, paragraph 4, of the Kyoto Protocol for the second commitment period include at least those activities elected for the first commitment period?	NA	
Is information reported on how the national system under Article 5, paragraph 1, of the Kyoto Protocol will identify land areas associated with all additional elected activities and how the Party ensures that land that was accounted for in the first commitment period continues to be accounted for in the second commitment period?	Yes	
Has the Party identified for each activity under Article 3, paragraphs 3 and 4, of the Kyoto Protocol whether it intends to account annually or for the entire commitment period?	Yes	See annex I, table 4
Did the Party provide information on the forest management reference level, including, if appropriate, information on technical corrections and information on how emissions from harvested wood products originating from forests prior to the start of the second commitment period have been calculated in the reference level?	Yes	For further information, see ID# 3 in table 3
Has the Party reported the quantity amounting to 3.5% of the base-year GHG emissions, excluding LULUCF, in the original submission?	No	For further information, see ID# 4 in table 3
Did the Party indicate whether it intends to apply the provisions to exclude emissions from natural disturbances for the accounting for afforestation and reforestation and/or forest management and provide the relevant information in accordance with decision 2/CMP.7, annex, paragraph 33?	Yes	See annex I, table 4
<i>Information related to the national system and national registry</i>		
Was a description of the national system provided, in accordance with the guidelines for national systems under Article 5, paragraph 1, of the Kyoto Protocol?	NA	This information was already reported and reviewed as part of the initial review of the report to facilitate the calculation of the assigned amount for the first commitment period and did not need to be reported
Was a description of the national registry provided, in accordance with the requirements contained in the annex to decision 13/CMP.1, the annex to decision 5/CMP.1 and the technical standards for data exchange between registry systems	NA	This information was already reported and reviewed as part of the initial review of the report to facilitate the

<i>Item</i>	<i>Comment</i>
adopted by the CMP?	<p>calculation of the assigned amount for the first commitment period and did not need to be reported</p> <p>For further information, see ID#s 7–9 in table 3</p>

*Abbreviations:* CMP = Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable.

<sup>a</sup> The first submission of the initial report of Ukraine was made on 14 August 2015. However, that submission was made via e-mail and not considered official. The date in the table reflects the date of submission via the UNFCCC submission portal.

<sup>b</sup> Issues related to missing categories and completeness are only for those categories for which methods are available in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

<sup>c</sup> Parties may elect to calculate average annual emissions for the first three years of the first commitment period by including either the gases and sources listed in Annex A to the Kyoto Protocol, or the GHGs, sectors and source categories used to calculate the assigned amount for the second commitment period.

### III. Technical assessment of the elements reviewed

4. In accordance with decision 22/CMP.1, and in conjunction with decisions 4/CMP.11 and 10/CMP.11, the review of the report to facilitate the calculation of the assigned amount for Ukraine has been undertaken together with the review of the inventory submission for the first years of the second commitment period.<sup>3</sup> Table 3 contains additional information, if any, to support the ERT’s assessment included in table 2 above of the Party’s capacity to account for its emissions and the assigned amount, specifically related to: the calculation of the assigned amount for the second commitment period and any adjustments applied; information related to Article 3, paragraph 7 ter, as contained in the Doha Amendment; information related to reporting of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol; calculation of the commitment period reserve; and the national system and national registry.

Table 3

**Additional findings of the expert review team, if any, related to Ukraine’s reporting of mandatory elements in its report to facilitate the calculation of the assigned amount**

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding</i>	<i>Classification of problem</i>
1.	Calculation of the assigned amount	<p>The assigned amount submitted by the Party in its report to facilitate the calculation of the assigned amount was not calculated in accordance with Article 3, paragraphs 7 bis, 8 and 8 bis, of the Kyoto Protocol, the annex to decision 13/CMP.1 and annex I to decision 3/CMP.11</p> <p>In its original submission, the Party reported its assigned amount to be 5 741 664.07 kt CO<sub>2</sub> eq. However, during the review, the ERT identified that there was a calculation error that led to the incorrect calculation of the</p>	Not a problem

<sup>3</sup> The annual review report on the 2016 inventory submission of Ukraine is available at <<http://unfccc.int/resource/docs/2017/arr/ukr.pdf>>, while the annual review report on the 2015 inventory submission of Ukraine is available at <<http://unfccc.int/resource/docs/2016/arr/ukr.pdf>>.

