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Report on the technical review of the third biennial report of Poland

Developed country Parties were requested by decision 2/CP.17 to submit their third biennial report to the secretariat by 1 January 2018. This report presents the results of the technical review of the third biennial report of Poland, 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".

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Abbreviations and acronyms

AEA	annual emission allocation
Annex II Party	Party included in Annex II to the Convention
AR4	Fourth 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
ESD	effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
GHG	greenhouse gas
HFC	hydrofluorocarbon
IPPU	industrial processes and product use
KOBiZE	National Centre for Emissions Management
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NF_3	nitrogen trifluoride
NO	not occurring
non-ETS sectors	sectors not covered by the European Union Emissions Trading System
N_2O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
RES	renewable energy sources
SF_6	sulfur hexafluoride
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
WAM	'with additional measures'
WEM	'with measures'

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the BR3[1] of Poland. 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 Poland, which made no comment on it.

3. The review was conducted from 11 to 16 June 2018 in Warsaw by the following team of nominated experts from the UNFCCC roster of experts: Mr. Sabin Guendehou (Benin), Mr. Marco Orsini (Belgium), Ms. Awassada Phongphiphat (Thailand) and Ms. Melanie Sporer (European Union). Mr. Guendehou and Ms. Sporer were the lead reviewers. The review was coordinated by Mr. Davor Vesligaj (UNFCCC secretariat).

B. Summary

4. The ERT conducted a technical review of the information reported in the BR3 of Poland in accordance with the UNFCCC reporting guidelines on BRs (annex I to decision 2/CP.17).

1. Timeliness

5. The BR3 was submitted on 29 December 2017, before the deadline of 1 January 2018 mandated by decision 2/CP.17. The CTF tables were also submitted on 29 December 2017.

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 Poland in its BR3 mostly adheres to the UNFCCC reporting guidelines on BRs.

Table 1
Summary of completeness and transparency of mandatory information reported by Poland in its third biennial report

Section of BR	*Completeness*	*Transparency*	*Reference to description of recommendations*
GHG emissions and trends	Complete	Transparent	
Assumptions, conditions and methodologies related to the attainment of the quantified economy-wide emission reduction target	Complete	Transparent	
Progress in achievement of targets	Mostly complete	Mostly transparent	Issues 1, 2 and 3 in table 4
Provision of support to developing country Parties[a]	NA	NA	NA

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

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

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

II. Technical review of the information reported in the third 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

7. Total GHG emissions[2] excluding emissions and removals from LULUCF decreased by 15.3 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 16.3 per cent over the same period. Table 2 illustrates the emission trends by sector and by gas for Poland.

Table 2
Greenhouse gas emissions by sector and by gas for Poland for the period 1990–2016

	GHG emissions (kt CO_2 eq)					*Change (%)*		*Share (%)*	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
Sector									
1. Energy	381 749.15	320 680.90	338 662.69	316 135.92	326 536.84	–14.5	3.3	81.7	82.5
A1. Energy industries	236 171.41	177 070.18	173 120.89	163 455.49	163 207.80	–30.9	–0.2	50.5	41.2
A2. Manufacturing industries and construction	43 053.37	46 202.24	29 691.78	28 022.57	28 509.60	–33.8	1.7	9.2	7.2
A3. Transport	20 495.95	27 804.91	48 171.02	46 896.93	53 414.67	160.6	13.9	4.4	13.5
A4. and A5. Other	57 097.35	48 838.01	67 378.77	54 850.40	58 472.01	2.4	6.6	12.2	14.8
B. Fugitive emissions from fuels	24 931.07	20 765.56	20 300.22	22 910.54	22 932.76	–8.0	0.1	5.3	5.8
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	22 693.33	23 790.48	25 002.33	28 535.19	28 666.35	26.3	0.5	4.9	7.2
3. Agriculture	47 155.60	31 005.77	29 717.72	29 546.08	30 062.89	–36.2	1.7	10.1	7.6
4. LULUCF	–27 603.61	–32 909.15	–30 395.35	–27 229.23	–27 951.80	1.3	2.7	NA	NA
5. Waste	15 682.37	14 128.33	12 589.93	10 952.68	10 557.45	–32.7	–3.6	3.4	2.7
6. Other	NO	NO	NO	NO	NO	NA	NA	NA	NA
Gas[a]									
CO_2	375 810.95	316 828.09	331 709.98	310 526.32	321 182.01	–14.5	3.4	80.4	81.1
CH_4	64 015.00	48 677.75	47 496.15	46 658.80	46 109.36	–28.0	–1.2	13.7	11.6
N_2O	27 312.64	22 533.39	19 707.74	18 924.86	19 483.88	–28.7	3.0	5.8	4.9
HFCs	NA, NO	1 366.50	7 006.36	8 969.67	8 957.35	NA	–0.1	NA	2.3
PFCs	141.87	176.68	17.07	13.21	12.55	–91.2	–5.0	0.0	0.0
SF_6	NA, NO	23.07	35.37	77.03	78.38	NA	1.8	NA	0.0

[2] 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. Values in this paragraph are calculated based on the Party's 2018 annual submission, version 3.

	GHG emissions (kt CO_2 eq)					Change (%)		Share (%)	
	1990	*2000*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
NF_3	NA, NO	NA, NO	NA, NO	NA, NO	NA, NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**467 280.46**	**389 605.48**	**405 972.67**	**385 169.88**	**395 823.53**	**–15.3**	**2.8**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**439 676.85**	**356 696.33**	**375 577.32**	**357 940.65**	**367 871.72**	**–16.3**	**2.8**	**NA**	**NA**

Source: GHG emission data: Poland's 2018 annual submission, version 3.
[a] Emissions by gas without LULUCF and without indirect CO_2.

8. The decrease in total emissions (without LULUCF) of 15.3 per cent between 1990 and 2016 was driven mainly by the decrease in emissions from energy industries and manufacturing industries and construction by 30.9 and 33.8 per cent, respectively. Those reductions were due to the economic restructuring and modernization of energy-intensive industry in the early 1990s after the economic transformation, stricter environmental policy, in particular after Poland's accession to the EU in 2004, and the economic downturn in the late 2000s. Emissions from transport and IPPU increased by 160.6 and 26.3 per cent, respectively, over the same period (see table 2). The ERT noted that if those emissions continue to increase they could potentially undermine Poland's emission reductions in other sectors in the future.

9. In brief, Poland's national inventory arrangements were established in accordance with the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances (Journal of Laws of the Republic of Poland of 2017, item 286). No changes in the inventory arrangements since the BR2 were reported.

2. Assessment of adherence to the reporting guidelines

10. The ERT assessed the information reported in the BR3 of Poland and recognized that the reporting on GHG emissions and trends is complete, transparent and 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.

