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## Report on the individual review of the annual submission of Iceland submitted in 2016\*

Note by the expert review team

### *Summary*

Each Party included in Annex I to the Convention must submit an annual greenhouse gas (GHG) inventory covering emissions and removals of GHG emissions for all years from the base year (or period) to two years before the inventory due date (decision 24/CP.19). Parties included in Annex I to the Convention that are Parties to the Kyoto Protocol are also required to report supplementary information required under Article 7, paragraph 1, of the Kyoto Protocol, with the inventory submission due under the Convention. This report presents the results of the individual inventory review of the 2016 annual submission of Iceland, 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 19 to 24 September 2016 in Bonn, Germany.

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\* In the symbol for this document, 2016 refers to the year in which the inventory was submitted, not to the year of publication.

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

1. This report covers the review of the 2016 annual submission of Iceland organized by the UNFCCC secretariat, in accordance with the “Guidelines for review under Article 8 of the Kyoto Protocol” (decision 22/CMP.1, as revised by decision 4/CMP.11) (hereinafter referred to as the Article 8 review guidelines). As indicated in the Article 8 review guidelines, this review process also encompasses the review under the Convention, as described in the “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” (hereinafter referred to as the UNFCCC review guidelines) and particularly part III, “UNFCCC guidelines for the technical review of greenhouse gas inventories from Parties included in Annex I to the Convention”. The review took place from 19 to 24 September 2016 in Bonn, Germany, and was coordinated by Mr. Vitor Gois and Mr. Pedro Torres (UNFCCC secretariat). Table 1 provides information on the composition of the expert review team (ERT) that conducted the review of Iceland.

Table 1  
**Composition of the expert review team that conducted the review of Iceland**

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
Generalist	Mr. Riccardo De Lauretis	Italy
	Mr. Giorgi Mukhigulishvili	Georgia
Energy	Mr. Lawrence Kotoe	Ghana
	Mr. Takashi Morimoto	Japan
	Ms. Audace Ndayizeye	Burundi
	Ms. Regine Röthlisberger	Switzerland
IPPU	Ms. Marisol Bacong	Philippines
	Mr. Kent Buchanan	South Africa
	Mr. Roman Kazakov	Russian Federation
Agriculture	Mr. Sorin Deaconu	Romania
	Mr. Asaye Ketema Sekie	Ethiopia
LULUCF	Mr. Max Collett	Australia
	Ms. Paula Ollila	Finland
	Mr. Juan José Rincón Cristóbal	Spain
	Mr. Iordanis Tzamtzis	Greece

<sup>1</sup> At the time of publication of this report, Iceland had submitted its instrument of ratification of the Doha Amendment; however, 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

<i>Area of expertise</i>	<i>Name</i>	<i>Party</i>
Waste	Ms. Violeta Hristova	Bulgaria
	Mr. Gustavo Barbosa Mozzer	Brazil
Lead reviewers	Mr. Riccardo De Lauretis	
	Mr. Asaye Ketema Sekie	

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

2. This report contains findings based on the assessment by the ERT of the 2016 annual submission against the Article 8 review guidelines. The ERT has made recommendations to resolve those findings related to issues,<sup>2</sup> including issues related to problems.<sup>3</sup> Other findings, and if applicable, the ERT’s encouragements to resolve them, are also included.

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

4. Annex I shows annual greenhouse gas (GHG) emissions for Iceland, including totals excluding and including the land use, land-use change and forestry (LULUCF) sector, indirect carbon dioxide (CO<sub>2</sub>) emissions and emissions by gas and by sector. Annex I also contains background data related to emissions and removals from activities under Article 3, paragraph 3, forest management under Article 3, paragraph 4, and additional activities under Article 3, paragraph 4, of the Kyoto Protocol (KP-LULUCF), if elected, by gas, sector and activity for Iceland.

5. Information to be included in the compilation and accounting database can be found in annex II.

6. The ERT notes that Iceland’s 2015 annual submission was delayed, consistent with decision 6/CMP.9, paragraph 4. As a result, the review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission, in accordance with decision 10/CMP.11, paragraph 1. To the extent that identical information is presented in both annual submissions, the ERT has reviewed this information only once, and, as appropriate, has replicated the findings below in both the 2015 and the 2016 annual review reports.

## II. Summary and general assessment of the 2016 annual submission

7. Table 2 provides the ERT assessment of the annual submission with respect to the tasks undertaken during the review. Further information on the issues identified, as well as additional findings, may be found in tables 3 and 5 below.

<sup>2</sup> Issues are defined in decision 13/CP.20, annex, paragraph 81.

<sup>3</sup> Problems are defined in decision 22/CMP.1, annex, paragraphs 68 and 69, as revised by decision 4/CMP.11.

Table 2  
**Summary of review results and general assessment of the inventory of Iceland**

<i>Assessment</i>		<i>Issue or problem ID#(s) in tables 3 and/or 5<sup>a</sup></i>	
Dates of submission	Original submission: 6 May 2016 (NIR), 6 May 2016, Version 2 (CRF tables), 15 April 2016 (SEF tables) Revised submission: 30 May 2016 (SEF tables) The values from the latest submission are used in this report		
Review format	Centralized		
Application of the requirements of the UNFCCC Annex I inventory reporting guidelines and Wetlands Supplement (if applicable)	Have any issues been identified in the following areas:		
	1. Identification of key categories	No	
	2. Selection and use of methodologies and assumptions	Yes	E.13, E.14, I.8, I.10, I.11, L.5, KL.2
	3. Development and selection of emission factors	Yes	E.19
	4. Collection and selection of activity data	No	E.5, E.8, E.9, E.12, E.16, E.17, L.6, L.11
	5. Reporting of recalculations	No	
	6. Reporting of a consistent time series	No	
	7. Reporting of uncertainties, including methodologies	No	
	8. QA/QC	QA/QC procedures were assessed in the context of the national system (see below)	
	9. Missing categories/completeness <sup>b</sup>	Yes	I.7, A.9, A.10, A.11, L.7, L.9, L.10, L.12, L.13, L.14, L.15
	10. Application of corrections to the inventory	No	
Significance threshold	For categories reported as insignificant, has the Party provided sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines?	No	I.7, A.9, A.10, A.11
Description of trends	Did the ERT conclude that the description in the NIR of the trends for the different gases and sectors is reasonable?	No	E.2
Supplementary information under the Kyoto Protocol	Have any issues been identified in the following areas:		
	1. National system:		
	(a) The overall organization of the national system, including the effectiveness and reliability of the institutional, procedural and legal arrangements	No	
	(b) Performance of the national system functions	No	
	2. National registry:		

Assessment	Issue or problem ID#(s) in tables 3 and/or 5 <sup>a</sup>
(a) Overall functioning of the national registry	No
(b) Performance of the functions of the national registry and the technical standards for data exchange	No
3. ERUs, CERs, AAUs and RMUs and on information on discrepancies reported in accordance with decision 15/CMP.1, annex, chapter I.E, taking into consideration any findings or recommendations contained in the SIAR	No
4. Matters related to Article 3, paragraph 14, of the Kyoto Protocol, specifically problems related to the transparency, completeness or timeliness of reporting on the Party's activities related to the priority actions listed in decision 15/CMP.1, annex, paragraph 24, including any changes since the previous annual submission	No
5. LULUCF activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol:	
(a) Reporting in accordance with the requirements of decision 2/CMP.8, annex II, paragraphs 1–5	Yes KL.3, KL.5
(b) The Party has demonstrated methodological consistency between the reference level and reporting on forest management in accordance with decision 2/CMP.7, annex, paragraph 14	Yes KL.6
(c) The Party has reported information in accordance with decision 6/CMP.9	No
(d) Country-specific information has been reported to support provisions for natural disturbances, in accordance with decision 2/CMP.7, annex, paragraphs 33 and 34	Yes KL.4
(e) Other issues	No
CPR Was the CPR reported in accordance with the annex to decision 18/CP.7, the annex to decision 11/CMP.1 and decision 1/CMP.8, paragraph 18?	Yes
Adjustments Has the ERT applied an adjustment under Article 5, paragraph 2, of the Kyoto Protocol?	No
The ERT accepts that the revised estimates submitted by Iceland in its 2016 submission can replace a previously applied adjustment in the compilation and accounting database	NA
Response from the Party during the review Has the Party provided the ERT with responses to the questions raised, including the data and information necessary for the assessment of conformity with the UNFCCC Annex I inventory reporting guidelines and any	Yes

Assessment	Issue or problem ID#(s) in tables 3 and/or 5 <sup>a</sup>	
	further guidance adopted by the Conference of the Parties?	
Recommendation for an exceptional in-country review	On the basis of the issues identified, does the ERT recommend that the next review be conducted as an in-country review?	No
Questions of implementation	Did the ERT list questions of implementation?	No

*Abbreviations:* AAU = assigned amount unit, CER = certified emission reduction unit, CPR = commitment period reserve, CRF = common reporting format, ERT = expert review team, ERU = emission reduction unit, LULUCF = land use, land-use change and forestry, NIR = national inventory report, QA/QC = quality assurance/quality control, RMU = removal unit, SEF = standard electronic format, SIAR = standard independent assessment report, UNFCCC Annex I inventory reporting guidelines = “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”, Wetlands Supplement = *2013 Supplement to the 2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories: Wetlands*.

<sup>a</sup> The ERT identified additional issues in the energy, industrial processes and product use, agriculture, LULUCF and waste sectors and for LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol that are not specifically listed in table 2 but are included in table 3 and/or table 5.

<sup>b</sup> Missing categories, for which methods are provided in the *2006 Intergovernmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories*, may affect completeness and are listed in annex III to this document.

### III. Status of implementation of issues and/or problems raised in the previous review report

8. Table 3 compiles all the recommendations made in the previous review report. Owing to the unique circumstances of the 2015 annual submission described in paragraph 6 above, the latest available review report was for the review of the 2014 annual submission, published on 29 June 2015. For each issue and/or problem, the ERT specified whether it believes the issue and/or problem has been resolved by the conclusion of the review of the 2016 annual submission and provided the rationale for its determination, taking into consideration the publication date of the previous review report and national circumstances.