ID#	Finding classification	Description of the finding	Classification of problem
		<p>assigned amount. Ukraine used the total GHG emission value for the base year from the 2014 submission to calculate the assigned amount, instead of the latest inventory submission (i.e. 2016). According to the CRF tables and the NIR submitted by Ukraine in 2016, the total GHG emissions (without LULUCF) in 1990 amounted to 945 615 837 t CO<sub>2</sub> eq rather than 944 352 643 t CO<sub>2</sub> eq as reported in the initial report</p> <p>In addition, during the review, the ERT identified that there was an overestimation of emissions in the base year for manure management and related estimates for agricultural soils and an underestimation of emissions from the latest reported year for solid waste disposal, which affected the entire time series. In response to the list of potential problems and further questions raised by the ERT (see FCCC/ARR/2016/UKR), Ukraine submitted revised estimates on 24 October 2016, which affected the base-year emissions. The revised base-year emissions amount to 937 954 204 t CO<sub>2</sub> eq. The ERT agreed with the Party's revised estimates</p> <p>As a result of the resubmitted estimates, the ERT recalculated the assigned amount, and determined the assigned amount to be 5 702 761 558 kt CO<sub>2</sub> eq</p>	
2.	Calculation of the commitment period reserve	<p>The commitment period reserve was not calculated in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18</p> <p>In the report to facilitate the calculation of the assigned amount, the Party reported its commitment period reserve as 3 221 327.60 kt CO<sub>2</sub> eq. During the review, the ERT identified that there were calculation errors that led to the incorrect calculation of the commitment period reserve, as follows:</p> <ul style="list-style-type: none"> <li>(a) The initial assigned amount reported by Ukraine was not correctly calculated (see ID# 1 above);</li> <li>(b) The total GHG emission value for 2012, from the 2014 submission, was used to calculate the commitment period reserve, instead of the most recent inventory (i.e. 2014 from the 2016 submission)</li> </ul> <p>In addition, as a result of the revised estimates for the base-year emissions (see ID# 1 above), the assigned amount was recalculated to 5 702 761 558 t CO<sub>2</sub> eq and the emissions from the most recently reviewed inventory year 2014 amount to 354 347 537 t CO<sub>2</sub> eq. The lowest value for the commitment period reserve, also taking into account the provisions of decision 13/CMP.1, annex, paragraph 8 quinquies, was 100% of eight times the most recently reviewed inventory and equals 2 834 780 294 t CO<sub>2</sub> eq</p>	Not a problem
3.	Accounting of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol	<p>Ukraine has reported the technical correction to the FMRL in the report to facilitate the calculation of the assigned amount for the second commitment period. There is no information on the calculation of the technical correction within the report, which only references the NIR, chapter 11.5, for additional information regarding the technical correction</p> <p>Further, from information contained in the NIR, the ERT considers that the technical correction value reported by Ukraine erroneously corresponds to the value of the recalculated FMRL (i.e. FMRL<sub>corr</sub>) instead of the difference between FMRL<sub>corr</sub> and FMRL (see also ID# KL.5 in</p>	Not a problem