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

1. Technical assessment of the reported information

11. For Poland, the Convention entered into force on 26 October 1994. Under the Convention Poland committed to contributing to the achievement of the joint EU economy-wide emission reduction target of 20 per cent below the 1990 level by 2020. The EU offered to move to a 30 per cent reduction target on the condition that other developed countries commit to a comparable target and developing countries contribute according to their responsibilities and respective capabilities under a new global climate change agreement.

12. The target for the EU and its member States is formalized in the EU 2020 climate and energy package. The legislative package regulates emissions of CO_2, CH_4, N_2O, HFCs, PFCs and SF_6 using global warming potential values from the AR4 to aggregate the GHG emissions of the EU until 2020. Emissions and removals from the LULUCF sector are not included in the quantified economy-wide emission reduction target under the Convention. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms as well as new market mechanisms for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Companies can make use of such units to fulfil their requirements under the EU ETS.

13. The EU 2020 climate and energy package includes the EU ETS and the ESD (see chapter II.C.1 below). The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emissions cap has been put in place for the

period 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. In 2016, the EU ETS covered 727 installations in Poland, accounting for 198,051.73 kt CO_2 eq or about 50 per cent of the national emissions.

14. Emissions from non-ETS sectors are regulated through member State specific ESD targets that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020. Under the ESD, Poland has a target of limiting its emission growth to 14 per cent above the 2005 level by 2020 for non-ETS sectors. National emission targets for ESD sectors for 2020 have been translated into binding quantified AEAs for the period 2013–2020. Poland's AEAs change following a linear path from 193,642.82 kt CO_2 eq in 2013 to 205,181.20 kt CO_2 eq in 2020.[3]

15. The sectors under the ESD in Poland emitted 198,664.76 kt CO_2 eq in 2016, representing about 50 per cent of the total national emissions. According to the BR3, Poland expects to exceed its target under the ESD with a significant surplus by 2020. The ERT noted that in 2016 emissions from sectors under the ESD were above the AEAs for the first time. According to information gathered during the review, the increase in the reported emissions between 2015 and 2016 was caused by adjusted data in the national energy balance with regard to fuel consumption for road transport. However, according to the projections under the ESD provided during the review (see para. 75 below), it is still possible for Poland to have a surplus of AEAs by the end of the commitment period.

16. Two specific sectoral targets are also relevant to GHG emissions. With regard to renewable energy, Poland committed under the EU renewable energy directive (2009/28/EC) to a target of a 15 per cent share of RES in its gross final energy consumption by 2020. Under the EU energy efficiency directive (2012/27/EU) Poland set a target of a 13.6 Mtoe reduction in primary energy consumption by 2020.

17. During the review, Poland provided information to the ERT on its 2030 and 2050 emission reduction targets, as per its Energy Policy of Poland until 2050 initiative, namely a 30 per cent reduction by 2030 and 50 per cent by 2050 compared with the 2005 level.

2. Assessment of adherence to the reporting guidelines

18. The ERT assessed the information reported in the BR3 of Poland and recognized that the reporting on the quantified economy-wide emission reduction target is complete, transparent and 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 the achievement of the quantified economy-wide emission reduction target

1. Mitigation actions and their effects

(a) Technical assessment of the reported information

19. Poland provided detailed information on its package of PaMs implemented, adopted and planned to fulfil its commitments under the Convention and its Kyoto Protocol. The Party outlined the key national PaMs that have an impact on its commitments to reduce GHG emissions by 2020.

20. The PaMs were reported by sector but not organized by gas. They are similar to those previously reported, except the Clean Transport Package, the Urban Building Code and the National Waste Management Plan 2022.

21. Poland reported on its policy context and legal and institutional arrangements in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs. According to the Act of 17 July 2009 on the System to Manage the Emissions of Greenhouse Gases and Other Substances, KOBiZE is responsible for monitoring climate

[3] According to the EU transaction log, available at http://ec.europa.eu/environment/ets/esdAllocations.do?languageCode=en.

policy measures, preparing analyses, reviews and evaluations of policy implementation and developing tools to support the achievement of the goals of the emissions management system by modelling economic, financial and social impacts of climate policy.

22. Poland did not provide information on changes to its institutional, legal, administrative and procedural arrangements used for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress made towards its target.

23. Poland did not report on its self-assessment of compliance with its emission reduction target or national rules for taking action against non-compliance.

24. The key overarching cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS directive,[4] the ESD[5] and the directives on renewable energy[6] and carbon capture and storage.[7] The package is complemented by two further legislative acts: the regulation on the 2020 targets for CO_2 emissions from cars[8] and the directive on fuel quality.[9] The regulation on the 2020 targets for CO_2 emissions from vans was adopted in 2011[10] and the energy efficiency directive in 2012.[11] These legislative acts are crucial for attaining the EU-wide emission reduction target by 2020 and are supplemented by two general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package.

25. The EU ETS is a cap-and-trade system that operates in all 28 EU member States as well as in three non-EU countries (Iceland, Liechtenstein and Norway). It covers approximately 11,000 energy-intensive installations (mainly large point emissions sources such as thermal power plants, oil refineries and industrial facilities), which produce 40–45 per cent of the total GHG emissions of the EU. It is expected that the EU ETS 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for the sectors covered. The third phase of the EU ETS started in 2013. Aviation activities were included in 2012 and the EU ETS now includes slightly over 500 aircraft operators flying within the European Economic Area in addition to stationary installations. Moreover, in addition to CO_2 emissions, the EU ETS in its third phase covers N_2O emissions from certain chemical industries (all nitric, adipic and glyoxylic acid production) and PFC emissions from aluminium production.

26. In the third trading period (2013–2020), substantial changes were made to the rules for the allocation of allowances. The allocation of free emission allowances was restricted to installations that do not generate electricity. The exception to this rule is the allocation of emission allowances under Article 10(c) of the EU ETS directive (2003/87/EC). Poland is one of the countries that meets the criteria for derogation under Article 10(c) and it can grant allowances to electricity producers. The total amount of EU emission allowances granted to Poland under Article 10(c) derogation is approximately 404.65 million (the maximum number of free emission allowances for seven years).

27. The ESD became operational in 2013 and covers sectors outside the EU ETS, including transport (excluding domestic and international aviation, and international maritime transport), residential and commercial buildings, agriculture and waste, together accounting for 55–60 per cent of the GHG emissions of the EU. The aim of the ESD is to decrease GHG emissions in the EU by 10 per cent below the 2005 level by 2020 and it includes binding annual targets for each member State for 2013–2020.

28. Poland reported on its own planned strategic initiatives with a longer time-horizon than 2020. During the review, Poland presented the main elements of its Energy Policy of

[4] Directive 2009/29/EC amending directive 2003/87/EC.
[5] Decision 406/2009/EC.
[6] Directive 2009/28/EC.
[7] Directive 2009/31/EC.
[8] Regulation (EC) 443/2009.
[9] Directive 2009/30/EC.
[10] Regulation (EC) 510/2011.
[11] Directive 2012/27/EU.