Table 3

#### Status of implementation of issues and/or problems raised in the previous review report of Iceland

ID#	Issue and/or problem classification <sup>a, b</sup>	Recommendation made in previous review report <sup>c</sup>	ERT assessment and rationale
General			
G.1	Inventory planning (12, 2014) (12, 2013) Transparency*	Ensure that one organization has a full understanding of the complete energy balance and can compile a transparent and complete energy balance	Not resolved. During the review, Iceland stated that the issue is still under consideration

<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
G.2	National system (98, 2014) Transparency*	Report in its annual submission any changes in its national system in accordance with decision 15/CMP.1, annex, chapter I.F, and/or further relevant decisions of the Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (CMP)	Not resolved. Iceland reported in chapter 11 of the NIR the changes in its national system that took place in 2012 and that had already been reported in the 2014 annual submission. The ERT noted that no changes in the national system have occurred since the last GHG inventory submission
Energy			
E.1	1. General (energy sector) (19, 2014) Transparency	Work with the Icelandic Directorate of Customs to correct the errors related to reporting of AD in the 2014 annual submission; for example, where coke was recorded as coal, and where coking coal was recorded as coke	Not resolved. In the NIR (p.57), Iceland reported that the source of the errors was in the customs reports, in which some coke had been registered as coal and steam coal had been registered as coking coal. The Party stated in the NIR that these problems are being corrected by the National Energy Authority of Iceland
E.2	1. General (energy sector) (21, 2014) Transparency*	Report information on electrode consumption, steam coal consumption and petroleum coke consumption that provide justification for significant inter-annual changes and gaps in the time series of fuel consumption and associated emissions	Not resolved. Iceland did not provide the justifications in the NIR
E.3	1. General (energy sector) (22, 2014) Transparency*	Provide transparent information in cases where GHG emissions have been accounted for elsewhere and the notation key “IE” (included elsewhere) is used to report such emissions	Not resolved. During the review, Iceland stated that it will include emissions under the relevant categories in future GHG inventory submissions, and in cases where the notation key “IE” (included elsewhere) is used, it will provide the required information (see also E.15 below)
E.4	1. General (energy sector) (23, 2014) (21, 2013) Transparency*	Provide more transparent information on the modification methodologies used when re-categorizing the data received from the National Energy Authority of Iceland (NEA)	Not resolved. During the review, Iceland stated that will provide more transparent information in future GHG inventory submissions



<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
E.5	1. General (energy sector) (23, 2014) Comparability	Consider the possibility of redefining the coordination agreement between NEA and the Environment Agency of Iceland (EA) in order to change the data collection process by preparing a data collection template that is consistent with the IPCC categories	Not resolved. Iceland has made no progress on this issue in its latest GHG inventory submission. The Party indicated during the review that redefining the coordination agreement between the National Energy Authority and the Environment Agency is under consideration
E.6	Feedstocks, reductants and other NEU of fuels – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (30, 2014) Transparency	Include in the inventory the detailed information provided during the previous review on the amount of lubricants burned, on the national legislation for collection and receipt of waste lubricants, on how waste oil is collected and recycled and on the value chain of waste oil in Iceland	Resolved. Iceland provided the information in its NIR (p.68) and estimated emissions from the use of lubricants to be 1.2 kt CO <sub>2</sub> in 2014, a value which, given that it is less than 0.05% of the national total GHG emissions and does not exceed 500 kt CO <sub>2</sub> eq, is considered below the threshold of significance pursuant to decision 24/CP.19, annex I, paragraph 37(b), and therefore did not include it in the CRF tables
E.7	Feedstocks, reductants and other NEU of fuels – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (30, 2014) Completeness*	Investigate any emissive use of lubricants in the transport sector as well as in other industries, and if appropriate, report these emissions	Resolved. Iceland investigated the use of lubricants and provided an emission estimate for 2014 (see issue ID#E.6 above)
E.8	International aviation (27, 2014) (27, 2013) Accuracy*	Improve the differentiation of fuel consumption between international and domestic aviation	Not resolved. In the NIR, Iceland reported that an improved methodology will be used in the next GHG inventory submission to differentiate consumption between international and domestic aviation as data from the European Union Emissions Trading System, which covers aviation since 2012, and from Eurocontrol become available. The ERT notes that the likely level of

ID#	Issue and/or problem classification <sup>a, b</sup>	Recommendation made in previous review report <sup>c</sup>	ERT assessment and rationale
E.9	International navigation (28, 2014) (28, 2013) Accuracy*	Improve the methodology for distinguishing between international and domestic navigation	<p>impact in emissions from domestic and international aviation does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>Not resolved. During the review, Iceland stated that it will strive to improve its reporting on international and domestic navigation in future GHG inventory submissions. The ERT notes that the likely level of impact in emissions from domestic and international navigation does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>
E.10	1.A.1 Energy industries – other fuels – CO <sub>2</sub> (33, 2014) Transparency*	Provide the sources of the methodologies used for the estimation of CO <sub>2</sub> emissions from waste incineration	Resolved. Iceland provided in the energy chapter of the NIR references to the relevant sections in the waste chapter where information on the methodologies and CO <sub>2</sub> EFs are included. The ERT commends Iceland for implementing the recommendation from the previous ERT (see E.20 in table 5)
E.11	1.A.2 Manufacturing Industries and Construction – solid fuels – CO <sub>2</sub> (31, 2014) Transparency*	Investigate how the EF was derived and include this information in the NIR	Not resolved. Iceland used a net calorific value obtained from the cement industry in its calculation of the CO <sub>2</sub> EF for steam coal; however, the Party did not provide in the NIR information on how the net calorific value was derived
E.12	1.A.2 Manufacturing Industries and Construction – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (34, 2014)	Correct the differentiation of fuel consumption between stationary and mobile combustion in the construction sector	Not resolved. The ERT considers that no progress has been made by Iceland in resolving the recommendation made by the previous ERT. The overall basis of this issue

ID#	Issue and/or problem classification <sup>a, b</sup>	Recommendation made in previous review report <sup>c</sup>	ERT assessment and rationale
	Accuracy*		can be traced back to the fundamental methodology used by the Environment Agency of Iceland to recategorize the fuel sales data received from the National Energy Authority of Iceland
E.13	1.A.3.b Road transportation – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (35, 2014) (32, 2013) Accuracy*	Make an effort to apply higher-tier methods to estimate GHG emissions from road transportation, which is a key category	Not resolved. During the review, Iceland stated that it will consider the application of higher-tier methods for its next GHG inventory submission
E.14	1.A.3.b Road transportation – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (36, 2014) Accuracy	Use a consistent methodology for the division of vehicle groups and conduct recalculations for the earlier years of the time series (1990–2005)	Not resolved. Iceland has made no progress in using a methodology consistent with the 2006 IPCC Guidelines for the division of vehicle groups or for conducting recalculations for the earlier years of the time series (1990–2005). The ERT noted that the likely level of change in emissions from road transportation does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines
E.15	1.A.3.e Other transportation – liquid fuels – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (32, 2014) Transparency*	Report transparent information on emissions from off-road and ground activities occurring in airports that have been accounted elsewhere	Not resolved. The ERT noted that Iceland still does not report transparent information on emissions from off-road and ground activities occurring in airports. Although the Party informed the previous ERT that emissions were included elsewhere, it incorrectly used the notation key “NO” (not occurring) (table 3.2, p.44 of the NIR), instead of “IE” (included elsewhere), and did not indicate in the NIR where in the inventory the emissions have been included

<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
<b>IPPU</b>			
I.1	2. General (IPPU) (46, 2014) Adherence to UNFCCC Annex I inventory reporting guidelines	Enhance quality assurance/quality control (QA/QC) procedures	Resolved. During the current review, the Party did not provide any incorrect data to the ERT
<b>Agriculture</b>			
A.1	3. General (agriculture) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (56, 2014) Transparency*	Include detailed explanations of the AD, EFs and emission trends for all categories, including for young cattle population and for N <sub>2</sub> O emissions from synthetic N fertilizer applied to agricultural soils	Not resolved. Significant inter-annual changes in the growing cattle population (e.g. –31.6% in 1991/1992, 47.9% in 1996/1997 and 13.7% in 2013/2014) and in N <sub>2</sub> O emissions from synthetic N fertilizer applied to agricultural soils (26.3% in 2005/2006 and –21.9% in 2008/2009). However, the ERT noted that sufficient information to explain the changes is not provided in the NIR. During the review, Iceland explained that it will take this issue into account in its next GHG inventory submission
A.2	3.A Enteric fermentation – CH <sub>4</sub> (58, 2014) Transparency*	Include in the NIR information on the suitability of Norway's enteric fermentation CH <sub>4</sub> EFs for poultry and fur-bearing animals in Iceland's national circumstances	Resolved. Iceland included in the NIR (p.94) additional information on the suitability of Norway's country-specific EFs for poultry and fur-bearing animals for Iceland's GHG inventory
A.3	3.B Manure management – N <sub>2</sub> O (61, 2014) (57, 2013) Transparency*	Include in the NIR information on the circumstances under which the country-specific N excretion data have been estimated	Not resolved. Iceland did not include in the NIR additional information on the country-specific nitrogen excretion data from mature dairy cattle (table 5.13 of the NIR)
A.4	3.D.a.6 Cultivation of organic soils (i.e. histosols) – N <sub>2</sub> O (63, 2014) (59, 2013) Transparency	Include in the NIR a comparison of the country-specific N <sub>2</sub> O EF for the cultivation of histosols with peer-reviewed studies	Not resolved. Iceland did not include in the NIR a comparison of the country-specific N <sub>2</sub> O EF for the cultivation of histosols with peer-reviewed studies

<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
A.5	3.F Field burning of agricultural residues – CH <sub>4</sub> , N <sub>2</sub> O (54, 2014) Transparency	Include in the NIR additional information on the non-occurrence of field burning of agricultural crop residues activity	Not resolved. Iceland did not provide in the NIR the rationale for using the notation key “NO” (not occurring) to report on the field burning of agricultural crop residues. During the review, the Party explained that the non-occurrence of field burning of agricultural crop residues is based on expert judgement. The ERT agrees with the use of expert judgement in this case
<b>LULUCF</b>			
L.1	4. General (LULUCF) – CO <sub>2</sub> (66, 2014) Completeness*	Enhance the completeness and accuracy of its GHG inventory in accordance with the available data sets, ongoing projects for data collection and analysis, and relevant national circumstances, in particular, enhance information reported on CSC in soil organic matter associated with management changes in cropland and grassland mineral soils	Resolved. The Party reports CSC in mineral soils under other land converted to grassland, natural birch shrubland, and has ongoing projects to improve the completeness of the reporting both on cropland and grassland mineral soils (see ID#L.9, ID#L.10, ID#L.12, ID#L.13 and ID#L.14 in table 5)
L.2	4. General (LULUCF) (67, 2014) Transparency	Enhance the transparency of the information in the NIR on the uncertainty analysis	Not resolved. During the review, Iceland stated that the recommendation on the uncertainty analysis will be included in the list of planned improvements to the GHG inventory submission
L.3	Land Representation (68, 2014) Transparency	Rather than increasing the quantity of information provided, select the required information and organize it in a manner that enables the reader to clearly understand the data sources, and their quality and the methodology used to derive the land representation	Not resolved. During the review, Iceland stated that improvement in the land-use data is an ongoing project and the recommendation will be included in the list of planned improvements to the GHG inventory submission and prioritized according to the data available
L.4	4.A Forest land – CO <sub>2</sub> (69, 2014)	Provide an additional description of the processes by which the CSCs and associated emissions and removals are estimated, including tables with raw	Addressing. During the review, Iceland provided a description that clarifies the