ID#	Finding classification	Description of the finding	Classification of problem
		FCCC/ARR/2016/UKR)	
		In addition, the ERT noted that Ukraine has not provided information on the treatment in the second commitment period of the harvested wood products produced in the first commitment period	
		During the review, in response to questions raised by the ERT, the Party clarified that it has not excluded the harvested wood products produced in the first commitment period from the accounting for the second commitment period. The ERT notes that the inclusion in the second commitment period accounting of the harvested wood products produced in the first commitment period does not have any impact on accounting because Ukraine has applied a projected FMRL (see also ID# KL.11 in FCCC/ARR/2016/UKR)	
4.	Accounting of activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol	The ERT noted that Ukraine has not reported the forest management cap (3.5% of the base-year GHG emissions, excluding LULUCF), in its report to facilitate the calculation of the assigned amount. In response to the list of potential problems and further questions raised by the ERT (see ID# 1 above), Ukraine provided a value for 3.5% of the base-year emissions, namely: 32 828.397 t CO <sub>2</sub> eq. The ERT calculated the forest management cap for the duration of the commitment period to be 262 627.177 t CO <sub>2</sub> eq	Not a problem
5.	Reporting pursuant to Article 3, paragraph 7 ter, of the Doha Amendment	The ERT noted that Ukraine did not provide information in accordance with Article 3, paragraph 7 ter, of the Doha Amendment. Specifically, the Party did not report the difference between the assigned amount for the second commitment period and average annual emissions for the first three years of the preceding commitment period, multiplied by 8	Not a problem
		During the review, the Party indicated that at the time of the submission of the report to facilitate the calculation of the assigned amount, decision 2/CMP.11, which clarified the “average annual emissions for the first three years of the preceding commitment period”, had not been adopted. During the review week, Ukraine submitted the average annual emissions for the first three years of the first commitment period multiplied by 8 (3 266 168 588 t CO <sub>2</sub> eq) based on the values submitted in the 2016 inventory submission. The comparison between the assigned amount for the second commitment period and the average annual emissions resulted in a positive difference equal to 2 483 175 702 t CO <sub>2</sub> eq (i.e. 5 749 344 289 – 3 266 168 588)	
		Based on the revised estimates of the Party for the assigned amount (see ID# 1 above) and the emissions for the years 2008, 2009 and 2010, the ERT recalculated the value pursuant to Article 3, paragraph 7 ter, of the Doha Amendment. The new value for the average annual emissions for 2008–2010 was calculated to be 409 584 419 kt CO <sub>2</sub> eq and the difference between the assigned amount for the second commitment period and average annual emissions was therefore calculated to be 2 426 086 209 t CO <sub>2</sub> eq	
6.	Reporting pursuant to Article 3, paragraph 7 ter,	In its original submission, Ukraine did not report pursuant to Article 3, paragraph 7 ter, of the Doha Amendment, and therefore did not provide information on the approach used to calculate the average annual emissions for the first three years of the first commitment period. During the review,	Not a problem



<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding</i>	<i>Classification of problem</i>
	of the Doha Amendment	while providing information on the average estimates for 2008–2010, the Party also clarified the approach used to calculate the average annual emissions for the first three years of the first commitment period which covers the same GHGs, sectors and source categories as those used to calculate the assigned amount for the second commitment period	
7.	National registry	<p>The ERT noted from the SIAR that, as of 3 August 2015, the technical administration of the national registry of Ukraine ceased and the connection with the international transaction log (ITL) was discontinued</p> <p>The Party stated that, on 3 August 2016, Ukraine re-established the connection between the ITL and the National Electronic Registry of Anthropogenic Emissions and Absorption of Greenhouse Gases of Ukraine (UA Registry), renewed its secure socket layer certificate and exchanged test messages successfully. At the request of the ITL administrator, the status of UA Registry was set to “reconciliation only”. On 23 August 2016, reconciliation and time synchronization were successfully completed</p> <p>In view of the above development, and following the recommendation by the Compliance Committee in its final decision of 7 September 2016 (CC-2016-1-6/Ukraine/EB, para. 10), the ERT decided to address the national registry issues as part of the review of the annual inventory submission of the Party. For further information, see ID# G.3 in FCCC/ARR/2016/UKR</p>	Not a problem
8.	National registry	The ERT took note of the results of the technical assessment of the national registry, including the results of standardized testing, as reported in the SIAR, which was forwarded to the ERT by the ITL administrator, pursuant to decision 16/CP.10. The SIAR concluded that the information on Kyoto Protocol units has not been reported in accordance with section I.E of the annex to decision 15/CMP.1. The Party has not provided SEF tables for the second commitment period, given the interruption in the operation of its registry in the period 3 August 2015 to 25 August 2016. In addition, there was no disaster recovery plan; however, the Party stated that such a plan would be submitted with the renewal of the proper work of the registry (see ID# 7 above)	Not a problem
9.	National registry	In the NIR, the Party did not provide information on the establishment of any previous period surplus reserve (PPSR) account in its national registry. The ERT notes that the 2016 SIAR for Ukraine indicates that the assessor was unable to find reference to whether or not Ukraine established a PPSR. During the review, in response to a question raised by the ERT, the Party explained that it would establish a PPSR after the renewal of the proper work of the registry (see ID# 7 above)	Not a problem
10.	Adjustments	The ERT has not identified the need to apply any adjustments to the estimate for the assigned amount for the second commitment period, as reported by Ukraine in its report to facilitate the calculation of the assigned amount	Not a problem

*Abbreviations:* CRF = common reporting format, ERT = expert review team, FMRL = forest management reference level, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NIR = national inventory report, SEF = standard electronic format, SIAR = standard independent assessment report.