Poland until 2050 initiative, which was first published in 2015 and is currently under revision. The initiative mainly targets energy security, alongside the competitiveness of the economy, increasing energy efficiency and mitigating negative impacts on the environment. The ERT noted that Poland stressed that all targets are to be met preferably by making use of internal energy assets. According to the initiative, Poland should progress towards a reduction in GHG emissions of 30 per cent by 2030 and 50 per cent by 2050 compared with the 2005 level. A 21 per cent share of RES in final energy consumption is foreseen by 2030. The share of coal in the production of electricity should decrease to 60 per cent by 2031 and 50 per cent by 2050. Nuclear power should be launched in 2031.

29. Among the mitigation actions that are critical for Poland's contribution to attaining the EU-wide 2020 emission reduction target are the actions affecting emissions from non-ETS sectors.

30. Poland introduced an array of national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are those undertaken under the National Energy Efficiency Action Plan for Poland 2014 (e.g. a white certificate scheme and energy performance certificates for new and expanded buildings), the promotion of renewable energy (e.g. through a green certificate scheme and a minimum required share of biofuels in final energy consumption in transport) and the different packages of measures in the transport sector (road transport, rail transport, maritime transport, etc.).

31. Among the measures for which an evaluation of the expected reduction in GHG emissions was presented, the mitigation effect of renewable energy related measures (i.e. enhancing the use of RES, including biofuels) is the most significant, with an estimated reduction of 35,396.00 kt CO_2 eq in 2020. Other policies expected to deliver significant emission reductions are the National Energy Efficiency Action Plan for Poland 2014, with an estimated reduction of 16,026.00 kt CO_2 eq, and the National Waste Management Plan 2022, with an estimated reduction of 4,345.00 kt CO_2 eq, both in 2020.

32. In its BR3 Poland provided information on a variety of mechanisms to finance the implementation of mitigation actions. The National Fund for Environmental Protection and Water Management is the governmental agency that has managed public local and EU funds in the environmental protection sector since 1989. The Fund is also the operator of the National Green Investment Scheme and is thus responsible for managing the greening programme in its priority areas of promotion of energy efficiency, wider use of RES (including the necessary grid infrastructure) and sustainable development of urban transport. Support is provided through grants, loans, subsidies and investments. In addition, there are 16 voivodeship (regional) funds for environmental protection and water management in Poland that provide loans and grants for projects and are funded via payments arising from environmental charges and fines.

33. Poland highlighted the domestic mitigation actions that are under development, such as the Urban Building Code and the Clean Transport Package. Some mitigation actions have not yet been fully implemented and contain provisions that are still in the planning stage, such as the different packages for transport. Given that the projections show that Poland is on track to achieve its 2020 EU targets by means of existing mitigation actions alone, the planned actions are not critical for Poland to attain its 2020 emission reduction target. Table 3 provides a summary of the reported information on the PaMs of Poland.

34. As a member State of the EU, Poland monitors its progress towards achieving its emission target in accordance with the European Parliament and European Council monitoring mechanism regulation (525/2013) (repealing EU decision 280/2004/EC).

Table 3
Summary of information on policies and measures reported by Poland

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	EU ETS	20 344
	ESD	12 111
Energy		
Transport	Clean Transport Package	NE
	Package for road transport	NE
Renewable energy	Enhancing the use of RES, including biofuels	35 396
Energy efficiency	National Energy Efficiency Action Plan for Poland 2014	16 026
IPPU	Use of fluorinated GHGs	NE
Agriculture	Rationalization of the use of fertilizers, including nitrogen fertilizers	NE
LULUCF	Afforestation of agricultural and non-agricultural land	1 436
Waste	National Waste Management Plan 2022	4 345

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

(b) Policies and measures in the energy sector

35. In 2015, final energy consumption in Poland was approximately 61 Mtoe, 5.17 per cent higher than in 2005. The most significant energy carriers in 2015 were petroleum-derived fuels, which accounted for 32 per cent of the total, coal and lignite, which accounted for 18 per cent, and gas, which accounted for 14 per cent. While oil and gas remained stable over the period 2005–2015, the share of coal and lignite decreased by 14.3 per cent in the same period (from 21 per cent in 2005 to 18 per cent in 2015). While coal and lignite are produced in Poland, domestic production of gas covers approximately 40 per cent of the national gas demand, the rest being imported from the Russian Federation and Ukraine; while oil production in Poland is negligible, with crude oil being imported from the Russian Federation, the Middle East and the North Sea.

36. **Energy supply**. The main target of the Energy Policy of Poland until 2050 initiative is to achieve energy security, alongside competitiveness of the State economy, increasing energy efficiency and, a high priority, mitigating negative impacts on the environment. All those targets are to be obtained preferably by making use of internal energy resources.

37. The main changes foreseen for energy supply in Poland are increasing the use of RES including biofuels in the transport sector, the entry into operation of nuclear power plants and the reduction of coal use in electricity production. According to the information provided in the BR3 and discussions during the review, the entry into operation of the nuclear power plants has been delayed to after 2030.

38. **Renewable energy sources**. The share of RES in total primary energy consumption was 12.7 per cent in 2015. Biomass accounts for the majority of RES (72.22 per cent), followed by liquid biofuels (10.78 per cent) and wind energy (10.76 per cent). The RES policy in Poland builds upon the national action plan for energy from renewable sources, which identifies the measures to be taken to achieve a national overall share of RES of 15 per cent of gross final energy consumption. With regard to RES used in transport, the minimum required contribution of biocomponents to transport fuels was determined in the Regulation of the Council of Ministers on National Indicative Targets for 2013–2018.

According to Poland, these measures should lead to the avoidance of 35,396.00 kt CO_2 eq emissions in 2020.

39. **Energy efficiency**. The energy intensity of the Polish economy has been decreasing since 1989 but it remains higher than the EU average. The main legislation on energy efficiency is the National Energy Efficiency Action Plan for Poland 2014, which covers an array of measures targeting different users in different sectors of the economy. The estimated impact of the measures is a 16,026.00 kt CO_2 eq emission reduction by 2020.

40. **Residential and commercial sectors**. The main PaM affecting the residential and commercial sectors is derived from the EU legislation on the energy performance of buildings (directive 2010/31/EU). By 31 December 2020, all new buildings should be nearly net zero energy buildings. Furthermore, Poland adopted in 2015 a national plan to increase the number of low-energy buildings, defining low-energy buildings and actions for the administration to promote low-energy buildings and to increase the share of renewable energy use in new and existing buildings.