<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
	Transparency*	data and intermediate outputs stratified by year and forest type	estimation process. However, this information was not included in the NIR
L.5	4.B.2 Land converted to cropland – N <sub>2</sub> O (73, 2014) Comparability*	Report N <sub>2</sub> O emissions from disturbances associated with land-use conversion to cropland	Addressing. During the review, Iceland stated that emissions have been included under the agriculture sector. However, according to footnote 5 to CRF table 4(III), only emissions from cropland remaining cropland should be included under the agriculture sector; emissions from land conversion to cropland should be reported under the LULUCF sector
L.6	4.B.2.2 Grassland converted to cropland – CO <sub>2</sub> (71, 2014) Accuracy	Ensure the equivalence of climatic, historical and edaphic conditions when analysing pairs of samples (i.e. in cropland and grassland), to determine the dynamic of the soil carbon stocks associated with conversion among the two land uses	Not resolved. During the review, Iceland stated that the recommendation will be included in the list of planned improvements for the estimates of CSC between cropland and grassland in the GHG inventory submission
L.7	4.C Grassland – CO <sub>2</sub> (72, 2014) (67, 2013) Completeness*	Prepare estimates for the emissions from degraded areas of grassland	Not resolved. During the review week, Iceland stated that the data on degraded areas are still missing and that this would be the situation for some years. The ERT considers that it is possible for the Party to prepare estimates for these potential emissions based on, for instance, unpublished data on EFs from the Agricultural University of Iceland or EFs used by other countries with similar national circumstances. Expert knowledge can be utilized for management practices (percentage of area of degraded managed mineral soils on other grassland remaining other grassland), in accordance with the 2006 IPCC Guidelines, until the results from the Icelandic Geographic Land Use

<i>ID#</i>	<i>Issue and/or problem classification<sup>a, b</sup></i>	<i>Recommendation made in previous review report<sup>c</sup></i>	<i>ERT assessment and rationale</i>
			Database project are available
L.8	4.C Grassland – CO <sub>2</sub> (74, 2014) Not an issue	Ensure the time-series consistency of CO <sub>2</sub> emissions from agricultural lime application in grassland	No longer relevant. During the review, Iceland stated that the application of lime is now reported under the agriculture sector. The ERT agrees with the Party on this allocation
<b>Waste</b>			
W.1	5.A Solid waste disposal on land – CH <sub>4</sub> (78, 2014) Transparency*	Include information in the NIR on the AD used	Not resolved. The amount of waste deposited in solid waste disposal sites, categorized by type of waste, for the entire time series, is not presented in the NIR
W.2	5.A Solid waste disposal on land – CH <sub>4</sub> (79, 2014) (72, 2013) Transparency*	Include in the NIR more information on landfill gas utilization (e.g. energy content of recovered gas, place of utilization)	Not resolved. Additional information on landfill gas utilization, such as the amount of CH <sub>4</sub> flared, the amount of CH <sub>4</sub> recovered, the energy content of the recovered gas and the place of utilization, for the entire time series, is not presented in the NIR in a transparent manner
W.3	5.D Wastewater treatment and discharge – CH <sub>4</sub> , N <sub>2</sub> O (80, 2014) Not an issue	Develop a country-specific methane conversion factor and EFs for estimating emissions from wastewater handling	No longer relevant. Wastewater treatment is not a key source in Iceland and a tier 1 method was used, which is consistent with the 2006 IPCC Guidelines. In the tier 1 method, default EFs and AD are applied
W.4	5.D Wastewater treatment and discharge – CH <sub>4</sub> , N <sub>2</sub> O (80, 2014) Not an issue	Provide a clearer description of the method applied and the correct equation that should have been used to estimate CH <sub>4</sub> emissions from domestic waste water	No longer relevant. The NIR contains a description of the method applied. The emissions were calculated using equation 6.1 from the 2006 IPCC Guidelines, where there is only one income group and therefore “i” is equal to 1
W.5	5.D Wastewater treatment and discharge – CH <sub>4</sub> , N <sub>2</sub> O (81, 2014) (74, 2013)	Include in the NIR more background data on sludge removal (e.g. amount and N content), clearly indicating in which category the resulting emissions are accounted for	Not resolved. Background data on sludge removal (e.g. amount, nitrogen content) and a clear indication of the category in which the

ID#	Issue and/or problem classification <sup>a, b</sup>	Recommendation made in previous review report <sup>c</sup>	ERT assessment and rationale
	Transparency*		resulting emissions are accounted for are not provided in the NIR
W.6	5.D Wastewater treatment and discharge – CH <sub>4</sub> , N <sub>2</sub> O (82, 2014) (75, 2013) Transparency	Investigate the issue of the protein intake further and report on any new results for N <sub>2</sub> O emissions from human sewage based on the yearly per capita protein intake	Not resolved. Information on the investigation of the discrepancy in the protein intake between the GHG inventory and the data for Iceland published by the Food and Agriculture Organization of the United Nations was not presented in the NIR
KP-LULUCF			
KL.1	Afforestation and reforestation – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (86, 2014) Transparency*	Provide an additional description of the process by which the CSCs and associated emissions and removals are estimated, including tables with raw data and intermediate outputs stratified by year and forest type	Addressing. During the review, Iceland provided a description that clarifies the estimation process. However, this information was not included in the NIR
KL.2	Deforestation – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O (87, 2014) Accuracy	Recalculate the CSCs in soil organic matter by ensuring symmetry among the pairs of land-use conversions (e.g. grassland converted to forest land, and forest land converted to grassland)	Not resolved. During the review, Iceland informed the ERT that this recommendation will be considered in future GHG inventory submissions

*Abbreviations:* AD = activity data, CRF = common reporting format, CSC = carbon-stock change, EF = emission factor, ERT = expert review team, GHG = greenhouse gas, IPCC = Intergovernmental Panel on Climate Change, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, N = nitrogen, NEU = non-energy use, NIR = national inventory report, UNFCCC Annex I inventory reporting guidelines = “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”, 2006 IPCC Guidelines = 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

<sup>a</sup> References in parentheses are to the paragraph(s) and the year(s) of the previous review report(s) where the issue was raised. Issues are further classified as defined in decision 13/CP.20, annex, paragraph 81. In the review of the supplementary information reported in accordance with Article 7, paragraph 1, of the Kyoto Protocol, the ERT has applied the classification in decision 22/CMP.1, annex, paragraph 69, in conjunction with decision 4/CMP.11.

<sup>b</sup> An asterisk is included next to each issue type for all issues that are also problems, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.

<sup>c</sup> The review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission, and as such, the 2015 annual review report was not available at the time of this review. Therefore, the recommendations reflected in table 3 are from the 2014 annual review report. For the same reason, the year 2015 is excluded from the list of years in which the issue has been identified.



#### IV. Issues identified in three successive reviews and not addressed by the Party

9. In accordance with paragraph 83 of the UNFCCC review guidelines, the ERT noted that the issues included in table 4 have been identified in three successive reviews, including the review of the 2016 annual submission of Iceland, and have not been addressed by the Party.

Table 4

##### Issues identified in three successive reviews and not addressed by Iceland

<i>ID#<sup>a</sup></i>	<i>Previous recommendation for the issue identified</i>	<i>Number of successive reviews issue not addressed<sup>b</sup></i>
<b>General</b>		
G.1	Ensure that one organization has a full understanding of the complete energy balance and can compile a transparent and complete energy balance	3 (2013–2015/2016)
<b>Energy</b>		
E.4	Provide more transparent information on the modification methodologies used when re-categorizing the data received from the National Energy Authority of Iceland	3 (2013–2015/2016)
E.8*	Improve the differentiation of fuel consumption for international and domestic aviation	3 (2013–2015/2016)
E.9*	Improve the methodology for distinguishing between international and domestic navigation	3 (2013–2015/2016)
E.13*	Make an effort to apply higher-tier methods to estimate GHG emissions from road transportation, which is a key category	3 (2013–2015/2016)
<b>IPPU</b>		
	No such issues for the IPPU sector were identified	
<b>Agriculture</b>		
A.3	Include in the NIR information on the circumstances under which the country-specific nitrogen excretion data have been estimated	3 (2013–2015/2016)
A.4	Include in the NIR a comparison of the country-specific N <sub>2</sub> O EF for the cultivation of histosols with peer-reviewed studies	3 (2013–2015/2016)
<b>LULUCF</b>		
L.7*	Prepare estimates for the emissions from all areas of grassland	3 (2013–2015/2016)
<b>Waste</b>		
W.2	Include in the NIR more information on landfill gas utilization (e.g. energy content of recovered gas, place of utilization)	3 (2013–2015/2016)

<i>ID#<sup>a</sup></i>	<i>Previous recommendation for the issue identified</i>	<i>Number of successive reviews issue not addressed<sup>b</sup></i>
W.5	Include in the NIR more background data on sludge removal (e.g. amount and nitrogen content), clearly indicating in which category the resulting emissions are accounted for	3 (2013–2015/2016)
W.6	Investigate the issue of the protein intake further and report on any new results for N <sub>2</sub> O emissions from human sewage based on the yearly per capita protein intake	3 (2013–2015/2016)
KP-LULUCF		
No such issues for KP-LULUCF activities were identified		

*Abbreviations:* EF = emission factor, GHG = greenhouse gas, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NIR = national inventory report.

<sup>a</sup> An asterisk is included after any issue ID# where the underlying issue is related to accuracy or completeness of a key category, a missing category or a potential key category, as indicated in decision 13/CP.20, annex, paragraph 83.

<sup>b</sup> The review of the 2016 annual submission is being held in conjunction with the review of the 2015 annual submission. As the reviews of the 2015 and 2016 annual submissions are not “successive” reviews, but are rather being held in conjunction, for the purpose of counting successive years in table 4, 2015/2016 is considered as one year. The ERT noted that this table 4 is the same as that in the 2015 annual review report for Iceland, modified to reflect the combined 2015/2016 review.

## V. Additional findings made during the 2016 technical review

10. Table 5 contains findings made by the ERT during the technical review of the 2016 annual submission of Iceland that are additional to those identified in table 3 above.

