United Nations

Framework Convention on Climate Change

FCCC/TRR.4/RUS

Distr.: General
2 September 2020

English only

Report on the technical review of the fourth biennial report of the Russian Federation

Developed country Parties were requested by decision 2/CP.17 to submit their fourth biennial report to the secretariat by 1 January 2020. This report presents the results of the technical review of the fourth biennial report of the Russian Federation, conducted by an expert review team in accordance with 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". The review took place from 22 to 26 June 2020 remotely.

GE.20-11361(E)

2011361

Contents

Abbreviations and acronyms

Annex I Party	Party included in Annex I to the Convention
Annex II Party	Party included in Annex II to the Convention
AR	Assessment Report of the Intergovernmental Panel on Climate Change
BR	biennial report
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
ERT	expert review team
GDP	gross domestic product
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IE	included elsewhere
IPPU	industrial processes and product use
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NDC	nationally determined contribution
NE	not estimated
NF_3	nitrogen trifluoride
NO	not occurring
N_2O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
Roshydromet	Federal Service for Hydrometeorology and Environmental Monitoring
SF_6	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the BR4[1] of the Russian Federation. The review was organized by the secretariat in accordance with 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", particularly "Part IV: UNFCCC guidelines for the technical review of biennial reports from Parties included in Annex I to the Convention" (annex to decision 13/CP.20).

2. In accordance with the same decision, a draft version of this report was transmitted to the Government of the Russian Federation, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted together with the review of one other Annex I Party from 22 to 26 June 2020 remotely[2] by the following team of nominated experts from the UNFCCC roster of experts: Kokou Jérémie Fontodji (Togo), Olga Gavrilova (Estonia), Helen Guyes (Australia), Diana Harutyunyan (Armenia), Vaiva Kazanavičiūtė (Lithuania), Ekaterine Mikadze (Georgia) and Jose Manuel Ramirez Garcia (Spain). Ms. Harutyunyan and Mr. Ramirez Garcia were the lead reviewers. The review was coordinated by Veronica Colerio and Sevdalina Todorova (secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR4 of the Russian Federation in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR4 was submitted on 31 December 2019, before the deadline of 1 January 2020 mandated by decision 2/CP.17, and a revised version was submitted on 30 April 2020. The CTF tables were also submitted on 31 December 2019, and revised CTF tables were submitted on 13 May 2020. The CTF tables were resubmitted again on 13 July 2020 to address issues raised during the review. The resubmission included changes to CTF tables 2(b), 2(d), 4, 6(a), 6(b) and 6(c). Unless otherwise specified, the information and values from the latest submission are used in this report.

2. Completeness, transparency of reporting and adherence to the reporting guidelines

6. Issues and gaps identified by the ERT related to the reported information are presented in table 1. The information reported by the Russian Federation in its BR4 mostly adheres to the UNFCCC reporting guidelines on BRs. The ERT noted the improvements in completeness of the reported information in the Party's BR4 compared with that reported in its BR3, particularly in the projections section.

7. The Russian Federation did not submit an English translation of its BR4. The ERT encourages the Party to submit an English translation of its BR5 in accordance with paragraph 26 of the UNFCCC reporting guidelines on BRs.

[1] The BR submission comprises the text of the report and the CTF tables, which are both subject to the technical review.

[2] Owing to the circumstances related to the coronavirus disease 2019, the technical review of the BR submitted by the Russian Federation had to be conducted remotely.

Table 1
Summary of completeness and transparency of mandatory information reported by the Russian Federation in its fourth biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendation(s)*
GHG emissions and removals	Complete	Mostly transparent	Issue 1 in table 3
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	–
Progress in achievement of targets	Mostly complete	Partially transparent	Issues 1, 2 and 4 in table 5 Issues 1, 3, 4, 6 and 14 in table 10
Provision of support to developing country Parties[a]	NA	NA	NA

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chap. III below. The assessment of completeness and transparency by the ERT in this table is based only on the "shall" reporting requirements.

[a] The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paras. 3–5, of the Convention.

II. Technical review of the information reported in the fourth biennial report

A. Information on greenhouse gas emissions and removals related to the quantified economy-wide emission reduction target

1. Technical assessment of the reported information

8. Total GHG emissions[3] excluding emissions and removals from LULUCF decreased by 30.3 per cent between 1990 and 2018, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 47.6 per cent over the same period. The emissions decreased considerably between 1990 and 1998 owing to the dissolution of the Soviet Union and the restructuring of the economy. After 1998 the emissions showed a growing trend, except in 2009 (owing to the worldwide economic recession). The changes in total emissions were driven mainly by economic growth; increased fuel consumption and production; shifts in the structure of the energy balance; and implemented PaMs relating to climate change, such as the increasing energy efficiency of the economy, modernization of thermal power plants and primary networks, and promotion of renewable energy. The slight inter-annual variations in total emissions between 2010 and 2018 are linked with fluctuations in GDP and in energy production and consumption. In 2018 the total emissions increased by 3.0 per cent compared with the 2017 level.

9. Table 2 illustrates the emission trends by sector and by gas for the Russian Federation. Note that information in this paragraph and table 2 is based on the Russian Federation's 2020 annual submission, version 3, of 26 May 2020, which has not yet been subject to review. All emission data in subsequent chapters are based on the Russian Federation's BR4 CTF tables unless otherwise noted. The emissions reported in the 2020 annual submission differ from the data reported in CTF table 1, which come from the 2019 annual submission (the latest at the time of submission of the BR4). The ERT noted that the changes in the base-year emissions reported in the 2019 and 2020 submissions are minor and do not affect the trends reported in CTF table 1. However, the ERT also noted that the emissions reported for the base year and the following years differ significantly (by 14–20 per cent) from the values in the previous review report, which were based on the 2018 annual submission. During the

[3] In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO_2 eq excluding LULUCF, unless otherwise specified.

review, the Party explained that the differences were mainly due to the newly developed national CH_4 emission factors used for estimating fugitive emissions in the energy sector.

Table 2
Greenhouse gas emissions by sector and by gas for the Russian Federation for 1990–2018

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2017*	*2018*	*1990–2018*	*2017–2018*	*1990*	*2018*
Sector									
1. Energy	2 568 516.07	1 514 669.97	1 668 368.37	1 700 735.43	1 752 621.26	–31.8	3.1	80.6	78.9
A1. Energy industries	1 171 194.98	842 615.26	878 937.43	806 696.99	825 088.89	–29.6	2.3	36.7	37.2
A2. Manufacturing industries and construction	211 289.43	99 325.57	129 731.32	178 506.82	166 829.51	–21.0	–6.5	6.6	7.5
A3. Transport	320 237.89	174 136.93	229 571.43	247 833.60	254 077.22	–20.7	2.5	10.0	11.4
A4. and A5. Other	588 901.74	191 880.72	175 968.56	203 540.20	227 432.20	–61.4	11.7	18.5	10.2
B. Fugitive emissions from fuels	276 892.03	206 711.49	254 159.63	264 157.81	279 193.45	0.8	5.7	8.7	12.6
C. CO_2 transport and storage	NA, NO	NA, NO	NA, NO	NO	0.00	–	–	–	0.0
2. IPPU	283 256.99	196 192.00	196 429.30	232 397.35	243 136.92	–14.2	4.6	8.9	11.0
3. Agriculture	276 422.57	128 196.11	114 980.16	126 579.13	126 659.42	–54.2	0.1	8.7	5.7
4. LULUCF	–77 962.79	–480 918.63	–723 148.90	–591 175.28	–590 573.10	657.5	–0.1	NA	NA
5. Waste	59 311.45	62 009.19	78 100.18	95 558.70	97 705.35	64.7	2.2	1.9	4.4
6. Other[a]	NO	NO	NO	NO	NO	–	–	–	–
Gas[b]									
CO_2	2 525 293.78	1 471 052.23	1 612 884.81	1 646 179.81	1 691 360.43	–33.0	2.7	79.2	76.2
CH_4	463 735.66	317 014.95	351 949.66	383 899.75	396 033.64	–14.6	3.2	14.5	17.8
N_2O	146 044.14	75 643.73	75 000.19	86 252.43	85 932.16	–41.2	–0.4	4.6	3.9
HFCs	35 937.16	26 568.96	13 425.48	34 390.10	42 761.47	19.0	24.3	1.1	1.9
PFCs	15 105.81	9 867.31	3 630.76	3 177.48	2 725.25	–82.0	–14.2	0.5	0.1
SF_6	1 390.53	920.09	987.11	1 370.87	1 309.82	–5.8	–4.5	0.0	0.1
NF_3	NO	NO	NO	0.17	0.20	NA	18.2	NA	0.0
Total GHG emissions excluding LULUCF	**3 187 507.08**	**1 901 067.27**	**2 057 878.02**	**2 155 270.61**	**2 220 122.95**	**–30.3**	**3.0**	**100.0**	**100.0**
Total GHG emissions including LULUCF	**3 109 544.28**	**1 420 148.64**	**1 334 729.12**	**1 564 095.33**	**1 629 549.85**	**–47.6**	**4.2**	**NA**	**NA**

Source: GHG emission data: the Russian Federation's 2020 annual submission, version 2.
[a] Emissions and removals reported under the sector other (sector 6) are not included in the total GHG emissions.
[b] Emissions by gas without LULUCF. The Party did not report indirect CO_2 emissions.

10. In brief, the Russian Federation's national inventory arrangements were established in accordance with order 278-r of 2006 and its amendment (order 930-r of 15 May 2017). Roshydromet is the designated national entity responsible for the functioning of the national system for GHG inventories. In agreement with relevant federal executive entities Roshydromet has developed procedures for compiling the inventory and managing the system, including compiling statistical data and other data necessary for preparing submissions under the Convention and its Kyoto Protocol. The following entities provide activity data annually, by 31 December, as well as information on methods of data collection

and processing: Ministry of Natural Resources and Environment, Ministry of Industry and Trade, Ministry of Energy, Ministry of Transport, Federal Service for State Statistics, Federal Service for State Registration, Cadastre and Cartography, Federal Agency for Forestry, Federal Service for Supervision of Natural Resources, Federal Customs Service of Russia and Federal Agency for Water Resources. Those entities are also responsible for reviewing and agreeing on the inventory within 30 days of receiving it from Roshydromet, while the Ministry of Natural Resources and Environment is required to review the inventory that has been agreed on by the federal entities within 20 days of receiving it from Roshydromet. There have been no changes in these arrangements since the BR3.

2. Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the BR4 of the Russian Federation and identified an issue relating to transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 3.

