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Framework Convention on Climate Change



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Report on the technical review of the fourth biennial report of Spain

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 Spain, 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 27 April to 1 May 2020 remotely.





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Abbreviations and acronyms

AEA	annual emission allocation
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
ESD	European Union effort-sharing decision
EU	European Union
EU ETS	European Union Emissions Trading System
F-gas	fluorinated gas
GHG	greenhouse gas
GWP	global warming potential
HFC	hydrofluorocarbon
IPPU	industrial processes and product use
ktoe	kilotonne of oil equivalent
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NECP	National Energy and Climate Plan
NF ₃	nitrogen trifluoride
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
N ₂ O	nitrous oxide
PaMs	policies and measures
PFC	perfluorocarbon
REGATTA	Regional Gateway for Technology Transfer and Climate Change Action in Latin America and the Caribbean
SF_6	sulfur hexafluoride
TIMES	The Integrated Market Allocation-Energy Flow Optimization Model System
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
UNFCCC reporting guidelines on CTF tables	"Common tabular format for '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'

I. Introduction and summary

A. Introduction

1. This is a report on the centralized technical review of the BR4¹ of Spain. 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 Spain, 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 Party included in Annex I to the Convention from 27 April to 1 May 2020 remotely² by the following team of nominated experts from the UNFCCC roster of experts: Njangu Lewis Aldo Jr. (Liberia), Fernando Farias (Chile), Sasha Gottlieb (United States of America), Maria Gutiérrez (Mexico), Jolanta Merkeliene (Lithuania), Jacqueline Pham (Australia), Ridhima Sud (India) and Miguel Angel Taboada (Argentina). Mr. Farias and Ms. Pham were the lead reviewers. The review was coordinated by Roman Payo and Jamie Howland (secretariat).

B. Summary

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

1. Timeliness

5. The BR4 was submitted on 23 December 2019, before the deadline of 1 January 2020 mandated by decision 2/CP.17. The CTF tables were also submitted on 23 December 2019. The CTF tables were resubmitted on 13 May and 29 July 2020 to address issues raised during the review. The resubmissions included changes to CTF tables 6(a), 6(c), 7 and 7(b). 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 Spain in its BR4 mostly adheres to the UNFCCC reporting guidelines on BRs. Spain did not submit an English translation of its BR4. The ERT encourages Spain to submit an English translation of its BR5, in accordance with paragraph 26 of the UNFCCC reporting guidelines on BRs.

Table 1

Summary of completeness and transparency of mandatory information reported by Spain in its fourth biennial report

Section of BR	Completeness	Transparency	Reference to description of recommendation(s)
GHG emissions and removals	Complete	Transparent	
Quantified economy-wide emission reduction target and related assumptions, conditions and methodologies	Complete	Transparent	

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 Spain had to be conducted remotely.

Section of BR	Completeness	Transparency	<i>Reference to description of recommendation(s)</i>
Progress in achievement of targets	Mostly complete	Transparent	Issue 1 in table 4
Provision of support to developing country Parties	Mostly complete	Mostly transparent	Issues 1 and 3 in table 12

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.

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

7. Total GHG emissions³ excluding emissions and removals from LULUCF increased by 15.5 per cent between 1990 and 2018, whereas total GHG emissions including net emissions or removals from LULUCF increased by 16.9 per cent over the same period. Emissions reached the highest point in 2007 and decreased thereafter. The changes in total emissions were driven mainly by factors such as economic growth and weather conditions. Since 2013, Spain has been experiencing a period of economic recovery and gross domestic product growth, which has resulted in the stabilization of emission levels. However, in 2017 Spain experienced particularly hot and dry weather conditions; the decrease in precipitation caused hydroelectricity production to fall by 49.0 per cent compared with production in 2016, leading to an increase in carbon-based electricity production. GHG emissions in the energy sector increased by 14.3 per cent as a result. The following year, 2018, saw higher levels of precipitation and was considered a hydrologically wet year, and as such, GHG emissions in the energy sector in 2018 have fallen compared with the 2017 level.

8. Table 2 illustrates the emission trends by sector and by gas for Spain. Note that information in this paragraph and table 2 is based on Spain's 2020 annual submission, version 1, which has not yet been subject to review. All emission data in subsequent chapters are based on Spain's BR4 CTF tables unless otherwise noted. The emissions reported in the 2020 annual submission differ from the data reported in CTF table 1 in that CTF table 1 is based on the 2019 annual submission and Spain made minor recalculations between the 2019 and 2020 annual submissions. For example, total GHG emissions including LULUCF for 1990, 2000, 2010 and 2017 were reported as 252,617.07, 348,004.89, 320,257.27 and 301,903.06 kt CO_2 eq, respectively, in CTF table 1 but as 253,435.42, 349,186.49, 321,583.33 and 301,362.04 kt CO_2 eq, respectively, in the 2020 annual submission.