Table 5

**Additional findings made during the 2016 technical review of the annual submission of Iceland**

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding with recommendation or encouragement</i>	<i>Is finding an issue<sup>a</sup> and/or a problem?<sup>b</sup> If yes, classify by type</i>
General			
G.3	CRF	<p>The ERT noted that CRF table 9 does not include any information on the use of the notation keys “NE” (not estimated) and “IE” (included elsewhere). However, Iceland has reported AD and emissions as “NE” (e.g. SF<sub>6</sub> remaining in products at decommissioning (2.G.1) and indirect N<sub>2</sub>O emissions from manure management (3.(I).B.5)) and as “IE” (e.g. CO<sub>2</sub> and CH<sub>4</sub> emissions from the production of methanol (2.B.8.a) and CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from solvent use (2.D.3)). During the review, Iceland explained that it could not insert an explanation on the use of the “NE” and “IE” notation keys owing to problems working with the CRF Reporter software</p> <p>The ERT recommends that Iceland include in CRF table 9 information on the use of “NE” and “IE” notation keys</p>	Yes. Transparency*
G.4	National registry	<p>The ERT noted that the 2016 SIAR for Iceland indicates that the following information should be included in the Party’s national registry disaster recovery plan: the roles and responsibilities of primary and alternate registry personnel in disaster recovery; a communication procedure for the contingency plan; documentation for registry operation in a crisis situation; a periodic testing strategy based on procedures agreed with the registry host; and the time frame in which the registry could resume operations following a disaster</p> <p>The ERT recommends that the Party include in the national registry disaster recovery plan information on: the roles and responsibilities of primary and alternate registry personnel in disaster recovery; a communication procedure for the contingency plan; documentation for registry operation in a crisis situation; a periodic testing strategy based on procedures agreed with the registry host; and the time frame in which the registry could resume operations following a disaster</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines
Energy			
E.16	Fuel combustion-reference approach – liquid and solid fuels – CO <sub>2</sub>	<p>The ERT noted in CRF table 1.A(c) a discrepancy of 103,131.11% and 1,906.99% in fuel combustion between the IPCC reference and sectoral approaches for liquid and solid fuels, respectively, in 2014. The ERT also noted that similar discrepancies occur in the entire time series (1990–2014). The ERT determined that such large discrepancies result from the incorrect use of the conversion factor used to convert units of mass to units of energy in CRF table 1.A(c), producing a miscalculation of the apparent consumption in units of energy</p> <p>The ERT recommends that Iceland correct the apparent consumption in units of energy for the entire time series by using an appropriate conversion factor, and report the corrected estimates in</p>	Yes. Comparability*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		CRF table 1.A(c)	
E.17	Fuel combustion - reference approach – liquid and solid fuels – CO <sub>2</sub>	<p>The ERT noted that stock changes in 2014 are reported in CRF table 1.A(b) as “0” for the liquid fuels gasoline, jet kerosene, gas/diesel oil, residual fuel oil and liquefied petroleum gas, and for the solid fuel other bituminous coal. The ERT also noted that stock changes of these fuels are normally expected and were indeed reported in CRF table 1.A(b) in previous years. The ERT considers that stock changes for the fuels listed above were not correctly estimated in the reference approach for the year 2014</p> <p>The ERT recommends that Iceland estimate and report stock changes of liquid (gasoline, jet kerosene, gas/diesel oil, residual fuel oil and liquefied petroleum gas) and solid fuels (other bituminous coal) in CRF table 1.A(b) for the entire time series</p>	Yes. Consistency*
E.18	1.A. Fuel combustion – sectoral approach – liquid and solid fuels – CO <sub>2</sub>	<p>The ERT noted that Iceland reported as blank in CRF table 1.A(c) the apparent energy consumption (excluding non-energy use, reductants and feedstocks) of liquid fuels for the period 2013–2014 as well as of solid fuels for 2014. Moreover, the Party reported “NO” (not occurring) for solid fuels for the period 2012–2013. For the remainder of the time series, Iceland did report the apparent energy consumption (excluding non-energy use, reductants and feedstocks). In response to a question raised by the ERT during the review, Iceland acknowledged that the information was not reported correctly in CRF table 1.A(c)</p> <p>The ERT recommends that Iceland report estimates for the apparent energy consumption (excluding non-energy use, reductants and feedstocks) of liquid and solid fuels for the entire time series in CRF table 1.A(c)</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines*
E.19	1.A. Fuel combustion- sectoral approach – liquid fuels – CO <sub>2</sub>	<p>Iceland reported in the NIR that oxidation factors used for estimating emissions from fuel combustion were set as 0.99 or, in some instances, as 0.98 (e.g. tables 3.5, 3.7, 3.9, 3.12, 3.14 and 3.18 of the NIR). According to the 2006 IPCC Guidelines, the default oxidation factor is 1. Parties can, however, use country-specific oxidation factors if there is sufficient information to support their use. During the review, Iceland explained that the oxidation factors used in estimating CO<sub>2</sub> emissions were taken from the <i>Revised 1996 IPCC Guidelines for National Greenhouse Gas Inventories</i> and that the oxidation factors will be updated to the default value of 1, in accordance with the 2006 IPCC Guidelines, in the next GHG inventory submission. However, the ERT noted that in some subcategories (e.g. road transportation (1.A.3.b)), the oxidation factor used in the calculation was in fact already 1. The ERT notes that the likely level of impact in emissions does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland use either default oxidation factors in accordance with the 2006 IPCC Guidelines or country-specific oxidation factors if there is sufficient information to</p>	Yes. Accuracy*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		support their use for estimating CO <sub>2</sub> emissions from fuel combustion, and ensure that the oxidation factors reported in the NIR are consistent with those used in estimating CO <sub>2</sub> emissions	
E.20	1.A.1.a Public electricity and heat production – other fuels – CO <sub>2</sub>	<p>The ERT noted that Iceland provided in the energy chapter of the NIR references to the relevant sections in the waste chapter where information on the methodologies and CO<sub>2</sub> EFs is included; the information itself, however, is not included in the energy chapter of the NIR</p> <p>The ERT encourages Iceland to include in the energy chapter of the NIR, summary information on the methodologies and CO<sub>2</sub> EFs used to estimate emissions from waste incineration</p>	Not an issue
IPPU			
I.2	2. General (IPPU) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	<p>Iceland used the notation key “NE” (not estimated) to report on the following gases and subcategories, for the entire time series: (1) CO<sub>2</sub> and CH<sub>4</sub> emissions from fertilizer production (other chemical industry) (2.B.10); (2) N<sub>2</sub>O emissions recovery from medical applications (2.G.3.a); and (3) CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from tobacco (other product manufacture and use, other) (2.G.4). However, the ERT noted that the Party did not provide information in the NIR and in CRF table 9 explaining why these emissions were not estimated. During the review, Iceland informed the ERT that it is working on estimating these emissions, and that these estimates will be included in future GHG inventory submissions</p> <p>The ERT encourages Iceland to estimate and report CO<sub>2</sub> and CH<sub>4</sub> emissions from fertilizer production (other chemical industry) (2.B.10), N<sub>2</sub>O emissions recovery from medical applications (2.G.3.a), and CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emissions from tobacco (other product manufacture and use, other) (2.G.4)</p>	Not an issue
I.3	2. General (IPPU) – CO <sub>2</sub> , HFCs, PFCs, SF <sub>6</sub> , NF <sub>3</sub>	<p>The ERT noted that Iceland did not report information in the CRF tables for the following gases and subcategories for 2014: (1) CO<sub>2</sub> emissions from glass production (2.A.3); (2) CO<sub>2</sub> emissions from ammonia production (2.B.1); (3) CO<sub>2</sub> emissions from adipic acid production (2.B.3); (4) CO<sub>2</sub> emissions from soda ash production (2.B.7); and (5) HFCs, PFCs, SF<sub>6</sub> and NF<sub>3</sub> emissions from electronic industry (2.E) as well as from foam blowing agents (2.F.2), fire protection (2.F.3), solvents (2.F.5) and other applications (2.F.6). The ERT notes that reporting information in the CRF tables using the methodologies provided in the 2006 IPCC Guidelines is a mandatory requirement of the UNFCCC Annex I inventory reporting guidelines. In response to a question raised by the ERT during the review, Iceland explained that the notation key “NO” (not occurring) should have been used for reporting the information for all the gases and subcategories listed above, and that it will revise its reporting for the next GHG inventory submission</p> <p>The ERT recommends that Iceland report in the CRF tables emission estimates or the relevant notation keys, as appropriate, for the subcategories glass production (2.A.3), ammonia production</p>	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		(2.B.1), adipic acid production (2.B.3), soda ash production (2.B.7) and electronic industry (2.E), and for foam blowing agents (2.F.2), fire protection (2.F.3), solvents (2.F.5) and other applications (2.F.6)	
I.4	2.A.2 Lime production – CO <sub>2</sub>	<p>Iceland reported in the NIR that emissions from lime production have been occurring since 1999 and have been estimated based on limestone consumption at the Elkem Iceland ferrosilicon plant. However, the ERT noted that Iceland reported “NO” (not occurring) under lime production in CRF table 2(I)s1 and CRF table 2(I).A-H for the entire time series. During the review, the Party confirmed that the emissions have been occurring since 1999, that they are reported under category 2.C.2 and that it will revise the NIR and the relevant CRF tables</p> <p>The ERT recommends that Iceland improve the transparency of its reporting by reporting emissions from lime production at the Elkem Iceland ferrosilicon plant separately under lime production (category 2.A.2) in the CRF tables and by updating the relevant sections of the NIR</p>	Yes. Transparency*
I.5	2.A.4 Other process uses of carbonates – CO <sub>2</sub>	<p>The ERT noted that Iceland reported in the NIR that emissions from the use of soda ash at a silicium production plant in the country are included in the subcategory other (chemical industry) (2.B.10). The ERT also noted that the Party reported the notation key “NO” (not occurring) for CO<sub>2</sub> emissions in the subcategory other uses of soda ash (2.A.4.b). During the review, Iceland clarified that the correct notation key for this subcategory is “IE” (included elsewhere)</p> <p>The ERT recommends that Iceland use the notation key “IE” for reporting information on the use of soda ash under the subcategory 2.A.4.b and indicate, in CRF table 9, that emissions are reported under the subcategory other (chemical industry) (2.B.10)</p>	Yes. Transparency*
I.6	2.C.2 Ferroalloys production – CH <sub>4</sub>	<p>The ERT noted that total annual CO<sub>2</sub> eq emissions from ferroalloys production (2.C.2) is not consistent between the CRF tables and the NIR (CRF table 2(I) and table 4.4 of the NIR). During the review, Iceland explained that the values reported in the CRF are correct and that CH<sub>4</sub> emissions are missing from table 4.4 of the NIR. Iceland further stated that it will correct table 4.4 of the NIR for the next GHG inventory submission</p> <p>The ERT recommends that Iceland improve the transparency of its reporting of emissions from ferroalloys production by resolving the inconsistencies between the NIR and the CRF tables</p>	Yes. Transparency*
I.7	2.D Non-energy products from fuels and solvents use – CO <sub>2</sub>	<p>The ERT noted inconsistencies between the NIR and the CRF tables in emissions from the category non-energy products from fuels and solvent use (2.D). For example, Iceland reported a total of 5 kt CO<sub>2</sub> eq in the NIR (table 2.10, p.30 of the NIR) whereas in the CRF table 2(I) CO<sub>2</sub> and NMVOC emissions are reported to be 0.25 kt CO<sub>2</sub> and 1.50 kt NMVOC in 2014. During the review, Iceland explained that emissions from solvent use were missing from the CRF tables and only emissions from paraffin wax use were included under category 2.D. The ERT considers that emissions under category 2.D are underestimated and notes that the likely level of impact in</p>	Yes. Completeness*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		<p>emissions does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland estimate and report the missing emissions from solvent use and resolve the inconsistencies between the NIR and the CRF tables for the category non-energy products from fuels and solvent use (2.D)</p>	
I.8	2.F.1 Refrigeration and air conditioning – HFCs	<p>The ERT noted that the total annual HFC emissions under the subcategory refrigeration and air conditioning (2.F.1) is not consistent between the CRF tables and the NIR (see CRF table 2(I) and table 2.11 of the NIR). For example, the total of HFC and PFC emissions in 2014 was reported as 164.4 kt CO<sub>2</sub> eq in table 2.11 of the NIR, whereas in CRF table 2(I), it was reported as 162.92 kt CO<sub>2</sub> eq. During the review, Iceland explained that there were problems importing data in the CRF tables as they were being prepared and, therefore, some values were entered manually. The ERT noted that the likely level of impact in emissions from the differences between the CRF table and NIR for subcategory 2.F.1 does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland improve the accuracy and transparency of its reporting by correcting the emission estimates for the subcategories refrigeration and air conditioning (2.F.1), and by resolving the inconsistencies between the NIR and the CRF tables</p>	Yes. Accuracy*
I.9	2.F.1 Refrigeration and air conditioning – HFCs, PFCs	<p>The ERT noted that Iceland used the notation key “IE” (included elsewhere) to report on HFC and PFC emissions recovery under the subcategory refrigeration and air conditioning (2.F.1), without indicating in CRF table 9 where in the inventory the recovery of these emissions was included. During the review, the Party explained that the recovery of HFCs and PFCs is considered in the same category (2.F.1), but as a decrease in emissions. The ERT noted that recovered quantities were calculated based on information from the poll of installations from the Icelandic refrigeration sector and on expert judgement and that the recovery efficiencies used were within the range given in table 7.9, chapter 7, volume 3 of the 2006 IPCC Guidelines</p> <p>The ERT recommends that Iceland report the HFC and PFC emissions recovered for the subcategory refrigeration and air conditioning (2.F.1) separately from the emissions themselves</p>	Yes. Transparency*
I.10	2.F.4 Aerosols – HFCs	<p>The ERT noted that Iceland estimated emissions from the subcategory metered dose inhalers (under aerosols (2.F.4)) using a methodology from the IPCC Good Practice Guidance. During the review, the Party stated that revised estimates, prepared in accordance with the 2006 IPCC Guidelines, would be provided in the next GHG inventory submission</p> <p>The ERT recommends that Iceland estimate HFC emissions from the subcategory metered dose inhalers (under aerosols (2.F.4)) using a methodology consistent with the 2006 IPCC Guidelines,</p>	Yes. Accuracy*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		and report the estimates	
I.11	2.G.1 Electrical equipment – SF <sub>6</sub>	<p>The ERT noted that Iceland estimated emissions from the subcategory electrical equipment (2.G.1) using a methodology from the IPCC Good Practice Guidance. During the review, the Party stated that revised estimates, prepared in accordance with the 2006 IPCC Guidelines, would be provided in the next GHG inventory submission</p> <p>The ERT recommends that Iceland estimate and report emissions from the category electrical equipment (2.G.1) using a methodology in accordance with the 2006 IPCC Guidelines</p>	Yes. Accuracy*
Agriculture			
A.6	3. General (agriculture) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	<p>The ERT noted that no information on time-series consistency is included in the NIR in a section titled “Uncertainties and time-series consistency”, which is inconsistent with the NIR outline and general structure contained in the appendix of annex I to decision 24/CP.19. During the review, Iceland provided the following information: the same data sources and calculation methods are used for the entire time series; and when EFs or other data are updated, the calculation is corrected throughout the time series. This applies to every subcategory of the agriculture sector. Iceland indicated that information on time-series consistency would be updated for each subcategory in the next GHG inventory submission</p> <p>The ERT encourages Iceland to include in the NIR specific information on time-series consistency for all subcategories of the agriculture sector under the section “Uncertainties and time-series consistency”</p>	Not an issue
A.7	3. General (agriculture) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	<p>The ERT noted that no information on planned improvements to the category enteric fermentation (3.A) and the subcategory indirect N<sub>2</sub>O emissions from managed soils (3.D.b) is included in the NIR in a section titled “Category-specific planned improvements”, which is inconsistent with the NIR outline and general structure contained in the appendix of annex I to decision 24/CP.19. In response to a question raised by the ERT during the review, Iceland presented the planned improvements associated with enteric fermentation and indicated that planned improvements for each subcategory of the agriculture sector would be listed in the next GHG inventory submission</p> <p>The ERT encourages Iceland to include in the NIR specific information on planned improvements for all subcategories of the agriculture sector under the section “Category-specific planned improvements”</p>	Not an issue
A.8	3. General (agriculture) –	<p>The ERT noted that no information on the implementation of QA/QC and verification activities in the agriculture sector is included in the NIR in a section titled “Category-specific QA/QC and verification”, which is inconsistent with the NIR outline and general structure contained in the</p>	Not an issue



ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O		<p>appendix of annex I to decision 24/CP.19. In response to a question raised by the ERT during the review, Iceland explained that the QA/QC activities in the agriculture sector include general methods such as accuracy checks on data acquisition and calculations as well as the use of standardized procedures for emission calculations, uncertainty estimations, data collection and reporting. Iceland indicated that improved information on QA/QC activities for each subcategory of the agriculture sector would be included in the next GHG inventory submission</p> <p>The ERT encourages Iceland to include in the NIR specific information on the implementation of QA/QC and verification activities for all subcategories of the agriculture sector under the section “Category-specific QA/QC and verification”</p>	
A.9	3.B.5 Indirect N <sub>2</sub> O emissions – N <sub>2</sub> O	<p>The ERT noted that in CRF table 3 and CRF table 3.B(b), Iceland uses the notation key “NE” (not estimated) to report on indirect N<sub>2</sub>O emissions from manure management (3.B.5), without providing in the CRF tables and the NIR information explaining why these emissions have not been estimated. In response to a question raised by the ERT during the review, Iceland provided N<sub>2</sub>O emission estimates corresponding to total nitrogen volatilized as ammonia and NO<sub>x</sub>. Iceland estimates these emissions to be 0.024 kt N<sub>2</sub>O in 2014, which is less than 0.0005% of total GHG emissions in 2014 and therefore is deemed insignificant by the Party. The ERT notes that methodologies to estimate indirect N<sub>2</sub>O emissions from manure management are available in the 2006 IPCC Guidelines (volume 4, chapter 10, section 10.5) and considers that activity data to estimate such emissions are available in the country</p> <p>The ERT recommends that Iceland estimate indirect N<sub>2</sub>O emissions from manure management (3.B.5), including N<sub>2</sub>O emissions from nitrogen volatilized as ammonia and NO<sub>x</sub> and from nitrogen lost through leaching and run-off, and report the relevant background data in the next GHG inventory submission, or, if the Party considers these emissions as insignificant, provide in the NIR sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>	Yes. Completeness*
A.10	3.D.a.2 Organic N fertilizers – N <sub>2</sub> O	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) in CRF table 3.D to report on N<sub>2</sub>O emissions from sewage sludge applied to soils (3.D.a.2.b) and from other organic fertilizers applied to soils (3.D.a.2.c). During the review, Iceland explained that the collection of information on the use of sewage sludge is listed as a planned improvement in chapter 8 of the NIR on recalculations and improvements. The Party stated that the use of sewage sludge as a fertilizer on agricultural land is prohibited in Iceland, but that sewage sludge may be used in remote areas of the country with a specific permit. Moreover, the Environment Agency of Iceland is currently working with the Agricultural University of Iceland and with local authorities to gather information on sewage sludge that might be being applied to soils. The Party indicated that information on the use of sewage sludge use and of other organic fertilizers would be made</p>	Yes. Completeness*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		<p>available in the next GHG inventory submission. The ERT noted that the likely level of these emissions does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland improve the completeness of its inventory by collecting information on sewage sludge and other organic fertilizers applied to soils and estimating the related emissions, or, if the Party considers these emissions to be insignificant, provide in the NIR sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>	
A.11	3.D.a.5 Mineralization/ immobilization associated with loss/gain of soil organic matter – N <sub>2</sub> O	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report on N<sub>2</sub>O emissions from mineralization/immobilization associated with loss/gain of soil organic matter (3.D.a.5) in CRF table 3. During the review, Iceland stated that the emissions are not estimated because of a lack of data and that it is in the process of gathering data for estimating emissions for future GHG inventory submissions. The Party further clarified during the review that no loss of soil organic matter is considered in mineral soils, and that estimating emissions from soil organic matter in mineral soils is listed as a planned improvement in chapter 8 of the NIR, and further information will be provided in the next GHG inventory submission. The ERT notes that both the estimation method and the data needed to calculate N<sub>2</sub>O emissions from managed soils are already available. The 2006 IPCC Guidelines include methods for calculating such N<sub>2</sub>O emissions (e.g. equations 11.1, 11.8 and 2.25 of volume 4 of the 2006 IPCC Guidelines used together with associated default data) and information and data on the average annual loss of soil carbon for each land-use type are already available in Iceland’s GHG inventory; in particular, data on carbon-stock changes in mineral soils in the CRF tables for each land-use type</p> <p>The ERT recommends that Iceland improve the completeness of its inventory by estimating N<sub>2</sub>O emissions from mineral soils in the next GHG inventory submission, or, if the Party considers these emissions as insignificant, provide in the NIR sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>	Yes. Completeness*
LULUCF			
L.9	4.A.1 Forest land remaining forest land – CO <sub>2</sub>	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report carbon-stock changes in mineral soils under forest land remaining forest land. During the review, the Party informed the ERT that reporting the missing estimates will be included in the list of planned improvements of the GHG inventory</p> <p>The ERT recommends that Iceland estimate and report carbon-stock changes in mineral soils under forest land remaining forest land</p>	Yes. Completeness*