Table 3
Findings on greenhouse gas emissions and removals from the review of the fourth biennial report of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 3 Issue type: transparency Assessment: recommendation	The Party states on page 10 of its BR4 that the Government adopted an amendment to the order on the GHG inventory system (order 930-r) and that a detailed description of the arrangements is provided in the BR3 and the BR4. However, although the BR4 (section II.B) includes information on the institutional arrangements for the national GHG inventory, it does not refer to any changes in the GHG inventory arrangements since the previous BR. During the review the Russian Federation explained that there have been no changes to the key institutional arrangements since its BR3, but that certain issues were addressed to improve the effectiveness of the system and ensure the timely preparation of annual inventories: namely, the deadline for providing data and information to Roshydromet (the main responsible body of the system) has been harmonized with the timetable of the national statistical system; a timeline for approving the draft annual inventories by the relevant ministries and federal agencies has been established; and a 20-day period has been established for final approval of the inventory by the Ministry of Natural Resources and Environment before it is submitted by Roshydromet to the secretariat. The ERT recommends that the Party improve the transparency of its reporting by clearly identifying any changes to its national inventory arrangements since its last NC or BR or providing a clear statement that no changes have been made.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

B. Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

1. Technical assessment of the reported information

12. For the Russian Federation the Convention entered into force on 28 March 1995. Under the Convention the Russian Federation committed to reducing its GHG emissions by 25 per cent below the 1990 level (to a level not exceeding 75 per cent of the 1990 emission level) by 2020. The target includes all GHGs included in the "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", namely CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3. It also includes all Intergovernmental Panel on Climate Change sources and sectors included in the annual GHG inventory. Emissions and removals from the LULUCF sector are not included in the target under the Convention. The GWP values used are from the AR4. The Russian Federation reported that it does not plan to make

use of market-based mechanisms to achieve its target. In absolute terms this means that, under the Convention, the Russian Federation has to reduce its emissions from 3,187,507.08 kt CO_2 eq[4] to 2,390,630.31 kt CO_2 eq by 2020, which is 410,128.26 kt CO_2 eq below the target value estimated by the previous ERT (2,800,758.57 kt CO_2 eq by 2020) owing to the recalculated data for 1990 (see para. 9 above).

13. The ERT noted that in CTF table 2(a) the Russian Federation reported its target as 75 per cent of the 1990 (base-year) emissions. This information reflects the target established by presidential decree 752 of 30 September 2013, as reported in the BR4 (a reduction in GHG emissions to a level not exceeding 75 per cent of the 1990 level) and also contained in document FCCC/SB/2011/INF.1/Rev.1 and subsequent documents containing Annex I Parties' updated economy-wide emission reduction targets. However, the ERT considers that the reporting in CTF table 2(a) is inconsistent with the requirement to report the target as a percentage reduction from the 1990 level. The ERT noted that the transparency of the reporting would be improved if the value in CTF table 2(a) were changed to 25 per cent.

14. In addition to its 2020 target, the Russian Federation also reported on the process of setting its target for 2030 under the Paris Agreement. In 2016 the Government of the Russian Federation approved a plan for implementing a set of measures to prepare for the ratification of the Paris Agreement (decree 2344-r of 3 November 2016); a 2030 emission reduction target was proposed, and at the time of the review of the BR4 it was being reviewed by the Government, the President's administration and relevant ministries. After adoption of the target, the NDC under the Paris Agreement will be submitted to the secretariat.

2. Assessment of adherence to the reporting guidelines

15. The ERT assessed the information reported in the BR4 of the Russian Federation and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

C. Progress made towards achievement of the quantified economy-wide emission reduction target

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

16. The Russian Federation provided information on its package of PaMs implemented, adopted and planned in order to fulfil its commitments under the Convention. The Party reported on its policy context and legal and institutional arrangements in place for implementing, monitoring and evaluating the effectiveness of its PaMs.

17. The Russian Federation provided information on a set of PaMs similar to those previously reported, and on additional PaMs adopted since the BR3, such as the decree on measures to increase the energy efficiency of the economy (decree 703-r of 19 April 2018) and the doctrine on energy security (decree 216 of 13 May 2019). While the policy under the first decree aims to modernize key assets and reduce the energy intensity of the GDP (by at least 1.5 per cent per year), the policy under the second decree aims to optimize domestic fuel and energy resources. Both policies will contribute to overall GHG emission reductions. These PaMs were introduced mainly to support the implementation of the Paris Agreement.

18. The Russian Federation did not provide information on changes, if any, since its previous submission to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of progress towards its target.

19. Under the current arrangements, the adoption of legal and other policy documents that are relevant to climate change is under the authority of the President of the Russian

[4] The Russian Federation chose 1990 as the base year for its 2020 target. The emission level in the base year was calculated on the basis of the 2020 annual inventory submission.

Federation, and the federal and other governmental bodies. Legislative bodies adopt federal laws, make codifications, and approve and adopt decrees of the President, national programmes and regulations. According to the BR4, these legal documents often contain qualitative targets against which progress is to be monitored. Federal ministries and other federal bodies develop sectoral strategies and action plans and monitor their implementation, providing information to the Ministry of Economic Development. Regional entities and private companies also develop and monitor action plans, on a voluntary basis.

20. To support implementation of the Party's mitigation actions, the Ministry of Natural Resources and Environment has developed a package of methodology documents to be used for carrying out quantitative assessments of GHG emissions. These documents include guidelines for a voluntary inventory of GHG emissions, guidelines for the quantitative assessment of GHG emissions for organizations involved in economic or other activities, guidelines for the quantitative assessment of GHG capture and storage and guidelines for the quantitative assessment of fugitive GHG emissions from energy.

21. The Russian Federation reported on its self-assessment of compliance with its emission reduction targets. Self-assessment of compliance is carried out by the Government of the Russian Federation on the basis of the climate doctrine of the Russian Federation (presidential decree 861 of 19 December 2009) for the period until 2020 to ensure a reduction in GHG emissions to a level that is no greater than 75 per cent of the 1990 level. The other components included in the self-assessment are the Party's annual GHG inventories and NCs and BRs. In addition to the mandatory reporting that is conducted by the responsible federal body, the Party's self-assessment also involves voluntary reporting by private entities and non-governmental organizations. The companies implementing PaMs related to climate change provide annual reports and additional information if requested by the Government. Non-governmental bodies also report on their annual emissions on their respective web pages. The Party did not report on national rules for taking action against non-compliance.

22. The key overarching cross-sectoral policy reported by the Russian Federation is the climate doctrine of 2009. Implementation of the doctrine is through the adoption of a presidential decree on the reduction of GHG emissions (decree 752 of 30 September 2013) and the Action Plan on the Provision of GHG Emission Reductions by 2020 (decree 2344-r of 3 November 2016). These documents provide the framework for climate policy and for the Russian Federation to meet its emission reduction target for 2020. In addition, the reported cross-cutting GHG emission monitoring, reporting and verification system adopted by the Russian Federation aims to inform federal and local authorities on actual emission data from operating entities whose emissions exceed 50 kt CO_2 eq annually, and it will form the basis for developing policies on the management, regulation and mitigation of emissions of the main emitters.

23. The mitigation effect of the presidential decree on the reduction of GHG emissions and Action Plan on the Provision of GHG Emission Reductions by 2020, which affect all sectors and gases and encompass a set of legislative, regulatory and sectoral measures, is the most significant (797,000.00 kt CO_2 eq in 2020). This value is equivalent to the target of a 25 per cent reduction in emissions compared with the 1990 level. While the climate doctrine and the presidential decree set up the underlying climate policy framework with its purpose, principles and instruments for implementation, the BR4 also mentions more specific PaMs implemented at the sectoral level and indicates the possible mitigation impacts for two of them: the energy strategy of the Russian Federation (decree 1715-r of 13 November 2009), which has an estimated impact of 733,310.73 kt CO_2 eq in 2020, and the State Programme on Development of the Coal Mining Industry to 2030, with an estimated impact of 167,500.00 kt CO_2 eq in 2020.

24. In its BR4 (section V), the Russian Federation highlighted some framework documents that were under development during the preparation of the BR4, such as a draft strategy for long-term low-carbon development until 2050 (order 2344-r of December 2019) and the National Action Plan for Adaptation to Climate Change until 2022 (order 3183-r of 25 December 2019). Among the specific mitigation actions that provide a foundation for significant additional emission reductions are the PaMs on decreasing the energy intensity of the transport sector by 30 per cent by 2030, reducing energy intensity per unit of GDP by 25–30 per cent by 2030 compared with the 2017 level, increasing energy efficiency in buildings

and reducing energy consumption by 25–30 per cent by 2030 compared with the 2018 level. Although a huge number of PaMs are mentioned in the text of the BR4, most of them and all of those reported in CTF table 3 are implemented measures.

25. Table 4 provides a summary of the reported information on the key PaMs reported by the Party.

Table 4
Summary of information on policies and measures reported by the Russian Federation

Sector	*Key PaMs*	*Estimate of mitigation impact in 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	Climate doctrine of the Russian Federation	NE
	Decree on the reduction of GHG emissions and Action Plan on the Provision of GHG Emission Reductions by 2020	797 000.00
Energy	Energy strategy of the Russian Federation	733 310.73
	Doctrine on energy security	NE
	State Programme on Development of the Coal Mining Industry to 2030	167 500.00
Transport	Transport strategy of the Russian Federation until 2030	NE
	Natural gas as a fuel for transport and special-purpose vehicles for 2018–2022	NE
	State Programme for Expansion of the Use of Natural Gas	NE
Renewable energy and energy efficiency	State Programme for Energy Efficiency and the Development of the Energy Sector	NE
IPPU	Iron and steel development strategy	NE
LULUCF	State Programme for Forestry Development	NE
Waste	Strategy for development of the waste treatment industry until 2030	NE

Note: The estimates of mitigation impact are estimates of emissions of CO_2 eq avoided in a given year as a result of the implementation of mitigation actions, unless otherwise specified.

(b) Policies and measures in the energy sector

26. **Energy efficiency.** The energy sector is regulated by the doctrine on energy security, which aims to optimize domestic fuel and energy resources by using more energy-efficient and innovative ecotechnologies. Of primary importance for mitigation in the energy sector is the Law on Energy Saving and Energy Efficiency Improvement, and Amending Certain Legislative Acts of the Russian Federation (federal law 261-FZ of 23 November 2009). The Party reported that work is continuing on operationalization of the energy strategy to 2030 (decree 1523-r of 9 June 2020) and on developing a new energy strategy to 2035. Within this strategic framework the most important contribution to energy efficiency is made by the State Programme for Energy Efficiency and the Development of the Energy Sector, which sets the main objectives for this sector, including modernization and development based on advanced technologies and the development of renewable energy production.