41. The ERT noted that PaMs in this sector largely affect local authorities, which play the largest role in territorial planning and construction, and that the planned measure to replace inefficient heating systems in the residential sector with the latest available technologies could have a strong impact on the reduction of emissions from the sector.

42. The Urban Building Code (in the planning stage at the time of the review) represents the new framework for establishing a spatial policy favouring the reduction of emissions and adaptation to the effects of climate change by introducing spatial management principles to counteract the effects of climate change.

43. **Transport sector**. The Transport Development Strategy by 2020 (with perspective to 2030) sets out the objectives and direction of transport policy in Poland and includes provisions for reducing the environmental impact of transport, including reducing emissions. The ERT noted that Poland recognizes that economic growth will increase demand for transport significantly in the medium term. During the review, the Party described a projected increase in emissions from the transport sector of 52 per cent by 2030 with respect to 2005. Poland also explained that it foresees a stabilization of transport demand from 2040 onward. Transport measures were organized in the NC7 under several packages for each transport mode.

44. The package for road transport includes the modernization and construction of road infrastructure in order to abate road traffic, the improvement of energy efficiency and reduction of road vehicle emissions, the promotion of public transport, measures for optimal traffic management, behavioural measures addressing drivers, and measures supporting the development of cycling. The ERT noted that in the BR3 no estimation of the impact of this measure was reported, but for the same measure an estimation of impact was provided in the BR2.

45. The package for rail transport aims at increasing the competitiveness of this transport mode with respect to road transport. It includes the modernization of railway infrastructure and rolling stock for passenger and freight transport, the promotion of public rail transport and the modernization of traffic management systems.

46. The packages for domestic and international aviation include the improvement of operational efficiency, certificates for aircraft and optimization of flights and the modernization of the fleet.

47. The package for inland waterway transport aims to transfer road and air merchandise transport to inland waterway transport through the modernization of waterways and of the inland navigation fleet as well as the introduction of stricter requirements for pollutant emissions.

48. The package for maritime shipping introduces fuel requirements and an energy efficiency indicator and aims at developing and modernizing harbour infrastructure, including intermodal infrastructure and access to the harbour from land and sea.

49. A very recent response measure of Poland is the Clean Transport Package, endorsed at the beginning of 2017, which introduced three initiatives for the decarbonization of the

transport sector: the Electromobility Development Plan in Poland (areas and stages of electromobility development, with the proposal of intervention tools), the national framework for alternative fuel infrastructure development (objectives and tools for infrastructure development) and the establishment of the Low-Carbon Transport Fund (a financial instrument supporting producers and purchasers of vehicles powered by alternative fuels).

50. The BR3 includes information on how Poland promotes and implements the decisions of the International Civil Aviation Organization and the International Maritime Organization to limit emissions from aviation and marine bunker fuels. In particular, with regard to aviation, Poland put forward measures such as improved operational efficiency, aircraft certificates and flight optimization. With regard to maritime shipping, Poland has transposed the requirements of the International Convention for the Prevention of Pollution from Ships (such as the energy efficiency design index for new ships, and the ship energy efficiency management plan) into national law.

(c) Policies and measures in other sectors

51. **Industrial processes**. The only measure reported in the BR3 for IPPU is related to the use of fluorinated GHGs and based on EU implementing regulation 517/2014. The measure includes an innovative system to manage data on fluorinated gases based on the Central Register of Equipment Operators and Database of Reports managed by the Ozone Layer and Climate Protection Unit of the Industrial Chemistry Research Institute in Warsaw. The ERT noted that this measure could be put forward as an innovative measure effectively replicable by other Parties.

52. **Agriculture**. The European Agricultural Fund for Rural Development is the overarching EU framework for agricultural policy in Poland, including environmental protection and climate-related measures. The strategy for sustainable rural development, agriculture and fisheries for 2012–2020 defines a long-term vision for rural development and the fisheries sector in Poland. The instrument for the operationalization of agricultural policy is the National Strategic Plan for Rural Development.

53. The main measures implemented in this sector in Poland include the reduction of the use of fertilizers (rationalization of the use of fertilizers, including nitrogen fertilizers), the protection of soil through an array of measures (sustainable management of agricultural land, support for adaptation and reduction measures in agricultural holdings), support for organic farming (sustainable management of agricultural land, support for adaptation and reduction measures in agricultural holdings) and the reduction of emissions from livestock manure (improvement of monogastric livestock systems, reduction of CH_4 emissions from livestock, elimination of gaseous pollutants emitted from livestock buildings). The ERT noted that afforestation of agricultural and non-agricultural land, estimated to avoid 1,435.79 kt CO_2 eq by 2020, and restoring the forest production potential destroyed by disasters and implementing preventive measures are included in the BR3 under the agriculture sector and not the LULUCF or forestry sector.

54. **LULUCF and forestry**. The LULUCF sector was a net sink of 28,844.99 kt CO_2 eq in Poland in 2015 and net GHG removals have increased by 3,114.54 kt CO_2 eq since 1990 (by 12,038.16 kt CO_2 eq since the base year (1988)). This trend was driven mainly by the afforestation programme of the Polish State Forests organization. Forestry policy in Poland aims at ensuring the sustainability and multifunctionality of forests and at increasing forest resources. The main PaMs in the forestry sector are related to the rationalization of forest management, incentives and actions supporting afforestation, and the protection of the ecological stability of forests. The State Forestry Policy places strong emphasis on afforestation, with the objective of increasing national forest cover to 30 per cent by 2020 and 33 per cent by 2050 gradually through afforestation of unprofitable land for agriculture, and the achievement of a spatially optimal forest structure by protecting and exploiting the productive potential of habitats.

55. **Waste management**. The National Waste Management Plan 2022 is the main strategic document setting out the direction of the waste management sector. It contains objectives and directions for waste management and detailed measures to achieve those

objectives in line with the waste hierarchy laid down in the EU waste framework directive. Poland set a target to reach by 2020 a level of recycling and reuse of the four fractions (paper, metals, plastics and glass) of at least 50 per cent by weight. By 2020, the amount of biodegradable municipal waste should be reduced so that less than 35 per cent by mass of the waste generated in 1995 is stored. Targets for recovery and recycling of packaging waste were set at 60 and 56 per cent, respectively. To reach those targets Poland put forward measures such as promoting waste and waste-free technologies, environmentally friendly waste processing (e.g. recycling), raising fees for storing waste containing biodegradable fractions, increasing recycling, preparing for reuse and recovery by other methods and reducing the amount of biodegradable municipal waste transferred to landfill. Overall, the National Waste Management Plan 2022 is foreseen to achieve emission reductions of 4,345.00 kt CO_2 eq by 2020. The ERT noted that in CTF table 3 an emission reduction value for 2020 was not reported, but it was included in table 3 in annex 1 to the NC7. The ERT also noted that the National Waste Management Plan 2022 was not flagged in the BR3 as included under the WEM scenario but during the review it was explained as such.