<i>ID#</i>	<i>Finding classification</i>	<i>Description of the finding with recommendation or encouragement</i>	<i>Is finding an issue<sup>a</sup> and/or a problem?<sup>b</sup> If yes, classify by type</i>
L.10	4.B.1 Cropland remaining cropland – CO <sub>2</sub>	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report carbon-stock changes in mineral soils under cropland remaining cropland. During the review, the Party informed the ERT that reporting the missing estimates will be included in the list of planned improvements of the GHG inventory</p> <p>The ERT recommends that Iceland estimate and report carbon-stock changes in mineral soils under cropland remaining cropland</p>	Yes. Completeness*
L.11	4.B.2 Land converted to cropland	<p>Iceland reported lands converted to cropland under two categories/pools: mineral soils under grassland converted to cropland, and organic soils under wetlands converted to cropland. In the NIR, Iceland reported that some land converted to cropland may have originally been forest land (natural birch forest) or other land, but there are currently no data available to disaggregate the lands converted to cropland into more categories. During the review, Iceland explained that forest land and other land that was converted to cropland are historical changes that took place before 1990</p> <p>The ERT recommends that Iceland improve the accuracy of the GHG inventory by estimating the area of forest land and other land that was converted to cropland before 1990 and reporting these values under the appropriate categories</p>	Yes. Accuracy*
L.12	4.C.1 Grassland remaining grassland – CO <sub>2</sub>	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report carbon-stock changes in mineral soils under grassland remaining grassland for “Natural birch shrubland – old” and “Revegetated land older than 60 years”. During the review, the Party informed the ERT that reporting the missing estimates will be included in the list of planned improvements of the GHG inventory</p> <p>The ERT recommends that Iceland estimate and report carbon-stock changes in mineral soils under grassland remaining grassland for “Natural birch shrubland – old” and “Revegetated land older than 60 years”</p>	Yes. Completeness*
L.13	4.D.2.3 Land converted to wetlands – CO <sub>2</sub>	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report carbon-stock changes in mineral soils under land converted to other wetlands. During the review, the Party informed the ERT that reporting the missing estimates will be included in the list of planned improvements of the GHG inventory</p> <p>The ERT recommends that Iceland estimate and report carbon-stock changes in mineral soils under land converted to other wetlands</p>	Yes. Completeness*
L.14	4.E.2 Land converted to	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) to report carbon-stock changes in mineral soils under land converted to settlements. During the review, the Party informed the ERT that reporting the missing estimates will be included in the list of planned</p>	Yes. Completeness*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
	settlements – CO <sub>2</sub>	<p>improvements of the GHG inventory</p> <p>The ERT recommends that Iceland estimate and report carbon-stock changes in mineral soils under land converted to settlements</p>	
L.15	4 (III) Direct N <sub>2</sub> O emissions from N mineralization/immobilization – N <sub>2</sub> O	<p>In CRF table 4(III), Iceland used the notation key “NE” (not estimated) to report on direct N<sub>2</sub>O emissions from nitrogen mineralization/immobilization associated with lands converted to settlements, even though there is a loss of soil carbon from forest land converted to settlements reported in CRF table 4.E, which, according to the 2006 IPCC Guidelines, leads to nitrogen being mineralized and is regarded as an additional source of nitrogen available for conversion to N<sub>2</sub>O. During the review, Iceland provided a preliminary N<sub>2</sub>O emission estimate for 2014, which was <math>3.95 \times 10^{-5}</math> kt N<sub>2</sub>O (0.0395 t N<sub>2</sub>O), assuming a carbon/nitrogen ratio of 15 in these soils and a conversion factor of 1.25% of mineralized nitrogen to N<sub>2</sub>O-N. The ERT noted that the this level of emissions does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland estimate direct N<sub>2</sub>O emissions from nitrogen mineralization associated with the loss of soil carbon resulting from lands converted to settlements for the entire time series of the GHG inventory or, if the Party considers these emissions as insignificant, provide in the NIR sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>	Yes. Completeness*
Waste			
W.7	5.A Solid waste disposal on land – CH <sub>4</sub>	<p>Iceland reported in the NIR (table 7.6, p.191) the degradable organic carbon (fraction), the methane generation rate and the half-life time for 10 waste categories. However, an explanation of how the parameters (methane generation rate and half-life time) for construction and demolition waste were chosen is not included. During the review, Iceland explained that these parameters were based on expert judgement and were assumed to be the same as for wood waste. Iceland indicated that it would review these parameters for future GHG inventory submissions and provide the relevant information in the NIR</p> <p>The ERT recommends that Iceland ensure the transparency of its reporting by presenting in the NIR information on how the methane generation rate and half-life time for construction and demolition waste were chosen</p>	Yes. Transparency*
W.8	5.A Solid waste disposal on land – CH <sub>4</sub>	<p>Iceland stated in the NIR (p.190) that methane recovery from solid waste disposal on land is discussed in chapter 7.1.9 of the NIR; however, the ERT noted that there is no chapter 7.1.9 in the NIR. During the review, the Party explained that the reference in the NIR was incorrect and that methane recovery is discussed in chapter 7.2.4.1 of the NIR</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		The ERT recommends that Iceland correct the reference to the chapter of the NIR in which methane recovery from solid waste disposal on land is discussed	
W.9	5.A Solid waste disposal on land – CO <sub>2</sub> , CH <sub>4</sub>	<p>The ERT noted that Iceland used the notation key “NE” (not estimated) for reporting on CO<sub>2</sub> emissions from anaerobic managed waste disposal sites (5.A.1.a), unmanaged waste disposal sites (5.A.2) and uncategorized waste disposal sites (5.A.3) for the period 1990–2014. The ERT also noted that no information is reported in CRF table 9 on the use of the notation key “NE” for the subcategories listed above. The ERT further notes that CO<sub>2</sub> emissions due to the combustion of disposed waste at the disposal site as a management practice should be reported under the subcategories listed above, and that CO<sub>2</sub> emissions should be calculated from non-biological or inorganic waste sources only. During the review, Iceland confirmed that the notation key “NE” applies to the non-biogenic CO<sub>2</sub> emissions from the category solid waste disposal on land (5.A), and that Iceland will estimate these emissions in future GHG inventory submissions. The ERT noted that the likely level of these emissions does not reach the thresholds indicated in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p> <p>The ERT recommends that Iceland report CO<sub>2</sub> emissions from the subcategories anaerobic managed waste disposal sites (5.A.1.a), unmanaged waste disposal sites (5.A.2) and uncategorized waste disposal sites (5.A.3) or, if the Party considers these emissions as insignificant, provide in the NIR sufficient information showing that the likely level of emissions meets the criteria in paragraph 37(b) of the UNFCCC Annex I inventory reporting guidelines</p>	Yes. Transparency*
W.10	5.A.1.a Anaerobic – CH <sub>4</sub>	<p>The NIR indicated that CH<sub>4</sub> was flared (incinerated) at the Álfnes solid waste disposal site in all years of the reporting period except 2011 and 2012 (figure 7.5, p.193). The ERT noted, however, that in CRF table 5.A, Iceland used the notation key “NO” (not occurring) to report on the amount of CH<sub>4</sub> flared for the period 1990–2012. During the review, the Party explained that the inconsistency between the NIR and CRF table 5.A was the result of missing links in a spreadsheet and that this error would be fixed in the next GHG inventory submission. Iceland also clarified that the emissions reported in the CRF tables under the subcategory managed waste disposal sites, anaerobic (5.A.1.a) are net emissions (i.e. emissions minus recovery)</p> <p>The ERT recommends that Iceland correct the inconsistency between the NIR and CRF table 5.A with regard to the amounts of CH<sub>4</sub> flared</p>	Yes. Adherence to UNFCCC Annex I inventory reporting guidelines*
W.11	5.B.1 Composting – N <sub>2</sub> O	<p>The ERT noted that the amount of waste composted is not presented transparently in the NIR for the whole time series. During the review, Iceland provided additional information in tabular format. The ERT considers that the information provided during the review on the amount of waste composted is correct and transparent</p> <p>The ERT recommends that Iceland improve the transparency of its reporting by including</p>	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
		information on the amount of waste composted for the whole time series in the NIR	
W.12	5.D Wastewater treatment and discharge – N <sub>2</sub> O	<p>The ERT noted that information on the population of the country and the total organic matter in wastewater, which are used to estimate emissions from wastewater treatment and discharge, is not provided in the NIR. The ERT also noted an inconsistency related to protein consumption between CRF table 5.D (26.98 kg/person/year) and the NIR (85 g/person/day, which equates to 31.03 kg/person/year) (p.205). During the review, Iceland provided the missing data for population and total organic matter, and confirmed that the protein consumption reported in the CRF table 5.D (26.98 kg/person/year) is used in the estimation of the emissions reported</p> <p>The ERT recommends that Iceland improve the transparency of its reporting by providing in the NIR the information used to estimate emissions from wastewater treatment and discharge, that is, population of the country, protein consumption and total organic matter in the wastewater, for the entire time series, and by ensuring this information is consistent between the NIR and the CRF tables</p>	Yes. Transparency*
W.13	5.D.2 Industrial wastewater – CH <sub>4</sub>	<p>The ERT noted that Iceland used the notation key “NO” (not occurring) to report CH<sub>4</sub> emissions from industrial wastewater in the NIR (p.204). However, in CRF table 5.D, the Party used the notation key “IE” (included elsewhere) to report CH<sub>4</sub> emissions from industrial wastewater, without indicating where in the inventory these emissions were included. During the review, Iceland clarified that CH<sub>4</sub> emissions from industrial wastewater are included under the subcategory domestic wastewater treatment (5.D.1), and that “IE” is the correct notation key</p> <p>The ERT recommends that Iceland correct the use of notation keys in the NIR to report CH<sub>4</sub> emissions from industrial wastewater and encourages Iceland to investigate the possibility to report CH<sub>4</sub> emissions from industrial wastewater and domestic wastewater separately</p>	Yes. Transparency
KP-LULUCF			
KL.3	General (KP-LULUCF)	<p>The ERT noted that the information required by decision 2/CMP.8 on how harvesting or forest disturbance that is followed by the re-establishment of a forest is distinguished from deforestation is not reported in the NIR. During the review, the Party explained that the forestry act does not allow for forest clearance without a permit from the Icelandic Forest Service</p> <p>The ERT recommends that Iceland improve the transparency of its reporting by providing information on how harvesting or forest disturbance that is followed by the re-establishment of a forest is distinguished from deforestation</p>	Yes. Transparency*
KL.4	General (KP-LULUCF) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	<p>In its report to facilitate the calculation of the assigned amount for the second period of the Kyoto Protocol (FCCC/IRR/2016/ISL), Iceland stated that it intends to apply the provision to exclude emissions from natural disturbances for the accounting of afforestation and reforestation under Article 3, paragraph 3, and of forest management under Article 3, paragraph 4, of the Kyoto</p>	Yes. Transparency*