27. **Energy supply and renewables.** The main drivers of GHG emission reductions from the sector include improvements in energy production and supply, investments in renewables and alternative sources of energy and improvements in energy efficiency (see para. 26 above).

28. During the reporting period, the Russian Federation adopted a law on improving the main infrastructure of the fuel and energy mix (presidential decree 204 of 2018). At the beginning of 2019, a road map for implementing measures to develop oil fields, increase oil production and provide incentives for modernizing the sector was approved. To improve gasification processes, the Russian Federation adopted a law on promoting the gas distribution network (federal law 210-FZ of July 2018). There are 70 regional programmes for gasification, which will support an increase in the share of natural gas in the fuel mix. The State Programme on Development of the Coal Mining Industry to 2030 (decree 1099-r

of June 2014) aims to improve coal-steam degassing systems and to optimize mining technologies to reduce emissions and discharge of pollutants. Amendments were made to environmental legislation regarding the creation of automatic control systems for emissions and discharge of pollutants (federal law 252 of 29 July 2018). In addition, the Russian Federation has increased its investment in nuclear energy, which is one of the priority areas of the State Atomic Energy Corporation. Five nuclear power units are currently under construction.

29. The State Programme for Energy Efficiency and the Development of the Energy Sector is an example of the trend of developing and introducing energy-efficient technologies, and it illustrates the expected increase in the share of renewable energy sources in the energy mix and decentralized generation based on renewable energy sources. The main objectives of the programme are to modernize and develop the industry using advanced technologies; increase the utilization rate for associated petroleum gas (flare gas) to at least 95 per cent; and decrease the ratio of fuel consumption per power output from 315.5 g coal equivalent per kWh in 2014 to 285.4 g coal equivalent per kWh in 2024. Since 2014, more than 1 GW new renewable energy capacity has been commissioned. In 2017 the adoption of law 471-FZ provided the legal grounds for stimulating the development of renewable energy microgeneration facilities with an installed capacity of up to 15 kW.

30. In terms of private companies and corporations, the Russian Federation reported on a number of their projects and programmes, such as improvements to gas infrastructure by Rosneft, aiming to reduce emissions by 8 Mt CO_2 eq by 2020; increases in energy efficiency by Lukoil Group, resulting in a reduction in emissions of 30 Mt CO_2 eq in 2018; and the operationalization of 14 solar power plants in 2018 and 19 in 2019 by Hevel Group, with savings of 103,000 t CO_2 eq for the first half of 2019.

31. **Residential and commercial sectors.** The PaMs related to commercial or residential buildings were reported under the industry sector. The strategy for the development of the building materials industry until 2020 and further perspectives until 2030 (decree 868-r) established the framework for this sector and the main objective is to increase the energy efficiency of residential buildings to reduce their heat consumption by 20 per cent compared with the 2014 level. The Ministry of Construction continued its work on finalizing the list of the best available technologies for construction and modernization of shared infrastructure. In 2018, amendments to the building codes and rules regarding the thermal insulation of buildings were approved. In 2019, a federal law was drafted to improve legal procedures in energy service contracts in apartment buildings.

32. **Transport sector.** The main strategy in the transport sector is the transport strategy of the Russian Federation updated in 2017 (decrees 1734-r of November 2018 and 1032-r of June 2014), which covers until 2030. The aim is to reduce CO_2 emissions from the sector by 25 per cent from cars, 50–53 per cent from railways, 34 per cent from aviation and 24 per cent from shipping, by 2030, compared with the 2011 level. The targets are integrated into the management plans of the main transportation companies, which monitor the emissions and implement specific PaMs. An example is the corporate environmental strategy of the Russian national rail company, which was initially developed to apply until 2020 but has been updated to apply until 2030. In 2018, the emissions of the national rail company decreased by 43.4 per cent compared with the 1990 level despite a 9.8 per cent increase in the volume of freight transported. Another target for the Russian Federation is to increase the amount of compressed natural gas in transport fuel.

33. The Russian Federation also reported on the changes related to the requirements of the International Maritime Organization and International Civil Aviation Organization. The BR4 states that, since 2019, data on fuel consumption from Russian sea vessels have been transmitted to the International Maritime Organization. The national civil aviation policy is being formulated to take into consideration the requirements on GHG emissions established by the International Civil Aviation Organization as well as fuel efficiency practices for aircraft. The Russian air carriers were informed of the requirements to monitor, report and verify emissions to prepare for and participate in the Carbon Offsetting and Reduction Scheme for International Aviation (known as CORSIA), which commenced in 2019.

34. **Industrial sector.** In 2018 the Russian Federation approved the development strategy of the automotive industry for the period until 2025 (order 821-r), promoting, among other things, the production of electric vehicles and construction of associated infrastructure. Development of ferrous metallurgy for 2014–2020 is guided by the iron and steel development strategy. Implemented with the support of the Ministry of Industry and Trade, this strategy will run until 2030 to support advanced iron and steel production technologies and provide financial aid for energy saving programmes.

(c) Policies and measures in other sectors

35. **Industrial processes.** Process-related emissions are reduced by modernizing production (iron and steel, non-ferrous metallurgy and chemicals) and implementing best available technologies. The BR4 provides an example (on p.28) of aluminium production by RUSAL, one of the world's largest aluminium companies in terms of primary production, which set corporate goals in 2017 to reduce GHG emissions per t aluminium output by 15 per cent compared with the 2014 level, and also introduced a new aluminium blend with a much lower GHG footprint (three times lower than the average in the sector). No specific measures were reported in the BR4 regarding substitutes for ozone-depleting substances or for emissions from other product manufacture and use.

36. **Agriculture.** Agriculture is a growing sector for the Russian Federation, with GHG emissions and sinks greatly determined by geographic location, soil type and composition, and agricultural land cultivation technology used. In general, measures implemented in the agriculture sector aim mainly at adapting to the impacts of climate change. The main mitigation measure is based on the measures put in place by the Ministry of Agriculture to reduce N_2O emissions by expanding the scope of application of the new forms of nitrogen fertilizers by 2020, as well as using agrotechnology for coordinated farming, which will reduce the use of mineral nitrogen in crop production. There are no PaMs for the sector listed in CTF table 3.

37. **LULUCF.** Utilization and protection of the forests in the Russian Federation is regulated by the Forest Code. The forests are divided into categories according to their location, significance and function. The Federal Agency for Forestry is responsible for the State Programme for Forestry Development (resolution 318 of 15 April 2014) between 2013 and 2020, which was extended, in 2017, to 2024. The aim of the programme is to increase the sustainability of the forestry sector. A system of indicators has been developed to measure the reduction in GHG emissions as well as carbon capture potential. The programme also includes a requirement to preserve the share of forest land at 46.5 per cent of total land cover, and to maintain the share of valuable forest plantations at a level of 70.4 per cent of the forest land. The Law on Amending the Forest Code of the Russian Federation and Certain Legislative Acts of the Russian Federation regarding Improving Forest Reproduction and Afforestation came into force in January 2019. This law specifies that forest land should undergo reforestation or afforestation no later than one year after felling to reduce GHG emissions from deforestation and forest degradation, and also requires stronger conservation measures and increases in the carbon storage of forests. According to the BR4, RUSAL (see para. 35 above) plans to plant more than one million trees in different regions of the country, covering more than 250 ha, as a part of a forest restoration project.

38. **Waste management.** The Government of the Russian Federation has approved the industry development strategy for the processing, utilization and neutralization of consumption and production of waste until 2030 (decree 84-r of 25 January 2018), and in 2019 the Russian Environmental Operator was established by presidential decree 8 of 14 January 2019, with its main aim being to establish an integrated system for managing municipal solid waste. It also aims to promote the use of solid waste for energy recovery. Improvements in the waste sector, as set out in policy documents "Fundamentals of state policy in the field of environmental development of the Russian Federation until 2030" and "Environmental protection for years 2012–2020", are also envisaged. The Law on Water Supply and Sanitation (416-FZ), operational from 1 January 2019, aims to improve the operation of centralized treatment facilities and increase the amount of effluent that will be treated by them.

(d) Response measures

39. The Russian Federation did not report on its assessment of the economic and social consequences of its response measures, besides including a reference to the submitted national inventory reports. During the review, the Party informed the ERT that including such information is still under discussion because no consensus has been reached on methodological aspects.

(e) Assessment of adherence to the reporting guidelines

40. The ERT assessed the information reported in the BR4 of the Russian Federation and identified issues relating to completeness, transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 5.

Table 5
Findings on mitigation actions and their effects from the review of the fourth biennial report of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The BR4 includes updated information on PaMs adopted and implemented. However, it is not clear which of the measures are new compared with those reported in the BR3, and there is no explanation of why some of the PaMs with a starting year of implementation as old as 2014 are reported in the BR4 but were not included in the BR3. Further, there is no clear explanation of whether the PaMs reported previously are still valid, and neither the text of the BR4 nor CTF table 3 provides information on planned measures. In addition, the information in the text of the BR is organized by sector, but there is no separate reporting of agriculture PaMs in the BR4 or in CTF table 3, and the information on PaMs is not presented by gas in the BR4. There are inconsistencies between the BR4 text and CTF table 3 – different measures are reported – and there is no explanatory information on how the Party decided which PaMs to report in the BR4 and which in CTF table 3. During the review the Party explained that the process of selecting PaMs was conducted on the basis of the UNFCCC reporting guidelines on BRs and considering the recommendations, if any, from previous review reports. The process starts with a request for information from Roshydromet to ministries and federal agencies. Once compiled, the BR is sent to the relevant ministries and federal agencies for review and approval. The inconsistencies between the reported information in the BR3 and BR4 were the result of an attempt to increase transparency regarding the PaMs that have been implemented but not reported during the previous reporting period. The Party explained that the PaMs in CTF table 3 are complementary to those reported in the text of the BR4. The ERT recommends that the Party improve the transparency of the information reported by including complete and consistent information in the BR and CTF table 3 on its mitigation actions, including on the implemented and planned PaMs, to the extent appropriate, organized by sector and by gas, ensuring consistency between the text of the BR and CTF table 3 (e.g. regarding the type of instrument and the gases and sectors affected). The ERT notes that providing structured information on the implemented, adopted and planned PaMs and highlighting any changes compared with the previous BR would further increase the transparency of reporting.
2	Reporting requirement specified in paragraph 7 Issue type: completeness Assessment: recommendation	The BR4 does not include information on changes in the legal and administrative framework for PaMs related to climate change, or on procedural arrangements used for domestic compliance on reporting, archiving and evaluation of the progress towards the economy-wide emission reduction target. During the review the Russian Federation explained that the only changes made since its BR3 are those linked to the introduction of the regional-scale voluntary GHG emission inventories (annual monitoring and reporting of GHG emissions and archiving of information) in the Russian Federation. These activities are implemented by regional governments and funded from regional budgets. In many cases regional governments request, together with inventories, estimation of region-scale mitigation potentials, evaluation of mitigation measures and development of