(d) Response measures

56. Poland did not report on the assessment of the economic and social consequences of its response measures. During the review, the Party explained that some qualitative information on economic and social impacts can be derived from the impact assessment of legislation.

57. Poland did not provide complete information on how it strives to implement PaMs under Article 2 of the Kyoto Protocol in such a way as to minimize adverse effects, including the adverse effects of climate change, effects on international trade, and social, environmental and economic impacts on other Parties. The ERT acknowledges that in the BR3 Poland reported some information on climate aid. Nonetheless, the ERT noted that the information was not sufficient to clarify how the Party minimizes any adverse effects of its response policies.

(e) Assessment of adherence to the reporting guidelines

58. The ERT assessed the information reported in the BR3 of Poland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 4.

Table 4
Findings on mitigation actions and their effects from the review of the third biennial report of Poland

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 ERT noted that Poland's BR3 presents mitigation actions and the GHGs that they affect organized by sector but not by gas. During the review this point was raised and some ways to include a presentation by gas were discussed. The ERT reiterates the recommendation made in the previous review report that Poland enhance the transparency of its reporting by organizing the reporting of mitigation actions by gas, for example by organizing mitigation actions first by sector and then by GHG affected.
2	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The ERT noted that Poland's BR3 CTF table 3 does not provide the estimated impact for all reported mitigation actions and it provides information on mitigation actions in sectors (like forestry or LULUCF) that are outside the scope of its quantified economy-wide emission reduction target under the Convention without clearly distinguishing those. During the review, Poland provided some of the missing information and clarified difficulties in estimation impacts for all reported mitigation actions.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		The ERT recommends that Poland include estimated impacts for its mitigation actions in its next BR, or clearly explain why this may not be possible due to its national circumstances, and also that Poland clearly distinguish between the information on mitigation actions that pertains to its target and the information that does not.
3	Reporting requirement specified in paragraph 7 Issue type: completeness Assessment: recommendation	The ERT noted that Poland did not include information on 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. During the review, Poland explained that there were no changes in comparison with the previous BR. The ERT recommends that Poland complete its reporting by adding a section describing arrangements for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target, and explaining if any changes have occurred with respect to the previous submission.
4	Reporting requirement specified in paragraph 8 Issue type: transparency Assessment: encouragement	The ERT noted that Poland did not report on the assessment of the economic and social consequences of its response measures. During the review, it was revealed that major PaMs underwent impact assessment. Even if the results of the assessments are only qualitative, their conclusions could still be relevant to the economic and social consequences of response measures. The ERT thus reiterates the encouragement for Poland to include some information on the economic and social consequences of its response measures in its next BR.

Note: Paragraph number 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 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

59. For 2014 Poland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 382,969.30 kt CO_2 eq, which is 32.9 per cent below the base-year (1990) level. In 2014 emissions from non-ETS sectors relating to the target under the ESD amounted to 181,543.02 kt CO_2 eq.

60. For 2015 Poland reported in CTF table 4 annual total GHG emissions excluding LULUCF of 385,842.89 kt CO_2 eq, which is 32.4 per cent below the base-year (1990) level. In 2015 emissions from non-ETS sectors relating to the target under the ESD amounted to 186,772.42 kt CO_2 eq.

61. Given that the contribution of LULUCF activities is not included in the Convention target of Poland, the LULUCF values were not reported in CTF tables 4, 4(a)I and 4(a)II. Poland reported that it does not intend to use units from market-based mechanisms under the Kyoto Protocol for 2015. It reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2015 towards the achievement of its 2020 target. Table 5 illustrates Poland's total GHG emissions, the contribution of LULUCF and the use of units from market-based mechanisms to achieve its target.

Table 5
Summary of information on the use of units from market-based mechanisms and land use, land-use change and forestry by Poland to achieve its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution of LULUCF (kt CO_2 eq)*[a]	*Emissions including contribution of LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
Base year[b]	570 370.88	NA	570 370.88	NA
2010	406 973.16	NA	406 973.16	NA
2011	406 419.78	NA	406 419.78	NA
2012	399 071.85	NA	399 071.85	NA
2013	395 532.34	NA	395 532.34	NA
2014	382 969.30	NA	382 969.30	NA
2015	385 842.89	NA	385 842.89	0
2016	NA	NA	NA	NA

Sources: Poland's BR3 and CTF tables 1, 4, 4(a)I, 4(a)II and 4(b).

[a] The EU's unconditional commitment to reduce GHG emissions by 20 per cent below the 1990 level by 2020 does not include emissions/removals from LULUCF.

[b] Emissions and removals are reported for a base year, if a year other than 1990 is used as the base year.

62. In assessing the progress towards the achievement of the 2020 target, the ERT noted that Poland's emission reduction target for non-ETS sectors related to the ESD is 14 per cent above the 2005 level. As discussed above, in 2016 Poland's emissions from non-ETS sectors were 11.9 per cent (198,664.76 kt CO_2 eq) above the 2005 level and 0.66 per cent above the AEAs under the ESD for 2016 (197,370.99 kt CO_2 eq). In addition, the ERT noted that in 2015 the use of market-based mechanisms accounted for 0 kt CO_2 eq.

63. The ERT noted that Poland is making progress towards its emission reduction target by implementing and planning mitigation actions that are slowing down the growth in emissions, as indicated by the estimated positive impacts of its PaMs. The ERT also noted that its ability to technically assess Poland's progress towards its target could be enhanced if Poland provided further information on how it estimated the effects of its PaMs. With a view to 2020, on the basis of the results of the projections (see chapter II.C.3 below), the ERT further noted that the Party is making progress towards achieving its target under the ESD.

(b) Assessment of adherence to the reporting guidelines

64. The ERT assessed the information reported in the BR3 of Poland and recognized that the reporting on estimates of emission reductions and removals and the use of units from market-based mechanisms and LULUCF is complete, transparent and 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

65. Poland reported updated projections for 2020, 2025, 2030, 2035 and 2040 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Poland includes implemented and adopted PaMs. During the review, the ERT took note of an updated data set for 2016–2019 for sectors under the ESD.

66. The ERT noted that Poland increased the transparency of its reporting by explicitly stating which PaMs are included in the WEM scenario. The Party provided a definition of the WEM scenario, which, according to the BR3, includes policies such as the EU ETS, enhancing the use of RES (to a share of 12 per cent of final energy consumption by 2020), the nuclear power programme (to be launched in 2025), the National Energy Efficiency Action Plan for Poland 2014 and different packages of measures in the transport sector.

67. 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, PFCs, HFCs and SF_6 (treating PFCs and HFCs collectively in each case) as well as NF_3 (which is, however, not occurring) for 1990–2040. The projections are also provided in an aggregated format for each sector as well as for a Party total using global warming potential values from the AR4.