ID#	Finding classification	Description of the finding with recommendation or encouragement	Is finding an issue <sup>a</sup> and/or a problem? <sup>b</sup> If yes, classify by type
KL.5	General (KP-LULUCF) – CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O	<p>Protocol, in accordance with decision 2/CMP.7. However, the Party did not provide in the NIR country-specific information on the associated forest management and afforestation and reforestation and background levels of emissions associated with annual disturbances, and information on a margin and how to avoid the expectation of net credits or net debits during the commitment period, including through the use of a margin. During the review, Iceland provided the background level for forest management (0.00004586875 kt CO<sub>2</sub> eq) and the margin (0.000275213 kt CO<sub>2</sub> eq) and stated that the background level and margin for afforestation and reforestation is zero as no natural disturbance incidences are reported for afforestation and reforestation. The ERT accepts the validity of the information provided during the review</p> <p>The ERT recommends that Iceland include in the NIR country-specific information on the associated forest management and afforestation and reforestation and background levels of emissions associated with annual disturbances, and information on margin and how to avoid the expectation of net credits or net debits during the commitment period, including through the use of a margin</p> <p>The ERT noted that Iceland did not report information that demonstrates that emissions by sources and removals by sinks resulting from forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, are not accounted for under activities under Article 3, paragraph 3, as required by decision 2/CMP.8, annex II, paragraph 5(c). During the review, Iceland explained that all revegetation involving tree planting are a priori not recorded as revegetation areas and, therefore, there is no risk of the overlapping of these activities</p> <p>The ERT, acknowledging the information provided by the Party during the review, recommends that Iceland report information clearly demonstrating that emissions by sources and removals by sinks resulting from forest management under Article 3, paragraph 4, and any elected activities under Article 3, paragraph 4, are not accounted for under activities under Article 3, paragraph 3</p>	Yes. Transparency*
KL.6	Forest management – CO <sub>2</sub>	<p>The ERT noted that Iceland has an FMRL based on a projection that includes emissions from harvested wood products and which was estimated on the basis of instantaneous oxidation. According to decision 2/CMP.7, annex, paragraph 16, the treatment of harvested wood products in the construction of a projected FMRL shall be on the basis of provisions outlined in paragraph 29 of the annex to the same decision and shall not be on the basis of instantaneous oxidation. During the review, Iceland explained that a technical correction to the FMRL, including a new emission estimate from harvested wood products, in accordance with decision 2/CMP.7, annex, paragraph 16, is needed</p> <p>The ERT recommends that Iceland provide the technical correction to the FMRL in the next GHG inventory submission</p>	Yes. Consistency*

*Abbreviations:* AD = activity data, CRF = common reporting format, EF = emission factor, ERT = expert review team, FMRL = forest management reference level, GHG = greenhouse gas, IPCC = Intergovernmental Panel on Climate Change, IPCC Good Practice Guidance = *Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories*, IPPU = industrial processes and product use, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, N = nitrogen, NIR = national inventory report, NMVOC = non-methane volatile organic compounds, QA/QC = quality assurance/quality control, SIAR = standard independent assessment report, UNFCCC Annex I inventory reporting guidelines = “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”, 2006 IPCC Guidelines = *2006 IPCC Guidelines for National Greenhouse Gas Inventories*.

<sup>a</sup> Recommendations are related to issues as defined in decision 13/CP.20, annex, paragraph 81, or problems as identified in decision 22/CMP.1, annex, paragraph 69, identified by the ERT during the review. Encouragements are made to the Party to address all findings not related to such issues.

<sup>b</sup> An asterisk is included next to each issue type that is also a problem, as defined in decision 22/CMP.1, annex, paragraphs 68 and 69, including those that lead to an adjustment or a question of implementation.



## **VI. Application of adjustments**

11. The ERT has not identified the need to apply any adjustments to the 2016 annual submission of Iceland.

## **VII. Accounting quantities for activities under Article 3, paragraph 3, and, if any, activities under Article 3, paragraph 4, of the Kyoto Protocol**

12. Iceland has elected commitment period accounting and therefore the issuance and cancellation of units for activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol are not applicable for the 2016 review.

## **VIII. Questions of implementation**

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

## Annex I

### Overview of greenhouse gas emissions and removals for Iceland for submission year 2016 and data and information on activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol

1. Tables 6–9 provide an overview of total greenhouse gas emissions and removals as submitted by the Party.

Table 6  
Total greenhouse gas emissions for Iceland, base year<sup>a</sup>–2014<sup>b</sup>  
(kt CO<sub>2</sub> eq)

	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>	KP-LULUCF activities (Article 3.3 of the Kyoto Protocol) <sup>e</sup>	KP-LULUCF activities (Article 3.4 of the Kyoto Protocol)	
	Total including LULUCF	Total excluding LULUCF	Total including LULUCF	Total excluding LULUCF			CM, GM, RV, WDR <sup>e</sup>	FM
FMRL								154.00
Base year	15 129.21	3 633.56	15 129.21	3 633.56	NA		–347.70	
1990	15 129.21	3 633.56	15 129.21	3 633.56				
1995	14 848.65	3 389.00	14 848.65	3 389.00				
2000	15 512.06	3 962.77	15 512.06	3 962.77				
2010	16 587.04	4 730.35	16 587.04	4 730.35				
2011	16 367.87	4 520.22	16 367.87	4 520.22				
2012	16 417.21	4 550.40	16 417.21	4 550.40				
2013	16 406.58	4 534.66	16 406.58	4 534.66		–183.09	–548.93	–82.03
2014	16 465.74	4 596.85	16 465.74	4 596.85		–209.30	–560.33	–82.44

*Abbreviations:* CM = cropland management, FM = forest management, FMRL = forest management reference level, GHG = greenhouse gas, GM = grazing land management, KP-LULUCF = LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol, LULUCF = land use, land-use change and forestry, NA = not applicable, RV = revegetation, WDR = wetland drainage and rewetting.

<sup>a</sup> Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases except NF<sub>3</sub>, for which the base year is 1995. The base year for cropland management, grazing land management and revegetation under Article 3, paragraph 4, of the Kyoto Protocol is 1990. For activities under Article 3, paragraph 3, of the Kyoto Protocol and forest management under Article 3, paragraph 4, of the Kyoto Protocol, only the inventory years of the commitment period must be reported.

<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 CO<sub>2</sub> emissions in common reporting format table 6.

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

<sup>e</sup> Activities under Article 3, paragraph 3, of the Kyoto Protocol, namely afforestation and reforestation, and deforestation.

Table 7

**Greenhouse gas emissions by gas for Iceland, excluding land use, land-use change and forestry, 1990–2014<sup>a</sup>**

(kt CO<sub>2</sub> eq)

	CO <sub>2</sub> <sup>b</sup>	CH <sub>4</sub>	N <sub>2</sub> O	HFCs	PFCs	Unspecified mix of HFCs and PFCs	SF <sub>6</sub>	NF <sub>3</sub>
1990	2 106.03	521.75	510.04	NO	494.64	NO	1.10	NO
1995	2 299.61	540.03	468.53	10.23	69.36	NO	1.24	NO
2000	2 728.94	558.84	480.54	43.24	149.89	NO	1.31	NO
2010	3 383.55	583.73	438.00	148.74	171.67	NO	4.66	NO
2011	3 298.57	565.84	432.11	146.14	74.52	NO	3.05	NO
2012	3 290.58	545.99	441.15	173.36	94.00	NO	5.32	NO
2013	3 301.80	546.33	425.58	169.60	88.16	NO	3.20	NO
2014	3 272.21	592.49	467.98	162.92	99.03	NO	2.22	NO
<b>Per cent change 1990–2014</b>	<b>55.4</b>	<b>13.6</b>	<b>–8.2</b>	<b>NA</b>	<b>–80.0</b>	<b>NA</b>	<b>102.1</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> Iceland did not report indirect CO<sub>2</sub> emissions in common reporting format table 6.

Table 8  
**Greenhouse gas emissions by sector for Iceland, 1990–2014<sup>a, b</sup>**  
 (kt CO<sub>2</sub> eq)

	<i>Energy</i>	<i>IPPU</i>	<i>Agriculture</i>	<i>LULUCF</i>	<i>Waste</i>	<i>Other</i>
1990	1 738.08	948.31	779.58	11 495.65	167.59	NA
1995	1 911.03	561.20	707.60	11 459.65	209.17	NA
2000	2 002.74	1 010.78	719.12	11 549.29	230.13	NA
2010	1 826.14	1 945.48	713.04	11 856.69	245.69	NA
2011	1 740.06	1 838.29	710.83	11 847.65	231.03	NA
2012	1 688.58	1 930.24	718.48	11 866.81	213.11	NA
2013	1 674.45	1 943.81	687.80	11 871.92	228.60	NA
2014	1 679.84	1 914.16	747.67	11 868.89	255.18	NA
<b>Per cent change 1990–2014</b>	<b>–3.4</b>	<b>101.9</b>	<b>–4.1</b>	<b>3.2</b>	<b>52.3</b>	<b>NA</b>

*Abbreviations:* IPPU = industrial processes and product use, LULUCF = land use, land-use change and forestry, NA = not applicable.

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

<sup>b</sup> Iceland did not report indirect CO<sub>2</sub> emissions in common reporting format table 6.

Table 9

**Greenhouse gas emissions/removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol by activity, base year<sup>a, b</sup>–2014, for Iceland**
(kt CO<sub>2</sub> eq)

	<i>Article 3.3 of the Kyoto Protocol</i>			<i>Forest management and elected Article 3.4 activities of the Kyoto Protocol</i>				
	<i>Land-use change</i>	<i>Afforestation and reforestation</i>	<i>Deforestation</i>	<i>Forest management</i>	<i>Cropland management</i>	<i>Grazing land management</i>	<i>Revegetation</i>	<i>Wetland drainage and rewetting</i>
FMRL				154.00				
Technical correction								
Base year	NA				NA	NA	–347.70	NA
2013		–183.33	0.24	–82.03	NA	NA	–548.93	NA
2014		–209.41	0.11	–82.44	NA	NA	–560.33	NA
<b>Per cent change 1990–2014</b>					<b>NA</b>	<b>NA</b>	<b>61.1</b>	<b>NA</b>

*Abbreviations:* FMRL = forest management reference level, NA = not applicable.