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
		the GHG emission projections. The inventory data are then reported by the regional governments to the Ministry of Natural Resources and Environment. The ERT recommends that the Russian Federation provide in its next BR information on any changes in its domestic institutional arrangements, including institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target, or clearly state if no changes have been made. The ERT notes that such changes could be related to the roles and responsibilities of the relevant government entities.
3	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: encouragement	The BR4 does not include information on the assessment of the economic and social consequences of response measures. During the review the Russian Federation explained that it has not yet undertaken an assessment of the economic and social consequences of its response measures because such information, including the methodological aspects of an assessment, is still under discussion. The ERT reiterates the encouragement from the previous review report for the Russian Federation to provide in its next BR information, to the extent possible, on the assessment of the economic and social consequences of its response measures.
4	Reporting requirement specified in CTF table 3 Issue type: transparency Assessment: recommendation	The Russian Federation reported the mitigation impact of only a few PaMs for 2020 in CTF table 3 and reported "NE" for the other PaMs without explaining in the BR4 how the estimates were calculated or providing an explanation or a footnote to the CTF table explaining the reasons the estimates were not provided for most of the PaMs. Also, there is no information to explain whether individual policies or measures are included in the groups of measures reported in CTF table 3; if they are included, they should have been reported as "IE". The Russian Federation did not report on the mitigation impacts of any individual PaMs in the non-energy sectors. Regarding the PaMs with estimated impacts, the expected mitigation impact significantly differs from the impact reported in the BR3, but there is no information about the change. For example, for the energy strategy of the Russian Federation (row 9 of CTF table 3), 696 Mt CO_2 eq is reported in the BR3 while 733,310.73 Gg CO_2 eq is reported in the BR4. Another inconsistency is linked to the allocation of the PaMs under different scenarios. For example the State Programme for Forestry Development (row 16) is reported as implemented since 2014, but it is not marked with an asterisk to indicate that it is included in the WEM scenario; similarly, the construction industry development strategy (row 14) is reported as implemented since 2016. In addition, there are no planned measures reported in CTF table 3 to link with the reported WAM scenario. The mitigation impact of the presidential decree on the reduction of GHG emissions and Action Plan on the Provision of GHG Emission Reductions by 2020 (row 6, CTF table 3) is 797 Mt CO_2 eq, which is 25 per cent of the 1990 value reported in CTF table 1. This value added to the values of the other two measures that have estimated impacts in CTF table 3 provides a total that is higher than the projected reduction in emissions in 2020 reported in CTF table 6(a). During the review the Russian Federation explained that, for some PaMs, climate change mitigation is not their primary target, so it is difficult to provide quantified emission reduction impact information, particularly where this applies to regulatory and structural measures and governmental programmes covering several sectors of the economy. However, the experts are continuing their work on improving the reporting. Additionally, the Party explained that the post-2020 national strategy has not yet been adopted, so the Party is not yet able to report on the mitigation impacts of the PaMs for the years after 2020. Further, the Party explained that the difference between the estimates in the BR3 and the BR4 results from a change of the estimated 1990 GHG emissions between the national inventories used for the BR3 and BR4, and confirmed the error in its reporting in rows 14 and 16 of CTF table 3. During the review the Party confirmed that the estimated impact in row 6 of CTF table 3 was estimated at 25 per cent of the total 1990 GHG emissions. With regard to

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
		the energy strategy of the Russian Federation, the estimate of mitigation impact was made on the basis of the projected change in energy efficiency. The ERT reiterates the recommendation from the previous review report for the Russian Federation to provide further information on the estimated impacts of the individual PaMs or clearly explain why this is not possible owing to national circumstances. The ERT notes that transparency could be improved if the Russian Federation were to highlight in its next BR any overlaps in the mitigation impacts estimated for the various PaMs, explain the reasons for the differences in estimated mitigation impacts of measures in CTF table 3 between the current and previous BR submission, and provide appropriate notation keys, asterisks and footnotes to the table.
5	Reporting requirement specified in paragraph 24 Issue type: completeness Assessment: encouragement	The BR4 includes information on how the federal and regional entities are reporting on the implementation of climate-related PaMs and on the institutional arrangements set in the country. However, there is no information on national rules for taking local action against domestic non-compliance with emission reduction targets. During the review the Russian Federation explained that national rules for taking local action against domestic non-compliance with emission reduction targets may be adopted in conjunction with the future establishment of national carbon regulation legislation (the Greenhouse Gas State Regulatory Law and relevant regulations). The nature and scale of the national rules will be the subject of further discussion. The ERT reiterates the encouragement from the previous review report for the Party to report in its next BR, to the extent possible, on the progress in establishing national rules for taking local action against domestic non-compliance with emission reduction targets.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on BRs or to the CTF table number from the "Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'". The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs.

2. Estimates of emission reductions and removals and the use of units from market-based mechanisms and land use, land-use change and forestry

(a) Technical assessment of the reported information

41. On its use of units from LULUCF activities, the Russian Federation reported in CTF tables 4, 4(a) and 4(b) that in 2017 and 2018 it did not use any units from LULUCF activities. The Russian Federation also reported that it does not intend to use units from market-based mechanisms under the Convention.

42. Table 6 illustrates the Russian Federation's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 6
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by the Russian Federation to achieve its target

Year	Emissions excluding LULUCF (kt CO_2 eq)	Contribution of LULUCF (kt CO_2 eq)[a]	Use of units from market-based mechanisms (kt CO_2 eq)	Net emissions including LULUCF and market-based mechanisms (kt CO_2 eq)
1990	3 187 507.08	NA	NA	NA
2010	2 057 878.02	NA	NA	NA
2011	2 119 644.44	NA	NA	NA
2012	2 147 996.18	NA	NA	NA
2013	2 092 550.41	NA	NA	NA
2014	2 094 363.54	NA	NA	NA
2015	2 094 011.75	NA	NA	NA
2016	2 098 138.55	NA	NA	NA
2017	2 155 270.61	NA	NA	NA

Year	Emissions excluding LULUCF (kt CO_2 eq)	Contribution of LULUCF (kt CO_2 eq)[a]	Use of units from market-based mechanisms (kt CO_2 eq)	Net emissions including LULUCF and market-based mechanisms (kt CO_2 eq)
2018	2 220 122.95	NA	NA	NA
2020 target	2 390 630.31	NA	NA	NA

Sources: The Russian Federation's BR4, CTF tables 2(a), 4, 4(a)I, 4(a)II, 4(b) and 6(a) and 2020 annual submission.

[a] The Russian Federation's emission reduction target does not include emissions or removals from LULUCF.

43. In assessing the Party's progress towards achieving the 2020 target, the ERT noted that the Russian Federation's emission reduction target under the Convention is 25 per cent below the 1990 level (see para. 12 above). In 2018 the Russian Federation's annual total GHG emissions excluding LULUCF were 30.3 per cent (2,220,122.95 kt CO_2 eq) below the base-year level according to data in the Party's 2020 annual submission.

44. The ERT noted that the Russian Federation is making progress towards its emission reduction target by implementing mitigation actions that are delivering some emission reductions without using market-based mechanisms and without the contribution of the LULUCF sector.

(b) Assessment of adherence to the reporting guidelines

45. The ERT assessed the information reported in the BR4 of the Russian Federation and recognized that the reporting is complete, transparent and thus adhering to the UNFCCC reporting guidelines on BRs. No issues relating to the topics discussed in this chapter of the review report were raised during the review.

3. Projections overview, methodology and results

(a) Technical assessment of the reported information

46. The Russian Federation reported updated projections for 2020 and 2030 relative to actual inventory data for 2017 under the WEM scenario. The WEM scenario reported by the Party includes implemented and adopted PaMs until 2018.

47. In addition to the WEM scenario, the Russian Federation reported the WAM and WOM scenarios. The Party did not provide clear definitions of its scenarios in the BR4. However, the BR4 states that the PaMs included in the WAM scenario are defined for each sector, while the WOM scenario excludes all PaMs implemented since 2014 and was developed on the basis of the historical relationship between GDP annual growth rates and GHG emission trends. The ERT noted that this is a valid approach for the WOM scenario and is in accordance with the UNFCCC reporting guidelines on NCs; however, it should be taken into account that parameters such as average GDP growth, the energy mix and the mix of technologies used are also extrapolated. Further, there are no planned measures assigned to the WAM scenario in section IV of the BR4 or reported in CTF table 3 to demonstrate that the scenario was prepared according to the UNFCCC reporting guidelines on BRs.

48. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions, and on a gas-by-gas basis for CO_2, CH_4, N_2O, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) for 2020 and 2030. The projections of NF_3 for 2020 and 2030 are not presented. The projections are also provided in an aggregated format for each sector and for the Party total using GWP values from the AR4. The Russian Federation did not report on factors and activities affecting emissions for each sector.

49. The Russian Federation provided a description of its WEM and WAM scenarios for each sector, explaining that the projections were evaluated on the basis of the forecast of the socioeconomic development of the Russian Federation for the period until 2036,[5] on regulations and other legislation and sectoral documents of strategic planning and on the goals set in presidential decree 204 of 7 May 2018 (National Goals and Strategic Tasks of

[5] Available (in Russian) at http://old.economy.gov.ru/minec/about/structure/depMacro/201828113.

the Development of the Russian Federation for the Period until 2024).[6] The references to the underlying documents for each sector were not systematically provided in the BR4.

50. The WEM scenario for the energy sector was developed on the basis of an approved programme to increase the energy efficiency of buildings and other structures and to reduce the consumption of heat and electrical energy used for heating, ventilation and power in buildings, and on a list of recommended measures for energy conservation in the existing infrastructure. The Party specified that the PaMs implemented in the transport sector aimed at reducing the energy intensity of transport were also included under the WEM scenario for the energy sector. The WEM scenario for the IPPU sector was developed taking into account the information reported in technical catalogues on the best available technologies. The BR4 does not provide a detailed description of the WEM scenario for the agriculture sector, and the Party clarified in its BR4 (p.42) that there are no long-term sectoral development strategies for the sector (i.e. for the period after 2020). The WEM scenario for the waste sector was developed on the basis of measures established under the Law on Amending Certain Legislative Acts of the Russian Federation (law 486 of 28 December 2016).

51. The WAM scenario includes additional measures for each sector except the agriculture sector, such as doubling the amount of equipment replacement for the industry sector, or using a much higher rate for waste sorting for the waste sector. However, the section of the BR4 on projections (section V) is not transparently linked with the section on PaMs (section IV) and does not include information on which of the PaMs listed in the PaMs section are included in the WEM and WAM scenarios, and sometimes different sectoral documents are listed in the two sections.