68. The ERT noted that Poland enhanced the completeness of its reporting by providing emission projections related to fuel sold to ships and aircraft engaged in international transport reported separately and not included in the totals. Poland reported in detail on factors and activities affecting emissions for each sector.

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

69. The methodology used for the preparation of the projections is almost identical to that used for the preparation of the emission projections for the BR2. During the review, Poland explained the methodological changes made since the BR2, including a change in the models used to develop the forecasts for fuel combustion and electricity generation. The WISE Microfoundations-based Energy and Emissions Projection model and WISE Polish Energy Sector Simulation Analytics toolbox replaced the Model for Analysis of Energy Demand end-use model that was used for the BR2 to generate projections of energy demand.

70. During the review, at the request of the ERT, Poland presented the status of development of a new modelling framework (Centre for Climate and Energy Analyses, or CAKE), including a large-scale computable general equilibrium model (called PLACE) as a core model and sectoral models for energy, transport and agriculture as satellite models. The development is expected to be finalized in 2020.

71. To prepare its projections, Poland relied on key underlying assumptions of the following: population trends, growth rate in gross domestic product, energy consumption, electricity production, cattle production, municipal solid waste generation and clinker production, among others. The variables and assumptions were reported in CTF table 5.

72. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The structure of the Polish economy is expected to gradually become similar to the structure of Western European economies, while retaining a relatively large role for industry and construction; consequently, the energy demand of the manufacturing sector will remain high. It is assumed that the primary energy demand of households will drop up until 2040 owing to the increased energy efficiency of buildings and appliances. The transport sector is assumed to benefit from the increase in fuel efficiency of heavy-goods vehicles and passenger cars and also from the promotion of hybrid cars. However, freight transport will further develop and is expected to level out some of the efficiency gains, leading to crude oil demand at the current level in 2030. Coal-fired power plants are assumed to remain the main source of electricity over the entire forecast period. Narrowing the expected gap between electricity production and demand will require investment in low-carbon technologies. Economy-wide, the importance of the agriculture sector is assumed to decrease and the share of services assumed to increase.

73. The main sources of assumptions for the projections were a 2013 forecast of fuel and energy demand until 2050 and the related 2014 analysis for assessing the effect of EU climate and energy policy on Poland's energy policy. For GHG emissions from road transport, prognostic assumptions were taken from a 2017 expert forecast of changes in the activity of the road transport sector. The National Waste Management Plan 2022 and the voivodeship waste management plans provided forecast quantities of generated, solid and incinerated waste.

(c) Results of projections

74. The projected emission levels under different scenarios and information on the Kyoto Protocol target and the quantified economy-wide emission reduction target are presented in table 6 and the figure below.

Table 6
Summary of greenhouse gas emission projections for Poland

	GHG emissions (kt CO_2 eq per year)	*Changes in relation to base-year[a] level (%)*	*Changes in relation to 1990 level (%)*
Quantified economy-wide emission reduction target under the Convention[b]	Not available yet	NA	–20.0
Inventory data 1990[c]	467 881	NA	NA
Inventory data 2015[c]	385 843	–17.5	–17.5
WEM projections for 2020[d]	387 993	–17.1	–17.1
WEM projections for 2030[d]	360 933	–22.9	–22.9

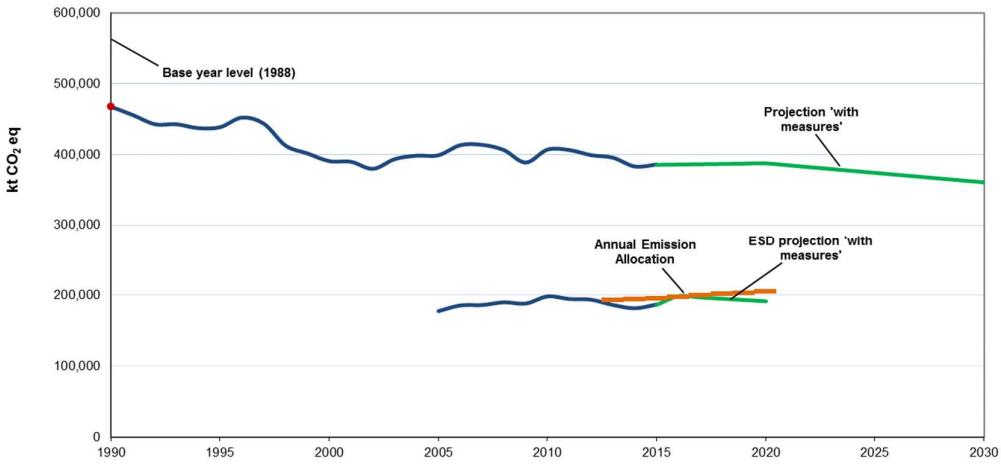
[a] "Base year" in this column refers to the base year used for the target under the Kyoto Protocol, while for the target under the Convention it refers to the base year used for that target.

[b] The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its 28 member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020.

[c] From Poland's BR3 CTF table 6.

[d] From Poland's NC7 and/or BR3.

Greenhouse gas emission projections reported by Poland



Sources: (1) data for the years 1990–2015: Poland's 2017 annual inventory submission, version 1.0; total GHG emissions excluding LULUCF; (2) data for the years 2015–2030: Poland's NC7 and BR3; total GHG emissions excluding LULUCF. During the review, Poland provided an updated projected data set for non-ETS sector emissions between 2016 and 2019.

75. Poland's total GHG emissions excluding LULUCF in 2020 and 2030 are projected to be 387,993.25 and 360,933.03 kt CO_2 eq, respectively, under the WEM scenario, which represents a decrease of 17.1 and 22.9 per cent, respectively, below the 1990 level. The 2020 projections suggest that Poland is expecting to continue contributing to the achievement of the EU target under the Convention (see para. 11 above).

76. Poland's target for sectors under the ESD is to limit its emission growth to 14 per cent above the 2005 level by 2020. Poland's AEAs, which correspond to its national emission target for non-ETS sectors, change linearly from 193,642.82 kt CO_2 eq in 2013 to 205,181.20 kt CO_2 eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 191,701.73 kt CO_2 eq by 2020. The projected level of emissions under the WEM scenario is 7.03 per cent below the AEAs for 2020. The ERT noted that this suggests that Poland expects to meet its target under the WEM scenario.

77. In 2015, Poland's GHG emissions under the ESD were below its national annual emission target. However, the ERT noted that in 2016 reported emissions from sectors under the ESD increased slightly above the level of the target trajectory as a result of the statistical recalculation of fuel consumption for road transport between 2015 and 2016, and that Poland may face challenges in achieving the significant surplus by 2020 expected under the WEM scenario developed on the basis of 2015 inventory data.