## IV. Questions of implementation

5. No questions of implementation were identified by the ERT during the review.

6. The ERT noted that two questions of implementation were raised in the “Report on the individual review of the report upon expiration of the additional period for fulfilling commitments (true-up period) for the first commitment period of the Kyoto Protocol of Ukraine” (FCCC/KP/CMP/2016/TPR/UKR) published on 8 April 2016, as follows:

(a) Question of implementation relating to reporting requirements: Ukraine submitted the true-up period report submission after the deadline of 2 January 2016, which was set out in decision 3/CMP.9, and after the centralized review of the true-up period reports for all Parties included in Annex I with a commitment inscribed in Annex B to the Kyoto Protocol (February 2016). In addition, the information submitted was not consistent with the information provided by the international transaction log (ITL) and therefore the ERT responsible for the review of the true-up period report concluded that Ukraine did not fully comply with the requirements included in the modalities for the accounting of assigned amounts under Article 7, paragraph 4, of the Kyoto Protocol (decision 13/CMP.1) and/or the “Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol” (decision 15/CMP.1). The ERT responsible for the review of the true-up period report concluded that this was an unresolved problem pertaining to language of a mandatory nature, and therefore considered this as a question of implementation;

(b) Question of implementation relating to Article 3, paragraph 1, of the Kyoto Protocol: the ERT responsible for the review of the true-up period report concluded that the aggregate anthropogenic GHG emissions of Ukraine for the first commitment period exceeded the quantities of emission reduction units, certified emission reductions, temporary certified emission reductions, long-term certified emission reductions, assigned amount units and removal units in the retirement account of Ukraine for the first commitment period. In particular, the ERT responsible for the review of the true-up period report concluded that this was an unresolved problem pertaining to language of a mandatory nature, and therefore considered this as a question of implementation.

7. The ERT further noted that the enforcement branch of the Compliance Committee, in its decision of 7 September 2016 (CC-2016-1-6/Ukraine/EB and FCCC/KP/CMP/2016/3), decided to maintain its previous finding contained in paragraph 27 of the preliminary finding (CC-2016-1-4/Ukraine/EB) that Ukraine was not in compliance with Article 7, paragraph 1, of the Kyoto Protocol, in conjunction with paragraph 4. The enforcement branch also concluded that the information provided by Ukraine in its written submission demonstrated that the national registry of Ukraine, which was not in place at the time of the adoption of the preliminary finding, was now connected to the ITL. The fact of the connection being re-established had also been confirmed by the ITL administrator. The branch therefore considered that its finding, contained in paragraph 28 (CC-2016-1-4/Ukraine/EB) with regard to the national registry no longer stood. At the tenth session of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP), Ukraine was given time, on an exceptional basis, until CMP 13 to make arrangements to demonstrate compliance with its commitments under Article 3, paragraph 1, of the Kyoto Protocol (FCCC/KP/CMP/2016/8, para. 50).

## Annex I

### Key relevant data for Ukraine

1. Table 4 provides key data and parameters for, and elections by, Ukraine, relevant for the implementation of the second commitment period of the Kyoto Protocol. The information included in table 4 is as given by the Party in its report to facilitate the calculation of the assigned amount, unless otherwise specified.