(b) Methodology, assumptions and changes since the previous submission

52. The Russian Federation did not provide information on the changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used in the projection scenarios. During the review, the Party explained that there were no changes in the methodology used for the projections since the NC7.

53. The methodological information in the BR4 is very limited. For the energy sector there is a reference to the Energy Research Institute of the Russian Academy of Sciences model known as SCANER, which is used for taking into account the cross-sectoral and regional interlinkages in the energy sector together with economic development trends, impacts of energy markets and technological developments. For the LULUCF sector the Party mentions that another model (CBM-CFS3) was used for developing the four sectoral scenarios. For the IPPU, agriculture and waste sectors, the BR4 does not contain any information on the methods, including a description of and numerical data on the key parameters and assumptions used for projections at the sectoral level. During the review, the Russian Federation provided a supplementary document with a list of the models used for evaluating the emission projections, which included a macroeconomic model (RUS-DVA), a model for electric and heat power (P& HMOD) and a model for industry (INDEE-MOD), as well as references to the methodologies used.

54. The Russian Federation reported in CTF table 5 the key assumption (GDP annual growth rate) used in the preparation of the projection scenarios. The BR4 (table V.1) includes additional information on the indicators of socioeconomic development (such as information on investment annual growth rate and industrial annual growth rate) used to evaluate the projection scenarios. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections.

(c) Results of projections

55. The projected emission levels under different scenarios and information on the quantified economy-wide emission reduction target are presented in table 7 and figure 1. The values, which are based on data in CTF table 6 and the 2019 inventory submission, differ slightly from the values reported in other sections of this report, which are based on data in the 2020 inventory submission. The target value estimated on the basis of the 2020 inventory

[6] Available at https://www.prlib.ru/en/item/1155783.

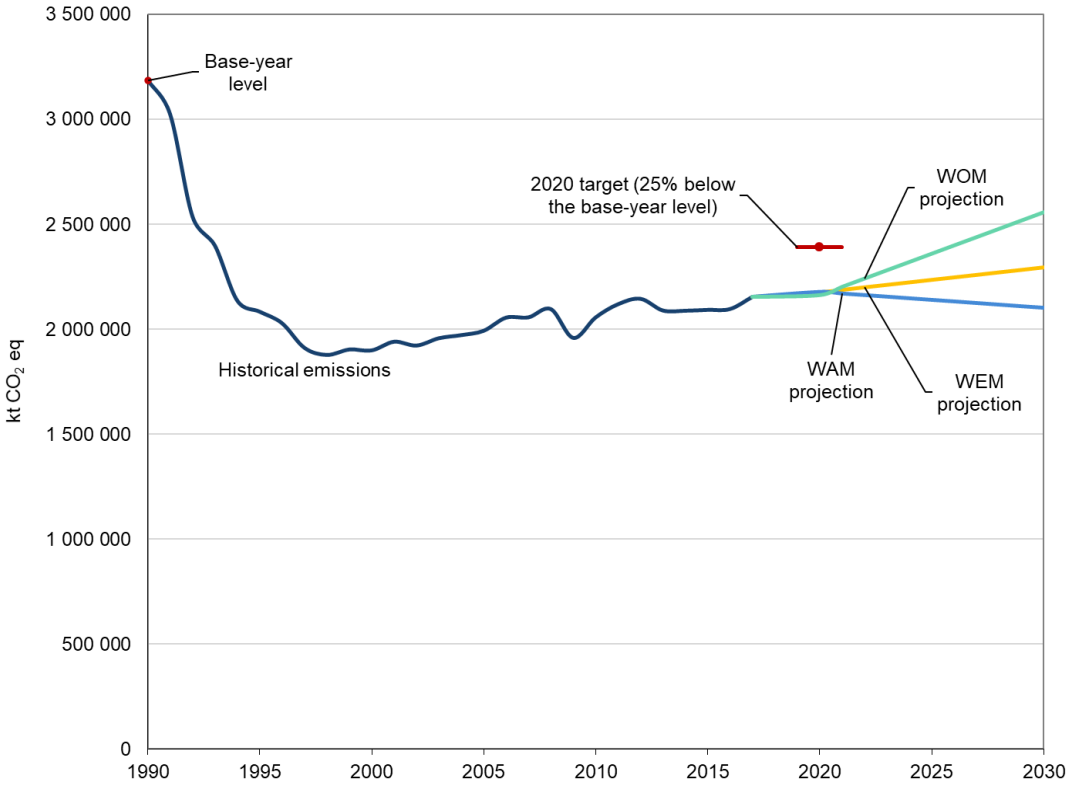
submission (2,390,630.31 Gg CO_2 eq), as reported in paragraph 12 above and table 6, is slightly higher than that estimated on the basis of the 2019 inventory submission and reported in table 7.

Table 7
Summary of greenhouse gas emission projections for the Russian Federation

	GHG emissions (kt CO_2 eq per year)	*Change in relation to 1990 level (%)*
Quantified economy-wide emission reduction target under the Convention	2 390 097.01	–25.0
Inventory data 1990 (base year)	3 186 796.01	NA
Inventory data 2017	2 155 470.67	–32.4
WOM projections for 2020	2 178 000.00	–31.7
WEM projections for 2020	2 177 300.00	–31.7
WAM projections for 2020	2 164 000.00	–32.1
WOM projections for 2030	2 557 000.00	–19.8
WEM projections for 2030	2 296 300.00	–27.9
WAM projections for 2030	2 104 000.00	–34.0

Source: The Russian Federation's BR4 and CTF table 6.
Note: The projections are for GHG emissions without LULUCF and excluding indirect CO_2.

Figure 1
Greenhouse gas emission projections reported by the Russian Federation



Source: The Russian Federation's BR4 and CTF tables 1 and 6 (total GHG emissions excluding LULUCF).

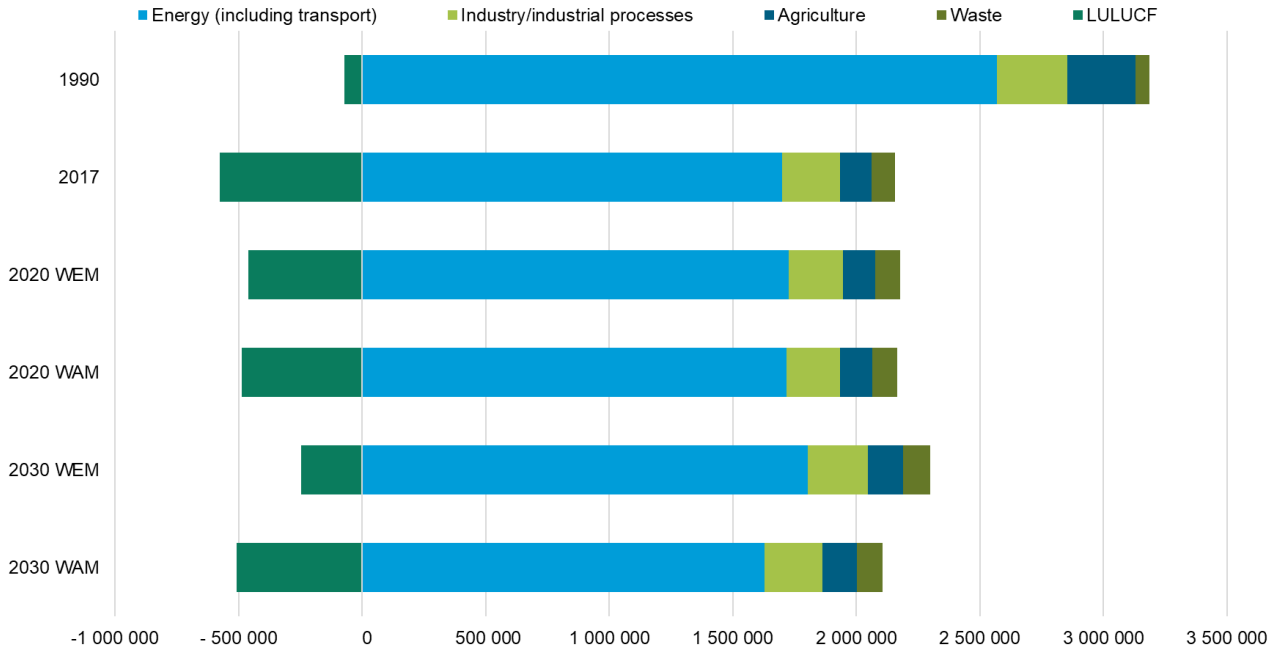
56. The Russian Federation's total GHG emissions excluding LULUCF in 2020 and 2030 are projected under the WEM scenario to decrease by 31.7 and 27.9 per cent, respectively, below the 1990 level. Under the WAM scenario, emissions in 2020 and 2030 are projected to be lower than those in 1990 by 32.1 and 34.0 per cent, respectively.

57. The Russian Federation's economy-wide target under the Convention is to reduce its total emissions by 25 per cent below the 1990 level by 2020 (see para. 12 above). The 2020

projections suggest that the Russian Federation can be expected to achieve its 2020 target under the Convention without the use of flexible mechanisms. However, on the basis of the reported information it is not clear to the ERT whether the definitions of the WEM and WAM scenarios adhere to the UNFCCC reporting guidelines on NCs, so the ERT could not make a final assessment of the likelihood of the Party achieving its target in 2020.

58. The Russian Federation presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in figure 2 and table 8. The values of the projected emissions by sector (table 8) and by gas (table 9) for 2020 and 2030 are as reported in CTF tables 6(a) and 6(c), respectively. The values for total GHG emissions excluding LULUCF in tables 8 and 9 differ slightly from those calculated as the sum of the projected emissions by sector and by gas and represent the totals reported in CTF tables 6(a) and 6(c) (see issue 3 in table 10).

Figure 2
Greenhouse gas emission projections for the Russian Federation presented by sector



Source: The Russian Federation's BR4 CTF table 6.

Table 8
Summary of greenhouse gas emission projections for the Russian Federation presented by sector

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Sector	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
Energy[a]	2 568 516.86	1 726 000.00	1 716 000.00	1 803 000.00	1 629 000.00	–32.8	–33.2	–29.8	–36.6
Transport[a]	315,620.36	IE	IE	IE	IE	IE	IE	IE	IE
Industry/ industrial processes	283 464.71	220 000.00	219 000.00	243 000.00	232 000.00	–22.4	–22.7	–14.3	–18.2
Agriculture	276 422.57	130 000.00	130 000.00	142 000.00	142 000.00	–53.0	–53.0	–48.6	–48.6
LULUCF	–73 401.98	–461 000.00	–486 000.00	–246 000.00	–509 000.00	528.0	562.1	235.1	593.4
Waste	58 391.86	102 000.00	101 000.00	109 000.00	102 000.00	74.7	73.0	86.7	74.7
Other	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total GHG emissions excluding LULUCF	**3 186 796.01**	**2 177 300.00**	**2 164 000.00**	**2 296 300.00**	**2 104 000.00**	**–31.7**	**–32.1**	**–27.9**	**–34.0**

Source: The Russian Federation's BR4 CTF table 6.