<sup>a</sup> Base year refers to the base year under the Kyoto Protocol, which is 1990 for all gases except NF<sub>3</sub>, for which the base year is 1995. The base year for revegetation under Article 3, paragraph 4, of the Kyoto Protocol is 1990 for Iceland. For activities under Article 3, paragraph 3, of the Kyoto Protocol, and forest management under Article 3, paragraph 4, of the Kyoto Protocol, only the inventory years of the commitment period must be reported.

<sup>b</sup> Values in this table include emissions on lands subject to natural disturbances, if applicable.

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

2. Table 10 provides an overview of relevant key data for Iceland's reporting under Article 3, paragraphs 3 and 4, of the Kyoto Protocol.

Table 10

**Key relevant data for Iceland under Article 3, paragraphs 3 and 4, of the Kyoto Protocol**

<i>Key parameters</i>	<i>Values</i>
Periodicity of accounting	(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: commitment period accounting (g) Wetland drainage and rewetting: not elected
Election of activities under Article 3, paragraph 4	Revegetation
Election of application of provisions for natural disturbances	Yes, for afforestation and reforestation and forest management
3.5% of total base-year GHG emissions, excluding LULUCF and including indirect CO <sub>2</sub> emissions	127.175 kt CO <sub>2</sub> eq (1 017.396 kt CO <sub>2</sub> eq for the duration of the commitment period)
Cancellation of AAUs, ERUs, CERs and/or issuance of RMUs in the national registry for:	
1. Afforestation and reforestation in 2014	NA
2. Deforestation in 2014	NA
3. Forest management in 2014	NA
4. Cropland management in 2014	NA
5. Grazing land management in 2014	NA
6. Revegetation in 2014	NA
7. Wetland drainage and rewetting in 2014	NA

*Abbreviations:* AAU = assigned amount unit, CER = certified emission reduction unit, ERU = emission reduction unit, GHG = greenhouse gas, LULUCF = land use, land-use change and forestry, NA = not applicable, RMU = removal unit.

## Annex II

### Information to be included in the compilation and accounting database

Tables 11 and 12 include the information to be included in the compilation and accounting database for Iceland. Data shown are from the original annual submission of the Party, including the latest revised estimates submitted, adjustments (if applicable), as well as the final data to be included in the compilation and accounting database.

Table 11

#### Information to be included in the compilation and accounting database for 2014, including the commitment period reserve, for Iceland

(t CO<sub>2</sub> eq)

	<i>Original submission</i>	<i>Revised estimates</i>	<i>Adjustment<sup>a</sup></i>	<i>Final<sup>b</sup></i>
<b>Commitment period reserve</b>	13 794 496			13 794 496
<b>Annex A emissions for 2014</b>				
CO <sub>2</sub>	3 272 208			3 272 208
CH <sub>4</sub>	592 490			592 490
N <sub>2</sub> O	467 976			467 976
HFCs	162 924			162 924
PFCs	99 033			99 033
Unspecified mix of HFCs and PFCs		<sup>c</sup>		<sup>c</sup>
SF <sub>6</sub>	2 216			2 216
NF <sub>3</sub>	NO			NO
<b>Total Annex A sources</b>	<b>4 596 847</b>			<b>4 596 847</b>
<b>Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2014</b>				
3.3 Afforestation and reforestation	-209 411			-209 411
3.3 Deforestation	111			111
<b>Forest management and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2014</b>				
3.4 Forest management for 2014	-82 437			-82 437
3.4 Revegetation for 2014	-560 326			-560 326
3.4 Revegetation in the base year	-347 705			-347 705

*Abbreviations:* Annex A sources = sources included in Annex A to the Kyoto Protocol, NO = not occurring.

<sup>a</sup> "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

<sup>b</sup> "Final" includes revised estimates, if any, and/or adjustments, if any.

<sup>c</sup> These cells were blank in the 2015 and 2016 submission.

Table 12  
**Information to be included in the compilation and accounting database for 2013, for Iceland**  
(t CO<sub>2</sub> eq)

	<i>Original submission</i>	<i>Revised estimates</i>	<i>Adjustment<sup>a</sup></i>	<i>Final<sup>b</sup></i>
<b>Annex A emissions for 2013</b>				
CO <sub>2</sub>	3 301 796			3 301 796
CH <sub>4</sub>	546 326			546 326
N <sub>2</sub> O	425 577			425 577
HFCs	169 597			169 597
PFCs	88 165			88 165
Unspecified mix of HFCs and PFCs	<sup>c</sup>			<sup>c</sup>
SF <sub>6</sub>	3 202			3 202
NF <sub>3</sub>	NO			NO
<b>Total Annex A sources</b>	<b>4 534 663</b>			<b>4 534 663</b>
<b>Activities under Article 3, paragraph 3, of the Kyoto Protocol for 2013</b>				
3.3 Afforestation and reforestation		-183 333		-183 333
3.3 Deforestation		238		238
<b>Forest management and elected activities under Article 3, paragraph 4, of the Kyoto Protocol for 2013</b>				
3.4 Forest management for 2013		-82 035		-82 035
3.4 Revegetation for 2013		-548 934		-548 934
3.4 Revegetation in the base year		-347 705		-347 705

*Abbreviations:* Annex A sources = sources included in Annex A to the Kyoto Protocol, NO = not occurring.

<sup>a</sup> "Adjustment" is relevant only for Parties for which the expert review team has calculated one or more adjustment(s).

<sup>b</sup> "Final" includes revised estimates, if any, and/or adjustments, if any.

<sup>c</sup> These cells were blank in the 2015 and 2016 submission.



## Annex III

### Additional information to support findings in table 2

#### Missing categories that may affect completeness

The categories for which methods are included in the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* were reported as “NE” (not estimated) or for which the expert review team otherwise determined that there may be an issue with the completeness of reporting in the Party’s inventory are the following:

- (a) CO<sub>2</sub> emissions from solvent use (see I.7 in table 5);
- (b) Indirect N<sub>2</sub>O emissions from manure management, including N<sub>2</sub>O emissions from nitrogen volatilized as ammonia and NO<sub>x</sub> and from nitrogen lost through leaching and run-off (see A.9 in table 5);
- (c) N<sub>2</sub>O emissions from sewage sludge applied to soils and from other organic fertilizers applied to soils (see A.10 in table 5);
- (d) N<sub>2</sub>O emissions from mineralization/immobilization associated with loss/gain of soil organic matter (see A.11 in table 5);
- (e) CO<sub>2</sub> emissions from degraded areas of grassland (see L.7 in table 3);
- (f) Carbon-stock changes (CSCs) in mineral soils under forest land remaining forest land (see L.9 in table 5);
- (g) CSCs in mineral soils under cropland remaining cropland (see L.10 in table 5);
- (h) CSCs in mineral soils under grassland remaining grassland for “Natural birch shrubland – old” and “Revegetated land older than 60 years” (see L.12 in table 5);
- (i) CSCs in mineral soils under land converted to other wetlands (see L.13 in table 5);
- (j) CSCs in mineral soils under land converted to settlements (see L.14 in table 5);
- (k) N<sub>2</sub>O emissions from nitrogen mineralization/immobilization associated with the loss of soil carbon resulting from lands converted to settlements (see L.15 in table 5).

## Annex IV

### Documents and information used during the review

#### A. Reference documents

Aggregate information on greenhouse gas emissions by sources and removals by sinks for Parties included in Annex I to the Convention. Note by the secretariat. Available at <<http://unfccc.int/resource/webdocs/agi/2015.pdf>>.

Annual status report for Iceland for 2016. Available at <<http://unfccc.int/resource/docs/2016/asr/isl.pdf>>.

FCCC/ARR/2014/ISL. Report on the individual review of the annual submission of Iceland submitted in 2014. Available at <<http://unfccc.int/resource/docs/2015/arr/isl.pdf>>.

FCCC/ARR/2013/ISL. Report of the individual review of the annual submission of Iceland submitted in 2013. Available at <<http://unfccc.int/resource/docs/2014/arr/isl.pdf>>.

“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”. Decision 19/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a03.pdf#page=14>>.

“Guidelines for review under Article 8 of the Kyoto Protocol”. 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 to decision 24/CP.19. Available at <<http://unfccc.int/resource/docs/2013/cop19/eng/10a03.pdf#page=4>>.

“Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol”. Decision 15/CMP.1. Available at <<http://unfccc.int/resource/docs/2005/cmp1/eng/08a02.pdf#page=54>>.

“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>>.

Standard independent assessment report, part 1, for Iceland for 2016. Available at <[http://unfccc.int/files/kyoto\\_mechanisms/application/pdf/siar\\_2016\\_isl\\_1\\_2.pdf](http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_2016_isl_1_2.pdf)>.

Standard independent assessment report, part 2, for Iceland for 2016. Available at <[http://unfccc.int/files/kyoto\\_mechanisms/application/pdf/siar\\_2016\\_isl\\_2\\_2.pdf](http://unfccc.int/files/kyoto_mechanisms/application/pdf/siar_2016_isl_2_2.pdf)>.

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

Responses to questions during the review were received from Ms. Helsing (Environment Agency of Iceland), including additional material on the methodology and assumptions used.

## Annex V

### Acronyms and abbreviations

AD	activity data
AAU	assigned amount unit
CER	certified emission reduction unit
CH <sub>4</sub>	methane
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> eq	carbon dioxide equivalent
CM	cropland management
CPR	commitment period reserve
CRF	common reporting format
CSC	carbon-stock changes
EF	emission factor
ERT	expert review team
ERU	emission reduction unit
FM	forest management
FMRL	forest management reference level
GHG	greenhouse gas
GM	grazing land management
HFC	hydrofluorocarbon
IE	included elsewhere
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
KP-LULUCF	LULUCF emissions and removals from activities under Article 3, paragraphs 3 and 4, of the Kyoto Protocol
LULUCF	land use, land-use change and forestry
N	nitrogen
NA	not applicable
NE	not estimated
NEU	non-energy use
NF <sub>3</sub>	nitrogen trifluoride
NIR	national inventory report
NMVOG	Non-methane volatile organic compounds
NO	not occurring
N <sub>2</sub> O	nitrous oxide
PFC	perfluorocarbon
QA/QC	quality assurance/quality control
RMU	removal unit
RV	revegetation
SEF	standard electronic format
SF <sub>6</sub>	sulphur hexafluoride
SIAR	standard independent assessment report
UNFCCC	United Nations Framework Convention on Climate Change
WDR	wetland drainage and rewetting

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