Table 4

#### Key relevant data for Ukraine<sup>a</sup>

<i>Key information or parameter provided</i>	<i>Comment</i>
<i>General Party information</i>	
Did the Party have a QELRC in the first commitment period?	Yes
Ukraine's QELRC in the second commitment period	76% of the base year level
Has the Party reached an agreement under Article 4 of the Kyoto Protocol to fulfil its commitments jointly with other Parties?	No
Base year*	1990
Base year for HFCs, PFCs and SF <sub>6</sub>	1990
Base year for NF <sub>3</sub>	1990
Base-year emissions, as reported by the Party	944 352 643 t CO <sub>2</sub> eq
Base-year emissions, final, as calculated by the ERT	937 954 204 t CO <sub>2</sub> eq
<i>Information related to the calculation of the assigned amount and the commitment period reserve</i>	
Assigned amount, as reported by the Party	5 741 664 068 t CO <sub>2</sub> eq
Assigned amount, final, as calculated by the ERT	5 702 761 558 t CO <sub>2</sub> eq
Approach used to calculate the average annual emissions for the first three years of the first commitment period	The gases and sources listed in Annex A to the Kyoto Protocol
Difference between the assigned amount for the second commitment period and average annual emissions for the first three years of the first commitment period, multiplied by 8, as reported by the Party	Not reported in the original submission
Difference between the assigned amount for the second commitment period and average annual emissions for the first three years of the first commitment period, multiplied by 8, final value, as calculated by the ERT	2 426 086 209 t CO <sub>2</sub> eq

<i>Key information or parameter provided</i>	<i>Comment</i>
Commitment period reserve, as reported by the Party	3 221 327 599 t CO <sub>2</sub> eq
Commitment period reserve, final value, as calculated by the ERT	2 834 780 294 t CO <sub>2</sub> eq
<i>Information related to activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol</i>	
LULUCF parameters*	Minimum tree crown cover: 30% Minimum land area: 0.1 ha Minimum tree height: 5 m
Elections under Article 3, paragraphs 3 and 4, of the Kyoto Protocol:	
(a) Afforestation/reforestation	Commitment period accounting
(b) Deforestation	Commitment period accounting
(c) Forest management	Commitment period accounting
(d) Cropland management	Not elected
(e) Grazing land management	Not elected
(f) Revegetation	Not elected
(g) Wetland drainage and rewetting	Not elected
FMRL	-48.700 Mt CO <sub>2</sub> eq/year
Technical corrections to the FMRL, as reported in the original submission	-62.135 Mt CO <sub>2</sub> eq/year
Technical corrections to the FMRL, final value, as calculated by the ERT	-13.435 Mt CO <sub>2</sub> eq/year
3.5% of total base-year GHG emissions, excluding LULUCF, as reported by the Party	Not reported in the original submission
3.5% of total base-year GHG emissions, excluding LULUCF, final value	32 828.397 kt CO <sub>2</sub> eq
3.5% of total base-year GHG emissions, excluding LULUCF, multiplied by 8, final value, as calculated by the ERT	262 627.177 kt CO <sub>2</sub> eq
Will the Party exclude emissions from natural disturbances in accounting for:	
(a) Afforestation and reforestation	No
(b) Forest management	No

*Abbreviations:* ERT = expert review team, FMRL = forest management reference level, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, QELRC = quantified emission limitation and reduction commitment.

<sup>a</sup> An asterisk is included next to the “Key information or parameter” in all cases where the information was not submitted by the Party in its report to facilitate the calculation of the assigned amount for the second commitment period of the Kyoto Protocol, because the Party had already submitted this information in the report to facilitate the calculation of the assigned amount for the first commitment period of the Kyoto Protocol.

2. Tables 5–7 provide an overview of total greenhouse gas emissions and removals, as submitted by Ukraine. Where a Party has decided to voluntarily report indirect carbon dioxide emissions, this is noted in the relevant table.

Table 5  
**Total greenhouse gas emissions for Ukraine, base year<sup>a</sup>–2014<sup>b</sup>**  
 (kt CO<sub>2</sub> eq)

Year	Total GHG emissions excluding indirect CO <sub>2</sub> emissions		Total GHG emissions including indirect CO <sub>2</sub> emissions <sup>c</sup>		Land-use change (Article 3.7 bis as contained in the Doha Amendment) <sup>d</sup>
	Total including LULUCF	Total excluding LULUCF	Total including LULUCF	Total excluding LULUCF	
Base year (1990)	891 927.62	937 954.20	891 927.62	937 954.20	NA
1995	505 680.52	557 047.94	505 680.52	557 047.94	
2000	372 882.68	413 923.44	372 882.68	413 923.44	
2010	370 459.59	401 929.09	370 459.59	401 929.09	
2011	400 868.43	421 635.99	400 868.43	421 635.99	
2012	382 780.92	409 531.35	382 780.92	409 531.35	
2013	386 513.94	401 066.97	386 513.94	401 066.97	
2014	341 434.10	354 347.54	341 434.10	354 347.54	

*Abbreviations:* GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable.