[a] The emission projections for the transport sector are not reported separately by the Party but are included in the emission projections for the energy sector. For 1990, transport emissions are provided both separately and under the energy sector. The notation key "NE" is used in CTF tables 6(a) and 6(c).

59. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the energy and agriculture sectors, amounting to projected reductions of 32.8 and 53.0 per cent between 1990 and 2020 (842,516.86 and 146,422.57 kt CO_2 eq in absolute terms), respectively. The emissions for the transport sector were included in the emission projections for the energy sector. The projected emissions for the energy and agriculture sectors for 2030 are 77,000 kt CO_2 eq (4.5 per cent) and 12,000 kt CO_2 eq (9.2 per cent) higher, respectively, than the projections for 2020, which was explained by the Party as being due to the projected annual growth of the national economy up to 2030. The increasing trend in post-2020 emissions is also observed for the rest of the sectors.

60. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by sector remain the same; namely, the most significant emission reductions are expected to occur in the energy sector, amounting to projected reductions of 852,516.86 kt CO_2 eq (33.2 per cent). As the emissions for the transport sector were included in the emission projection values for the energy sector, it is not possible to distinguish the contribution of transport to the trend. Under this scenario, the Russian Federation has assumed that the rate of generation of electrical and thermal energy from carbon-free sources (nuclear power plants, hydroelectric power stations and renewable energy sources) remains at the same level as projected for the WEM scenario; however, since the demand for electrical and thermal energy is projected to decrease, the share of carbon-free sources in the total production of electrical and thermal energy will increase. Compared with the 2020 level, projected emissions for 2030 are 87,000 kt CO_2 eq (5.1 per cent) lower for the energy sector. For the agriculture sector, the emission reduction remains the same as under the WEM scenario; while for the IPPU sector, the implementation of additional measures is expected to result in additional reductions of 1,000 kt CO_2 eq in 2020 and 11,000 kt CO_2 eq in 2030 compared with the WEM scenario.

61. The Russian Federation presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 9.

Table 9
Summary of greenhouse gas emission projections for the Russian Federation presented by gas

	GHG emissions and removals (kt CO_2 eq)					*Change (%)*			
		2020		*2030*		*1990–2020*		*1990–2030*	
Gas	*1990*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*	*WEM*	*WAM*
CO_2[a]	2 525 501.50	1 646 000.00	1 635 000.00	1 700 000.00	1 521 000.00	–34.8	–35.3	–32.7	–39.8
CH_4	462 816.72	401 000.00	399 000.00	448 000.00	436 000.00	–13.4	–13.8	–3.2	–5.8
N_2O	146 044.29	93 000.00	93 000.00	111 000.00	110 000.00	–36.3	–36.3	–24.0	–24.7
HFCs	35 937.16	36 000.00	36 000.00	36 000.00	36 000.00	0.2	0.2	0.2	0.2
PFCs	15 105.81	IE	–	IE	–	–	–	–	–
SF_6	1 390.53	1 300.00	1 300.00	1 300.00	1 300.00	–6.5	–6.5	–6.5	–6.5
NF_3	NO	–	–	–	–	–	–	–	–
Total GHG emissions without LULUCF	**3 186 796.01**	**2 177 300.00**	**2 164 000.00**	**2 296 300.00**	**2 104 000.00**	**–31.7**	**–32.1**	**–27.9**	**–34.0**

Source: The Russian Federation's BR4 CTF table 6.
[a] The Russian Federation did not include indirect CO_2 emissions in its projections.

62. For 2020, under the WEM scenario the most significant reductions are projected for CO_2 and CH_4 emissions: 34.8 and 13.4 per cent between 1990 and 2020, respectively. Compared with the 2020 level, projected emissions for 2030 are 54,000 kt CO_2 eq (3.3 per cent) and 47,000 kt CO_2 eq (11.7 per cent) higher for CO_2 and CH_4, respectively. However, the BR4 does not include an analysis of the reasons for and the key drivers of these significant differences in the projection trends between 2020 and 2030. During the review, the Russian

Federation indicated that the increase in the projected CO_2 and CH_4 emissions for the WEM scenario in 2030 compared with the projections for 2020 is related to a projected annual growth of the national economy up to 2030 at a rate of 2.7–3.2 per cent annually, including an increase in industrial and agricultural production.

63. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2020 presented by gas remain the same. The most significant reductions are projected for CO_2 and CH_4 emissions: 35.3 and 13.8 per cent between 1990 and 2020, respectively. However, significant differences are observed in the projections between 2020 and 2030; namely, the projections for CO_2 emissions for 2030 are 114,000 kt CO_2 eq (3.3 per cent) lower and the projections for CH_4 emissions for 2030 are 37,000 kt CO_2 eq (11.7 per cent) higher. During the review, the Russian Federation explained that the decrease in the projected CO_2 emissions was driven by the increase in energy efficiency in all branches of the national economy, and stated that the WAM scenario does not include measures to reduce fugitive CH_4 emissions, which, considering the increased production and consumption of natural gas for energy use, results in some growth of CH_4 emissions compared with the 2020 projections.

(d) Assessment of adherence to the reporting guidelines

64. The ERT assessed the information reported in the BR4 of the Russian Federation and identified issues relating to completeness, transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 10.

Table 10
Findings on greenhouse gas emission projections reported in the fourth biennial report of the Russian Federation