78. Poland presented the WEM scenario by sector for 2020 and 2030, as summarized in table 7.

Table 7
Summary of greenhouse gas emission projections for Poland 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 (not including transport)	361 504	262 018	–	228 114	–	–27.5	–	–36.9	–
Transport	20 497	53 843	–	56 792	–	162.7	–	177.1	–
Industry/industrial processes	22 693	29 181	–	31 903	–	28.6	–	40.6	–
Agriculture	47 156	31 029	–	32 320	–	–34.2	–	–31.5	–
LULUCF	–25 730	–21 820	–	–13 796	–	–15.2	–	–46.4	–
Waste	16 031	11 922	–	11 803	–	–25.6	–	–26.4	–
Total GHG emissions without LULUCF	**467 881**	**387 993**	–	**360 933**	–	**–17.1**	–	**–22.9**	–

Source: Poland's BR3 CTF table 6.

79. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the sector energy (excluding transport), followed by agriculture, amounting to projected reductions of 99,486.00 kt CO_2 eq (27.5 per cent) and 16,127.00 kt CO_2 eq (34.2 per cent) between 1990 and 2020, respectively. Conversely, GHG emissions from transport are projected to increase by 33,356 kt CO_2 eq or 162.7 per cent. Industry and industrial process emissions are estimated to be 6,488 kt CO_2 eq or 28.6 per cent higher in 2020 than in 1990.

80. The pattern of projected emissions reported for 2030 under the same scenario remains the same. The main emission reductions between 2020 and 2030 are foreseen to occur in the energy sector (without transport), amounting to 133,390.00 kt CO_2 eq or 36.9 per cent by 2030 in comparison with the 1990 level, while emissions from the transport sector are expected to increase by 36,295 kt CO_2 eq or 177.1 per cent above the 1990 level. The emission decrease in the energy sector without transport will be driven mainly by the changes in the energy mix and energy demand; in particular, the reduction of the combined share of coal and lignite used for primary energy, from 50.0 per cent in 2020 to 39.4 per cent in 2030, as well as the increase in the share of RES in final energy consumption, from 12 per cent in 2020 to 14 per cent in 2030, and the launch of the nuclear programme in 2025.

81. The ERT noted that Poland's nuclear programme was planned to be launched in 2020 according to its NC6, 2025 according to its NC7 and 2031 according to a presentation made during the review providing additional information on the latest update of Poland's energy policy until 2050. Poland explained that delays in the implementation of the programme are not yet reflected in the energy projections.

82. Poland presented the WEM scenario by gas for 2020 and 2030, as summarized in table 8.

Table 8

Summary of greenhouse gas emission projections for Poland 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	376 040	314 092	–	286 338	–	–16.5	–	–23.9	–
CH_4	64 387	45 428	–	44 641	–	–29.4	–	–30.7	–
N_2O	27 313	20 320	–	20 929	–	–25.6	–	–23.4	–
HFCs	0	8 095	–	8 962	–	NA	–	NA	–
PFCs	142	12	–	10	–	–91.9	–	–92.9	–
SF_6	0	47	–	53	–	NA	–	NA	–
NF_3	0	0	–	0	–	NA	–	NA	–
Total GHG emissions without LULUCF	**467 881**	**387 993**	–	**360 933**	–	**–17.1**	–	**–22.9**	–

Source: Poland's BR3 CTF table 6.

83. For 2020 the most significant reductions are projected for CO_2 emissions, by 61,948.00 kt CO_2 eq (16.5 per cent) between 1990 and 2020, followed by CH_4 and N_2O emissions with reductions of 18,959 kt CO_2 eq (29.4 per cent) and 6,993 kt CO_2 eq (25.6 per cent), respectively. Reductions in CO_2 are expected to reach 23.9 per cent or 89,702 kt CO_2 eq by 2030 compared with the 1990 level.

(d) Assessment of adherence to the reporting guidelines

84. The ERT assessed the information reported in the BR3 of Poland and identified issues relating to completeness, transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 9.

Table 9
Findings on greenhouse gas emission projections reported in the third biennial report of Poland

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 28 Issue type: completeness Assessment: encouragement	The BR3 did not include a WAM or a 'without measures' scenario in addition to the WEM scenario. During the review, Poland explained that according to the latest projections Poland would be able to meet its 2020 target with existing measures and therefore did not provide a WAM scenario. The ERT reiterates the encouragement made in the previous review report for Poland to provide a WAM and 'without measures' scenario or clearly explain in its next submission why such scenarios were not developed.
2	Reporting requirement specified in paragraph 35 Issue: completeness Assessment: encouragement	The BR3 did not include emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides. During the review, the Party explained that such emission projections were developed and reported under the national emission ceiling directive. The ERT reiterates the encouragement made in the previous review report that Poland increase the completeness of its reporting by providing in the BR emission projections for indirect GHGs.
3	Reporting requirement specified in	The BR3 did not include, for each model and forecasting approach, the type (e.g. top-down model, bottom-up model, accounting model or expert judgment) and its

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
	paragraph 43 Issue type: completeness Assessment: encouragement	main characteristics (e.g. original purpose of the model, strengths and weaknesses of the approach, how the approach accounts for potential overlaps or synergies that may exist between different PaMs). During the review, Poland provided additional information, elaborating on the methodology used for estimating future GHG emissions on the basis of official forecasts of activity data provided by relevant ministries and emission factors consistent with the sectoral methodologies used in the national GHG inventory. The ERT reiterates the encouragement made in the previous review report that Poland enhance the completeness and transparency of its reporting by providing additional relevant information in its next submission.
4	Reporting requirement specified in paragraph 47 Issue type: completeness Assessment: encouragement	CTF table 5 did not include historical data on key variables and assumptions. Poland confirmed during the review that the historical data were missing in CTF table 5. The ERT encourages Poland to include in its next submission historical values for the key underlying assumptions and variables used to develop the projections reported.
5	Reporting requirement specified in paragraph 30 Issue type: completeness Assessment: encouragement	The BR3 did not include a sensitivity analysis for the projections. During the review, Poland explained that a comprehensive sensitivity analysis exploring four different policy scenarios had been developed for the NC6. An update of the study was not available and a sensitivity analysis was therefore not reported in Poland's BR3/NC7. The ERT reiterates the encouragement made in the previous review report that Poland improve the completeness of its reporting by providing a sensitivity analysis in its next submission.

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

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

85. Poland is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention. However, Poland provided information in the BR3 on its provision of support to developing country Parties. The ERT commends Poland for reporting such information and suggests that it continue to do so in future BRs.

86. Poland is carrying out a number of supporting activities, recognizing and understanding the need to support sustainable development in developing countries and transition economies. As an EU member State, the majority of aid is allocated through contributions to the EU general budget. Poland's financial contribution to climate change related activities in this reporting period amounted to approximately EUR 14.7 million, aiming at scientific and technology research, building resilience to natural disasters, dissemination of innovative energy-efficient technologies and development of renewable energy sources.