<sup>a</sup> Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases.

<sup>b</sup> Emissions/removals reported in the sector other (sector 6) are not included in total GHG emissions.

<sup>c</sup> The Party has not reported indirect carbon dioxide emissions in common reporting format table 6.

<sup>d</sup> The value reported in this column refers to 1990.

Table 6  
**Greenhouse gas emissions by gas for Ukraine, excluding land use, land-use change and forestry, 1990–2014<sup>a</sup>**  
 (kt CO<sub>2</sub> eq)

<i>Year</i>	<i>CO<sub>2</sub><sup>b</sup></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>HFCs</i>	<i>PFCs</i>	<i>Unspecified mix of HFCs and PFCs</i>	<i>SF<sub>6</sub></i>	<i>NF<sub>3</sub></i>
1990	693 024.77	189 322.96	55 370.65	NO	235.82	NO	0.01	NO
1995	380 871.28	140 557.06	35 441.46	NO	178.06	NO	0.07	NO
2000	271 429.77	118 474.58	23 882.93	20.01	115.74	NO	0.42	NO
2010	287 113.61	86 107.83	27 932.30	738.98	26.67	NO	9.71	NO
2011	301 273.50	85 863.58	33 679.85	810.65	NO	NO	8.41	NO
2012	295 706.06	80 865.70	32 120.19	828.41	NO	NO	10.99	NO
2013	287 436.40	76 562.53	36 186.94	868.55	NO	NO	12.54	NO
2014	247 561.22	70 341.50	35 593.65	834.76	NO	NO	16.41	NO
<b>Per cent change</b>								
<b>1990–2014</b>	<b>–64.3</b>	<b>–62.8</b>	<b>–34.7</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>214 906.7</b>	<b>NA</b>

*Abbreviations:* NA = not applicable, NO = not occurring.

<sup>a</sup> Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.

<sup>b</sup> Ukraine did not report indirect carbon dioxide emissions in common reporting format table 6.

Table 7

**Greenhouse gas emissions by sector for Ukraine, 1990–2014<sup>a, b</sup>**(kt CO<sub>2</sub> eq)

<i>Year</i>	<i>Energy</i>	<i>IPPU</i>	<i>Agriculture</i>	<i>LULUCF</i>	<i>Waste</i>	<i>Other</i>
1990	710 599.84	117 018.32	98 554.92	–46 026.59	11 781.13	NO
1995	421 683.70	57 338.08	66 592.06	–51 367.41	11 434.10	NO
2000	296 835.32	66 610.08	39 186.40	–41 040.76	11 291.65	NO
2010	278 888.62	74 174.90	36 537.06	–31 469.50	12 328.52	NO
2011	289 098.38	79 083.70	41 057.19	–20 767.56	12 396.72	NO
2012	281 380.76	75 905.70	39 935.95	–26 750.43	12 308.95	NO
2013	271 091.24	72 797.71	44 772.57	–14 553.03	12 405.45	NO
2014	238 980.65	58 838.79	44 228.66	–12 913.43	12 299.44	NO
<b>Per cent change</b>						
<b>1990–2014</b>	<b>–66.4</b>	<b>–49.7</b>	<b>–55.1</b>	<b>–71.9</b>	<b>4.4</b>	<b>NA</b>

*Abbreviations:* IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable, NO = not occurring.

<sup>a</sup> Emissions/removals reported in the sector other (sector 6) are not included in total greenhouse gas emissions.

<sup>b</sup> Ukraine did not report indirect carbon dioxide emissions in common reporting format table 6.

## Annex II

### Documents and information used during the review

#### A. Reference documents

“Guidelines for national systems for the estimation of anthropogenic greenhouse gas emissions by sources and removals by sinks under Article 5, paragraph 1, of the Kyoto Protocol”. Annex to decision 19/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Annex to decision 15/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. Annex to decision 22/CMP.1. Available at <http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=51>.

“Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories”. Annex I to decision 24/CP.19. Available at <http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=4>.

“Guidelines for the technical review of information reported under the Convention related to greenhouse gas inventories, biennial reports and national communications by Parties included in Annex I to the Convention”. Annex to decision 13/CP.20. Available at <http://unfccc.int/resource/docs/2014/cop20/eng/10a03.pdf#page=6>.

“Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part I: implications related to accounting and reporting and other related issues”. Decision 3/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=5>.

“Implications of the implementation of decisions 2/CMP.7 to 4/CMP.7 and 1/CMP.8 on the previous decisions on methodological issues related to the Kyoto Protocol, including those relating to Articles 5, 7 and 8 of the Kyoto Protocol, part II: implications related to review and adjustments and other related issues”. Decision 4/CMP.11. Available at <http://unfccc.int/resource/docs/2015/cmp11/eng/08a01.pdf#page=30>.

Intergovernmental Panel on Climate Change. 2006. *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.

Intergovernmental Panel on Climate Change. 2014. *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*. Available at <http://www.ipcc-nggip.iges.or.jp/public/kpsg>.

Intergovernmental Panel on Climate Change. 2014. *2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands*. Available at <http://www.ipcc-nggip.iges.or.jp/public/wetlands/index.html>.

Compliance Committee. 2016. Report of the individual review of the report upon expiration of the additional period for fulfilling commitments (true-up period) for the first



commitment period of the Kyoto Protocol of Ukraine. CC-2016-1-1/Ukraine/EB. Available at

<[http://unfccc.int/files/kyoto\\_protocol/compliance/questions\\_of\\_implementation/application/pdf/cc-2016-1-1\\_ukraine\\_eb\\_true-up\\_period\\_report.pdf](http://unfccc.int/files/kyoto_protocol/compliance/questions_of_implementation/application/pdf/cc-2016-1-1_ukraine_eb_true-up_period_report.pdf)>.

Compliance Committee. 2016. Decision on preliminary examination. CC-2016-1-2/Ukraine/EB. Available at

<[http://unfccc.int/files/kyoto\\_protocol/compliance/questions\\_of\\_implementation/application/pdf/cc-2016-1-2\\_ukr\\_eb\\_decision\\_on\\_preliminary\\_examination.pdf](http://unfccc.int/files/kyoto_protocol/compliance/questions_of_implementation/application/pdf/cc-2016-1-2_ukr_eb_decision_on_preliminary_examination.pdf)>.

Compliance Committee. 2016. Final decision with respect to Ukraine. CC-2016-1-6/Ukraine/EB. Available at

<[http://unfccc.int/files/kyoto\\_protocol/compliance/questions\\_of\\_implementation/application/pdf/cc-2016-1-6\\_ukraine\\_eb\\_final\\_decision.pdf](http://unfccc.int/files/kyoto_protocol/compliance/questions_of_implementation/application/pdf/cc-2016-1-6_ukraine_eb_final_decision.pdf)>.

## **B. Additional information provided by the Party**

Responses to questions during the review were received from Ms. Natalia Usenko (National Centre for Greenhouse Gas Emission Inventory), including additional material on the methodology and assumptions used. The following documents<sup>1</sup> were also provided by Ukraine:

Ukraine, 2016. *Written Submission from Ukraine under Section X, paragraph 1(e), of the Annex to Decision 27/CMP.1 submitted in response to the decision of the Enforcement Branch of the Compliance Committee of CC- 2016-1-4/Ukraine/EB.*

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<sup>1</sup> Reproduced as received from the Party.

## Annex III

### Acronyms and abbreviations

CH <sub>4</sub>	methane
CMP	Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> eq	carbon dioxide equivalent
CRF	common reporting format
ERT	expert review team
FMRL	forest management reference level
GHG	greenhouse gas
ha	hectare
HFC	hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
ITL	international transaction log
kt	kilotonne
LULUCF	land use, land-use change and forestry
m	metre
Mt	million tonnes
NA	not applicable
NE	not estimated
NF <sub>3</sub>	nitrogen trifluoride
NIR	national inventory report
NO	not occurring
N <sub>2</sub> O	nitrous oxide
PFC	perfluorocarbon
PPSR	previous period surplus reserve
QA/QC	quality assurance/quality control
QELRC	quantified emission limitation and reduction commitment
SEF	standard electronic format
SF <sub>6</sub>	sulphur hexafluoride
SIAR	standard independent assessment report
t	tonne
UNFCCC	United Nations Framework Convention on Climate Change

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