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 29 Issue type: transparency Assessment: recommendation	Most PaMs mentioned in the BR4 as being used as the basis for estimating projected emissions are not provided in CTF table 3, where only implemented PaMs are listed. Based on the information in the BR4, the ERT was unable to determine whether the WEM, WAM and WOM scenarios encompass the PaMs as required by paragraph 29 of the UNFCCC reporting guidelines on NCs. During the review the Russian Federation provided an explanation regarding the coverage of the WOM, WEM and WAM scenarios. For example, the Party clarified that the WAM scenario is based on a package of measures that includes, for example for the energy sector, reducing energy intensity per unit of GDP by 25–30 per cent compared with the 2017 level by 2030; preparing and gaining approval for the federal project Energy Efficient Russia; implementing long-term (5–15 year) industry agreements to improve energy efficiency; and launching the Warm House and Cheap Light programmes for poor households and households in the "northern delivery" areas. Furthermore, the Russian Federation stated that the full list of PaMs used to develop the WEM and WAM scenarios is included in an internal, confidential report of the Ministry of Economic Development on the development of the emission projections. The ERT recommends that the Russian Federation improve the transparency of its reporting by clearly identifying the PaMs included in the WEM, WAM and WOM scenarios and their status of implementation.
2	Reporting requirement specified in paragraph 30 Issue type: completeness Assessment: encouragement	The Russian Federation did not report sensitivity analyses for any of its projections in the BR4. During the review the Russian Federation explained that sensitivity analyses were completed for the emission projections under the WOM scenario. The results illustrate that the sensitivity of the WOM projections to the GDP annual growth rate is approximately 44 Mt CO_2 eq, or 1 per cent of annual GDP growth, in 2025, and about 69 Mt CO_2 eq, or 1 per cent of GDP annual growth, in 2030. The sensitivity analyses for the emission projections under the WEM and WAM scenarios were not performed owing to resource limitations. The ERT reiterates the encouragement from the previous review report for the Russian Federation to report in its next BR a sensitivity analysis of its projections.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
3	Reporting requirement specified in paragraph 34 Issue type: transparency Assessment: recommendation	In CTF tables 6(a) and 6(c), the projections for the transport sector are included with those for the energy sector for the WEM and WAM scenarios. The projections for the transport sector are not reported separately in the text of the BR4 either. Moreover, the WEM and WAM scenario data reported in CTF tables 6(a) and 6(c) for "total without LULUCF" for 2020 and 2030 are different from those calculated as the sum of emissions from the individual sectors. The difference is 700 kt CO_2 eq for both projected years. For historical years, although transport emissions are reported separately, they are also included in the energy total, leading to their double counting if the total by sector is calculated for CTF tables 6(a), 6(b) and 6(c). In CTF table 6(b), the Russian Federation provided only the total values of the emission projections (without the LULUCF sector) for the WOM scenario for 2020 and 2030. The Party provided a graph in its BR4 (figure V.1) illustrating the projection of CO_2 emissions for the WOM scenario, but it did not provide projections by sector or an explanation as to why disaggregated information was not provided. During the review the Russian Federation explained that the emission projections for the transport sector up to 2030 under the WEM and WAM scenarios were developed by the Ministry of Transport in 2018 but, owing to methodological issues, were reported aggregated under the energy sector. The Party clarified the reason for not reporting sectoral emissions in CTF table 6(b), namely that the methodology applied for the scenario did not allow this. The Party used the notation key "NE" for transport in the resubmitted CTF tables 6(a) and 6(c) and for all sectors in the resubmitted CTF table 6(b). The Party explained that the inconsistencies in the totals for the WEM and WAM scenarios arose from rounding the emission estimates when calculating them. The ERT recommends that the Russian Federation present its projections on a sectoral basis, to the extent possible, using the same sectoral categories used in the PaMs section (e.g. projections for transport should be included separately in CTF tables), and ensure correct, consistent and transparent reporting of the historical and projected data (including the totals) in the CTF tables. The ERT notes that, when the emissions from a sector are included under another sector or directly in the total, the appropriate notation key is "IE".
4	Reporting requirement specified in paragraph 35 Issue type: transparency Assessment: recommendation	The Russian Federation reported projections on a gas-by-gas basis in the BR4 and CTF tables 6(a) and 6(c) for CO_2, CH_4, N_2O, HFCs and SF_6. However, the Party reported projections of PFC emissions under the projections for HFCs (as specified in a footnote to CTF table 6(a)) and reported projections for NF_3 in CTF tables 6(a) and 6(c) as "NE". In CTF table 6(b), the Russian Federation provided only the total values of the emission projections (without the LULUCF sector) for the WOM scenario for 2020 and 2030, but did not provide projections by gas, nor an explanation of why disaggregated information was not provided. During the review the Russian Federation explained that the emission projections for PFCs and HFCs for 2020 and 2030 were reported collectively under the WEM and WAM scenarios, clarifying that the emission projections were not developed separately for each HFC and PFC (as is assumed for a bottom-up approach) because the emission projections were evaluated on the basis of the general relationship between the further development strategies of the sectors of the economy responsible for production and consumption of fluorinated gases. The Russian Federation explained that the lack of reporting of the emission projections for NF_3 for 2020 and 2030 for the WEM and WAM scenarios was an editorial mistake, and provided the projected NF_3 emissions, which are estimated to be 0.17 kt CO_2 eq for both 2020 and 2030 for the WEM and WAM scenarios. The Party clarified the reason for not reporting emissions by gas in CTF table 6(b) as being the methodology used, and reported the notation key "NE" in the resubmitted CTF table 6(b) at a disaggregated level, by gas. The ERT recommends that the Russian Federation complete CTF tables on a gas-by-gas basis, including data for PFCs and NF_3.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
5	Reporting requirement specified in paragraph 35	The Russian Federation did not report projections of indirect GHGs, such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.
	Issue type: completeness	During the review the Party explained that the projections of indirect GHGs were not prepared because of limited resources for projections development.
	Assessment: encouragement	The ERT reiterates the encouragement from the previous review report for the Russian Federation to report in its next BR emission projections of indirect GHGs.
6	Reporting requirement specified in paragraph 36	The Russian Federation did not report on emission projections related to fuel sold to ships and aircraft engaged in international transport separately and did not specifically explain in the BR4 whether or not those emissions are included in the national total.
	Issue type: completeness	During the review the Party clarified that the emission projections related to fuel sold to ships and aircraft engaged in international transport were not included in the national total for the emission projections. The Party also explained that efforts had been made to develop the emission projections for bunker fuels used in international transport but the estimates resulted in values for emission projections that could not be justified.
	Assessment: recommendation	The ERT reiterates the recommendation from the previous review report for the Russian Federation to estimate and report separately, to the extent possible, the emission projections related to fuel sold to ships and aircraft engaged in international transport.
7	Reporting requirement specified in paragraph 38	The Russian Federation provided a diagram illustrating total GHG emissions and projections for the WEM, WAM and WOM scenarios in its BR4 (figure V.1). However, the Party did not provide diagrams that illustrate the projections on a sectoral or gas-by-gas basis, and did not provide diagrams for emission projections related to fuel sold to ships and aircraft engaged in international transport.
	Issue type: completeness	During the review the Party explained that this information would be redundant, given the textual information already included in the BR.
	Assessment: encouragement	The ERT encourages the Russian Federation to include diagrams illustrating the information required by paragraphs 34–37 of the UNFCCC reporting guidelines on NCs showing unadjusted inventory data and a ‘with measures’ projection for 1990–2020.
8	Reporting requirement specified in paragraph 42	The BR4 does not contain sufficient information to enable the ERT to obtain a basic understanding of the models and/or approaches used for projecting GHG emissions and removals and estimating the total effects of PaMs on emissions and removals.
	Issue type: completeness	During the review the Russian Federation explained that the WEM and WAM projections were developed using a system of interconnected models. This system is built around a central multi-sector model called ENERGYBAL-GEM-2050. Many parameters of this model are determined using numerous additional models (e.g. a macroeconomic model (RUS-DVA), a model for industry (INDEE-MOD), a model for transport (TRANS-GHG), a model for residential and public buildings (RESBUILD and PUBBUILD) and a model for forestry (ROBUL-M)). However, the Russian Federation did not provide any descriptions of the models employed. Regarding the WOM scenario, the Party explained that the emission projections were evaluated on the basis of the relationship between GDP annual growth and total GHG emissions (without LULUCF) in the Russian Federation. The Party also specified that the relationship between GDP and GHG emissions was derived using statistical analyses of a 26-year GDP and GHG emission data series and it was assumed that the relationship would remain constant in the future. Moreover, the Russian Federation noted that this methodology can be applied to estimate the total GHG emissions without the LULUCF sector, but it is not applicable for individual sectors or gases.
	Assessment: encouragement	The ERT reiterates the encouragement from the previous review report for the Russian Federation to report in its next BR sufficient information to allow the reader to obtain a basic understanding of models and/or approaches used to project GHG emissions and removals and estimate the total effects of PaMs under its projection scenarios.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
9	Reporting requirement specified in paragraph 43 Issue type: completeness Assessment: encouragement	The Russian Federation did not report in the BR4 on the key characteristics of the models and methodologies applied, as listed in the UNFCCC reporting guidelines on NCs (para. 43), which would enable readers to obtain a basic understanding of such models and/or approaches (see issue 8 above), such as a description of the type of model or approach used and its characteristics; a description of the original purpose for which the model or approach was designed and how it has been modified for climate change purposes; or an explanation of how the model or approach used accounts for any overlap or synergies that may exist among PaMs. During the review the Russian Federation did not provide any information on the key characteristics of the models and methodologies applied, but did explain that it has started to collect this information and it will be provided in the next BR. The ERT reiterates the encouragement from the previous review report for the Russian Federation to include in its next BR information on the models and approaches used to project GHG emissions and removals, as per paragraph 43 of the UNFCCC reporting guidelines on NCs.
10	Reporting requirement specified in paragraph 44 Issue type: completeness Assessment: encouragement	The BR4 does not include references to detailed information on models applied or approaches used to project GHG emissions and removals as per paragraph 43 of the UNFCCC reporting guidelines on NCs. During the review the Russian Federation provided references to the models and methodologies used to evaluate the emission projections. The ERT reiterates the encouragement from the previous review report for the Russian Federation to include in its next BR references to more detailed information on the elements highlighted in paragraph 43 of the UNFCCC reporting guidelines on NCs with regard to the models or approaches used to project GHG emissions and removals.
11	Reporting requirement specified in paragraph 45 Issue type: completeness Assessment: encouragement	The Russian Federation did not report on the changes in the methodologies, assumptions and results for projections between its BR3 and BR4, although it did report updated projections in the BR4. The projected emissions for the energy sector for 2030 under the WEM scenario in the BR4 were reported as 1,803,000.00 kt CO_2 eq, but in the BR3 as 2,277,100.00 kt CO_2 eq. During the review the Russian Federation explained that the methodology used for evaluating the WEM and WAM projections did not change between the BR3 and BR4, and the differences in the emission projections between the BR3 and BR4 were caused by a change of the base year, which was accompanied by a change of the base-year emission level and changes in the values of the parameters used for modelling, namely the use of values for economic development that were current at the time the projection scenarios were developed. The ERT reiterates the encouragement from the previous review report for the Russian Federation to report in its next BR the main differences in the assumptions, methods employed, and results between projections compared with the previous BR.
12	Reporting requirement specified in paragraph 46 Issue type: completeness Assessment: encouragement	The Russian Federation did not report on the sensitivity of projections to underlying assumptions, either qualitatively or quantitatively. During the review the Russian Federation provided information on the results of the sensitivity analyses of the projections, but information on the sensitivity of the projections to underlying assumptions was not provided. The ERT reiterates the encouragement from the previous review report for the Russian Federation to report in its next BR on the sensitivity of projections to underlying assumptions, qualitatively and, where possible, quantitatively.
13	Reporting requirement specified in paragraph 47 Issue type: transparency Assessment: encouragement	In CTF table 5 GDP growth is the only key variable reported; no other assumptions, such as population growth, tax level and fuel price, are reported. The BR4 (table V.1) includes information on fixed investment growth rate (percentage), industrial growth rate (percentage) and population income growth rate (percentage) for the period covered by the projections. However, it was not clear to the ERT from the BR4 whether and how these variables have been used as key underlying assumptions to evaluate the emission projections. During the review the Russian Federation explained that, besides GDP, tax level and fuel price were used as key underlying assumptions to estimate the emission

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
		projections. Moreover, the information on investment annual growth rate and industrial annual growth rate was used in evaluating the emission projections. However, the information on population income growth rate was included in the BR4 (table V.1) for information only and was not used in developing the emission projections. The ERT encourages the Russian Federation to report, in CTF table 5, information about key underlying assumptions and values of variables, such as GDP growth, population growth, tax level and international fuel price, used in developing the emission projections, including for historical and projected years.
14	Reporting requirement specified in paragraph 48 Issue type: transparency Assessment: recommendation	The Russian Federation provided general information on factors and activities affecting the emission projections for each sector; however, this information was not always sufficient to enable an understanding of the emission trends. For example, the Party reported in the BR4 that the evaluation of the WEM projection emissions in the agriculture sector was based on the assumption that "indicators of agricultural activity level of projected years will be maintained at the 2017 level" (p.40). However, the CO_2 eq emissions for the agriculture sector were projected to be increasing for the WEM scenario. Also, the Party provided in the BR4 a list of measures and activities considered under the WEM scenario for the energy sector (p.37) that would result in a decrease in CO_2 eq emissions in this sector under the WEM scenario, whereas the emissions (reported in CTF table 6(a)) were projected to increase between 2020 and 2030. During the review the Russian Federation explained that the emission projections for the agriculture sector under the WEM scenario were increasing because of projected economic growth and increasing production in the agricultural sector, whereas for the emission projections for the energy sector under the same scenario the opposite trend is expected to occur because mitigation PaMs will lead to an increase in energy efficiency. However, economy growth will increase fuel consumption for electricity and heat production, as well as for use in transport and other sectors; these activities will result in an increase in CO_2 emissions under the WEM scenario. The ERT recommends that the Russian Federation include in its next BR additional information on factors and activities affecting the emission projections for each sector to provide the reader with an understanding of the emission trends. The ERT notes that this information on factors and activities may be presented in tabular format.

Note: Item listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs, as per para. 11 of the UNFCCC reporting guidelines on BRs. The reporting on the requirements not included in this table is considered to be complete, transparent and thus adhering to the UNFCCC reporting guidelines on NCs and on BRs.

D. Provision of financial, technological and capacity-building support to developing country Parties

65. The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, the Russian Federation provided information in its BR4 on its provision of support to developing country Parties. The ERT commends the Russian Federation for reporting this information and suggests that it continue to do so in future BRs.

66. The Russian Federation provided detailed information on the assistance it has made available to developing country Parties that are particularly vulnerable to the adverse effects of climate change (e.g. Indonesia, Lao People's Democratic Republic, Malawi, Mozambique, Zimbabwe) and reported on that assistance in CTF tables 7–9 and in its BR4. The financial assistance is provided through specialized bodies of the United Nations and bilateral channels. Financed projects include adaptation and resilience-building projects, mitigation projects in the energy sector, capacity-building projects, and projects on health and food security.