III. Conclusions and recommendations

87. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of Poland 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; progress made by Poland in achieving its target; and the Party's provision of support to developing country Parties.

88. Poland's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 15.3 per cent below its 1990 level, whereas total GHG emissions including LULUCF were 16.3 per cent below its 1990 level, in 2016. Emission decreases were driven by the economic restructuring and modernization of industry after the economic transformation in the early 1990s and the gradual development of a dominant tertiary sector during the transition to a market economy. Additionally, measures were taken to increase energy efficiency and the share of RES in the energy mix, yet coal remains the main fuel in Poland's total primary energy supply. Emissions from transport show a significant increase of 160.6 per cent since 1990 related to growing fuel consumption due to rapidly increasing vehicle numbers, with a notable rise in diesel vehicles after Poland's accession to the EU in 2004. The ERT noted that if the emissions due to the growing transport demand as well as from the industry and construction sector, which retains its large role in Poland's economy, continue to increase, they could potentially undermine Poland's emission reductions in other sectors in the future.

89. Under the Convention, Poland committed to contributing to the achievement of the joint EU quantified economy-wide emission reduction target of a 20 per cent reduction in emissions below the 1990 level by 2020. The target covers all sectors and CO_2, CH_4, N_2O, HFCs, PFCs and SF_6, expressed using global warming potential values from the AR4. Emissions and removals from the LULUCF sector are not included. The EU generally allows its member States to use units from the Kyoto Protocol mechanisms and new market mechanisms for compliance purposes up to an established limit and subject to a number of restrictions on the origin and the type of project. Companies can make use of such units to fulfil their requirements under the EU ETS.

90. Under the ESD, Poland has a target of limiting its emission growth to 14 per cent above the 2005 level by 2020. Poland's AEAs, which correspond to its national emission target for sectors under the ESD, change linearly from 193,642.82 kt CO_2 eq in 2013 to 205,181.20 kt CO_2 eq for 2020. According to the projections under the WEM scenario, emissions from non-ETS sectors are estimated to reach 191,701.73 kt CO_2 eq by 2020. The projected level of emissions under the WEM scenario is 7.03 per cent below the AEAs for 2020.

91. Poland's main policy framework relating to energy and climate change is the Energy Policy of Poland until 2050 initiative, which was first published in 2015 and is currently under revision. Poland introduced an array of national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are those undertaken under the National Energy Efficiency Action Plan for Poland 2014 (e.g. a white certificate scheme and energy performance certificates for new and expanded buildings), the promotion of renewable energy (e.g. through a green certificate scheme and a minimum required share of biofuels in final energy consumption in fuels) and the different packages of measures in the transport sector. Poland has also established a variety of mechanisms to finance the implementation of mitigation actions, mainly channelled through the National Fund for Environmental Protection and Water Management. The mitigation actions with the most significant mitigation impact are the implementation of the EU ETS in Poland, the actions included in the National Energy Efficiency Action Plan for Poland 2014 and the promotion of RES.

92. For 2015 Poland reported in CTF table 4 total GHG emissions excluding LULUCF of 385,842.89 kt CO_2 eq. Poland did not report on its use of units from market-based mechanisms to achieve its target.

93. The GHG emission projections provided by Poland in its BR3 correspond to the WEM scenario. Under the scenario, emissions are projected to be 17.1 per cent below the 1990 level by 2020. On the basis of the reported information, the ERT concludes that Poland expects to meet its 2020 target under the WEM scenario. In 2015 Poland's GHG emissions from non-ETS sectors were below its national annual emission target. However, the ERT noted that in 2016 those emissions increased slightly above the level of the target trajectory owing to the statistical recalculation of fuel consumption for road transport

between 2015 and 2016, and that Poland may not fully achieve the significant surplus by 2020 expected under the WEM scenario developed on the basis of 2015 inventory data.

94. The ERT noted that Poland is making progress towards its emission reduction target by implementing mitigation actions that deliver significant emission reductions. On the basis of the results of the projections for 2020 under the WEM scenario, emissions from non-ETS sectors are estimated to reach 191,701.73 kt CO_2 eq by 2020. The projected level of emissions under the WEM scenario is 7.03 per cent below the AEAs for 2020. The ERT noted that this suggests that Poland expects to meet its target under the WEM scenario.

95. Although Poland is not an Annex II Party and is therefore not obliged to adopt measures and fulfil obligations defined in Article 4, paragraphs 3, 4 and 5, of the Convention, it provided information on its provision of support to developing country Parties. As an EU member State, the majority of aid is allocated through contributions to the EU general budget. Poland's financial contribution to climate change related activities in this reporting period amounted to approximately EUR 14.7 million, aiming at scientific and technology research, building resilience to natural disasters, dissemination of innovative energy-efficient technologies and development of renewable energy sources. The ERT commends Poland for reporting such information and suggests that it continue to do so in future BRs.

96. In the course of the review, the ERT formulated the following recommendations for Poland to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR:[12]

(a) To improve the completeness of its reporting by providing information on arrangements for domestic compliance, monitoring, reporting, archiving of information and evaluation of the progress towards its economy-wide emission reduction target, and explaining if any changes have occurred with respect to the previous submission (see table 4, issue 3);

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

(i) Organizing the reporting of mitigation actions by gas, for example by organizing mitigation actions first by sector and then by GHG affected (see table 4, issue 1);

(ii) Including estimated impacts for its mitigation actions or explaining why such impacts were not estimated, and clearly distinguishing between the information on mitigation actions that pertains to its target and the information that does not (see table 4, issue 2).

[12] The recommendations are given in full in the relevant sections of this report.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Poland. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/submissions/national-inventory-submissions-2017.

2018 GHG inventory submission of Poland. Available at https://unfccc.int/process/transparency-and-reporting/reporting-and-review-under-the-convention/greenhouse-gas-inventories-annex-i-parties/national-inventory-submissions-2018.

BR3 of Poland. Available at http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf.

BR3 CTF tables of Poland. Available at https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/third-biennial-reports-annex-i.

"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 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 Poland. Available at http://unfccc.int/files/national_reports/non-annex_i_parties/biennial_update_reports/application/pdf/8193245_poland-br3-nc7-1-nc7-br3_poland.pdf.

Report on the individual review of the annual submission of Poland submitted in 2016. FCCC/ARR/2016/POL. Available at https://unfccc.int/sites/default/files/resource/docs/2017/arr/pol.pdf.

Report of the technical review of the second biennial report of Poland. FCCC/TRR.2/POL. Available at https://unfccc.int/sites/default/files/resource/docs/2016/trr/pol.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 Ms. Sylwia Waśniewska (KOBiZE), including additional material.