67. The Russian Federation provided financial support to developing countries through the Russia–United Nations Development Programme Trust Fund for Development, which

was launched in 2015, and in 2017 its Climate Change Window was specifically established for financing climate change related projects. In 2017–2018, around USD 7.3 million was provided (reported in CTF table 7), and in 2019 an additional amount of USD 3.3 million was provided (the BR4 provides information on recent projects funded). Most financed projects are targeted at former Soviet Union countries, but some support is provided for projects in other countries, such as water resource planning in Cuba and implementation of the NDC under the Paris Agreement in Zimbabwe. In 2018 and 2019, USD 1.1 million was provided to support an environmental monitoring system in Central Asia through the United Nations Environment Programme. The Russian Federation also provided humanitarian assistance through the Ministry of Emergency Situations to countries affected by extreme events. In total, this assistance amounted to USD 6.25 million in 2017–2018.

68. In 2018 the Government of the Russian Federation adopted a number of decisions relating to financial contributions to climate change funds and United Nations' specialized organizations. In 2018 the Russian Federation contributed USD 3 million to the Green Climate Fund, and committed a contribution of USD 10 million for 2020–2022. It also made a commitment to contribute 100,000 Swiss francs annually to the Intergovernmental Panel on Climate Change Trust Fund for 2019–2021. The Party also adopted a decision to allocate USD 3 million to the Food and Agriculture Organization of the United Nations for supporting the recovery of the agriculture sector and sustainable development in the Syrian Arabic Republic and USD 1 million to the Global Soil Partnership of the Food and Agriculture Organization of the United Nations.

69. The Russian Federation provided support for technology development and transfer, mainly covering the energy sector (e.g. in the area of nuclear power, energy efficiency in buildings, resource conservation and use of renewable energy). The private sector organization Gazprom PJSC has agreed on a workplan on mitigation of emissions during extraction, transportation and storage of natural gas in cooperation with Chinese, Korean and Vietnamese partners.

70. The Russian Federation provided information on its provision of capacity-building support to countries in the Commonwealth of Independent States through a framework agreement between the Russian State University for Hydrometeorology and the national universities of members of the Commonwealth of Independent States. In the 2017–2018 academic year 206 people and in 2018–2019 223 people from 51 developing countries studied at different Russian universities. The Party also reported on cooperation with the United Nations Educational, Scientific and Cultural Organization regarding the establishment and activities of the International Centre for Sustainable Energy Development.

71. The ERT noted minor inconsistencies between the information provided in the CTF tables and in the text of the BR4. For example, activities reported in CTF table 8 under technology development and transfer support were reported in the BR4 under the section on capacity-building; some projects reported in the BR4 were not included in the CTF tables; and Belarus and Turkey, which are Annex I Parties, were mentioned among the Parties receiving support in CTF table 7(b). In addition, there was a lack of clarity on whether the funds for 2019 had already been disbursed. The ERT notes that the transparency of the reporting could be further improved by ensuring consistency between the information provided in the BR and the relevant CTF tables and by reporting correctly on support provided to Parties not included in Annex I to the Convention in CTF table 7(b).

III. Conclusions and recommendations

72. The ERT conducted a technical review of the information reported in the BR4 and CTF tables of the Russian Federation in accordance with the UNFCCC reporting guidelines on BRs. The ERT concludes that the reported information mostly adheres to the UNFCCC reporting guidelines on BRs and provides an overview of emissions and removals related to the Party's quantified economy-wide emission reduction target; assumptions, conditions and methodologies related to the attainment of the target; the progress of the Russian Federation towards achieving its target.

73. The Russian Federation's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 30.3 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 47.6 per cent below its 1990 level, in 2018. The emissions decreased considerably between 1990 and 1998 owing to the dissolution of the Soviet Union and restructuring of the economy. After 1998 the emissions showed a growing trend, except in 2009 (owing to the worldwide economic recession), with slight inter-annual variations driven mainly by fluctuations in GDP and changes in energy consumption and production.

74. Under the Convention, the Russian Federation committed to achieving a quantified economy-wide emission reduction target of 25 per cent below the 1990 level by 2020. The target covers CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3 expressed using GWP values from the AR4, and covers all sources included in the annual GHG inventory. Emissions and removals from the LULUCF sector are not included in the target. The Russian Federation reported that it does not plan to make use of market-based mechanisms to achieve its target. In absolute terms, this means that under the Convention the Russian Federation has to reduce its emissions from 3,187,507.08 kt CO_2 eq (the base-year (1990) level reported in the 2020 annual inventory submission) to 2,390,630.31 kt CO_2 eq by 2020.

75. In addition to its 2020 target, the Russian Federation also reported that it is in the process of setting its target for 2030 under the Paris Agreement. At the time of the review, the 2030 emission reduction target was being considered by the Government, the President's administration and relevant ministries. After adoption of the target, the NDC under the Paris Agreement will be submitted to the secretariat.

76. The GHG emission projections provided by the Russian Federation in its BR4 correspond to the WOM, WEM and WAM scenarios. Under these scenarios, emissions are projected to be 31.7, 31.7 and 32.1 per cent below the 1990 level by 2020, respectively.

77. The reported information indicates that the Russian Federation expects to meet its 2020 target (25 per cent reduction compared with the 1990 level by 2020) under the WEM and WAM scenarios. The significant recalculation for the base year and the related target value, the limited reporting on mitigation impacts of PaMs and the lack of clarity on the definitions of the WEM and WAM scenarios in the BR4 prevented the ERT from making a final assessment of the likelihood of the Party achieving the target.

78. The Russian Federation's main policy framework relating to energy and climate change is a cross-cutting policy implemented by the Government of the Russian Federation and federal ministries and agencies, the climate doctrine of 2009, which aims at reducing GHG emissions to a level not exceeding 75 per cent of the 1990 emission level by 2020. Key legislation supporting the Russian Federation's climate change goals is the decree on the reduction of GHG emissions and the Action Plan on the Provision of GHG Emission Reductions by 2020. Given the importance of the energy sector in the national economy and for GHG emissions, the main potential for reducing emissions is also concentrated in this sector, with the most significant mitigation impact expected from the implementation of the energy strategy of the Russian Federation for the period up to 2030. Within this strategic framework the most important contribution to lowering the GHG emission intensity of the sector is made by the State Programme for Energy Efficiency and the Development of the Energy Sector, which sets the main objectives, including modernizing and developing the sector using advanced technologies; improving energy efficiency; and developing renewable energy production, especially wind and solar power. The Russian Federation also invests in changes related to the energy mix and supports the utilization of natural gas in the automotive industry.

79. The Russian Federation is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3–5, of the Convention. However, the Russian Federation provided information on its provision of climate finance, technology transfer and capacity-building support to developing country Parties in line with its climate finance programmes. The Russian Federation provided financial support to developing countries (mainly to former Soviet Union countries and small island developing States in the Pacific), including through the Russia–United Nations Development Programme

Trust Fund for Development, and it provided technology development and transfer support mainly aimed at the energy sector.

80. In the course of the review, the ERT formulated the following recommendations for the Russian Federation to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:

(a) To improve the completeness of its reporting by:

(i) Providing information on any changes in its domestic institutional arrangements, including legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target, or clearly stating if no changes have been made since the previous submission (see issue 2 in table 5);

(ii) Estimating and reporting separately, to the extent possible, the emission projections related to fuel sold to ships and aircraft engaged in international transport (see issue 6 in table 10);

(b) To improve the transparency of its reporting by:

(i) Clearly stating in the relevant section of its BR whether or not there have been any changes to its national inventory arrangements since its last NC or BR and providing information on any such changes (see issue 1 in table 3);

(ii) Including transparent and consistent information in the BR and CTF table 3 on mitigation actions, including on implemented or planned PaMs, to the extent appropriate, organized by sector and gas, ensuring consistency between the text of the BR and CTF table 3 (e.g. regarding the type of instrument and the gases and sectors affected) (see issue 1 in table 5);

(iii) Providing further information on the estimated impacts of the individual PaMs or a clear explanation as to why this is not be possible owing to national circumstances (see issue 4 in table 5);

(iv) Clearly identifying the PaMs included in the projection scenarios and their status of implementation in accordance with the scenario definition in the UNFCCC reporting guidelines on NCs (see issue 1 in table 10);

(v) Enhancing reporting on the emission projections by presenting projections on a sectoral basis, to the extent possible, using the same sectoral categories used in the section on PaMs (e.g. projections for transport should be included separately in CTF tables) and by ensuring correct, consistent and transparent reporting of the historical and projected data in the CTF tables (see issue 3 in table 10);

(vi) Elaborating CTF tables on projections on a gas-by-gas basis, and including data for PFCs and NF_3 (see issue 4 in table 10);

(vii) Providing additional information on factors and activities affecting the emission projections for each sector to provide the reader with an understanding of the emission trends (see issue 14 in table 10).

Annex

Documents and information used during the review

A. Reference documents

2019 GHG inventory submission of the Russian Federation. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2019.

2020 GHG inventory submission of the Russian Federation. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2020.

BR3 of the Russian Federation. Available at https://unfccc.int/sites/default/files/resource/russian_federation-br3-1-3br.pdf.

BR3 CTF tables of the Russian Federation. Available at https://unfccc.int/documents/198864.

BR4 of the Russian Federation. Available at https://unfccc.int/sites/default/files/resource/10469275_Russian%20Federation-BR4-1-4BR_RUS.pdf.

BR4 CTF tables of the Russian Federation. Available at https://unfccc.int/BRs.

"Common tabular format for 'UNFCCC biennial reporting guidelines for developed country Parties'". Annex to decision 19/CP.18. Available at https://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf.

"Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention". FCCC/SBSTA/2014/INF.6. Available at http://unfccc.int/resource/docs/2014/sbsta/eng/inf06.pdf.

"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.

"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications". FCCC/CP/1999/7. Available at http://unfccc.int/resource/docs/cop5/07.pdf.

"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.

NC7 of the Russian Federation. Available at https://unfccc.int/sites/default/files/resource/20394615_Russian%20Federation-NC7-1-7NC.pdf.

Report on the individual review of the annual submission of the Russian Federation submitted in 2018. FCCC/ARR/2018/RUS. Available at https://unfccc.int/sites/default/files/resource/arr2018_RUS.pdf.

Report on the technical review of the third biennial report of the Russian Federation. FCCC/TRR.3/RUS. Available at https://unfccc.int/sites/default/files/resource/trr.3_RUS.pdf.

"UNFCCC biennial reporting guidelines for developed country Parties". Annex I to decision 2/CP.17. Available at http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

B. Additional information provided by the Party

Responses to questions during the review were received from Alexander Nakhutin (Institute of Global Climate and Ecology of the Russian Federation), including additional material. The following documents[1] were provided by the Russian Federation:

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