Table 2Greenhouse gas emissions by sector and by gas for Spain 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	213 027.76	290 061.18	265 813.50	258 692.26	253 384.03	18.9	-2.1	73.6	75.8
A1. Energy industries	78 918.07	105 769.17	75 194.18	81 290.59	72 236.10	-8.5	-11.1	27.3	21.6
A2. Manufacturing industries and construction A3. Transport	45 270.93 58 658.75	58 681.53 86 717.28	49 794.87 91 590.68	44 531.81 89 025.85	46 408.47 90 268.87	2.5 53.9	4.2 1.4	15.6 20.3	13.9 27.0

³ In this report, the term "total GHG emissions" refers to the aggregated national GHG emissions expressed in terms of CO₂ eq excluding LULUCF, unless otherwise specified.

FCCC/TRR.4/ESP

		GHG	emissions (kt C	$O_2 eq)$		Change	(%)	Share	(%)
	1990	2000	2010	2017	2018	1990– 2018	2017– 2018	1990	2018
A4. and A5. Other	26 631.55	35 709.63	46 276.79	39 781.62	40 422.27	51.8	1.6	9.2	12.1
B. Fugitive emissions from fuels	3 548.47	3 183.57	2 956.99	4 062.39	4 048.32	14.1	-0.3	1.2	1.2
C. CO ₂ transport and storage	NO	NO	NO	NO	NO	_	_	_	_
2. IPPU	29 611.75	41 745.10	40 220.80	28 146.91	27 756.34	-6.3	-1.4	10.2	8.3
3. Agriculture	37 042.41	43 895.25	38 309.65	39 901.03	39 643.76	7.0	-0.6	12.8	11.9
4. LULUCF	-35 947.91	-39 589.64	-37 275.58	-38 936.25	-38 096.30	6.0	-2.2	NA	NA
5. Waste	9 701.41	13 074.60	14 514.97	13 558.09	13 471.03	38.9	-0.6	3.4	4.0
6. Other ^{<i>a</i>}	NA	NA	NA	NA	NA	_	_	-	-
Gas ^b									
CO ₂	231 213.56	311 267.05	283 724.99	274 671.26	269 654.25	16.6	-1.8	79.9	80.7
CH ₄	35 609.22	42 768.18	40 524.75	39 586.18	39 722.33	11.6	0.3	12.3	11.9
N ₂ O	18 292.27	21 806.25	18 197.72	18 529.65	18 413.54	0.7	-0.6	6.3	5.5
HFCs	3 039.92	12 253.59	16 071.45	6 308.18	4 557.69	49.9	-27.7	1.1	1.4
PFCs	1 164.38	494.73	105.10	127.77	130.44	-88.8	2.1	0.4	0.04
SF ₆	63.99	186.33	234.89	225.40	226.88	254.6	0.7	0.02	0.1
NF ₃	NO, NA	NO, NA	NO, NE, NA	NO, NA	NO, NA	_	_	_	-
Total GHG emissions excluding LULUCF	289 383.33	388 776.13	358 858.91	340 298.29	334 255.16	15.5	-1.8	100.0	100.0
Total GHG emissions including LULUCF	253 435.42	349 186.49	321 583.33	301 362.04	296 158.86	16.9	-1.7	NA	NA

Source: GHG emission data: Spain's 2020 annual submission, version 1.

^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 CO₂ emissions.

9. In brief, Spain's national GHG inventory arrangements were established in 2007 in accordance with law 34/2007 on air quality and atmospheric environment protection, which established a GHG and atmospheric pollution inventory system known as the Spanish Inventory System. The changes in these arrangements since the BR3 include the introduction of decrees 864/2018 and 818/2018. Decree 864 established the Director General of Biodiversity and Environmental Quality of the Ministry for Ecological Transition (now the Ministry for Ecological Transition and Demographic Challenge) as the designated authority for the Spanish Inventory System, while decree 818 laid down operating rules for the system. The GHG inventory data were officially included in the National Statistics Plan 2017–2020, which obligated the Government to support the process of collecting the data necessary for compiling the GHG inventory.

2. Assessment of adherence to the reporting guidelines

10. The ERT assessed the information reported in the BR4 of Spain 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.

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

1. Technical assessment of the reported information

11. For Spain the Convention entered into force on 21 March 1994. Under the Convention Spain 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.

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 CO₂, CH₄, N₂O, HFCs, PFCs and SF₆ using GWP 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 for compliance purposes, subject to a number of restrictions in terms of origin and type of project and up to an established limit. Operators and airline operators can use such units to fulfil their requirements under the EU ETS, and member States can use such units for their national ESD targets, within specific limitations.

13. The EU 2020 climate and energy package includes the EU ETS and the ESD (see paras. 25–26 below). The EU ETS covers mainly point emissions sources in the energy, industry and aviation sectors. An EU-wide emission cap has been put in place for 2013–2020 with the goal of reducing emissions by 21 per cent below the 2005 level by 2020. Emissions from ESD sectors are regulated through member State specific targets that add up to a reduction at the EU level of 10 per cent below the 2005 level by 2020.

14. The European Commission set out its vision for a climate-neutral EU in November 2018, and in December 2019 presented the European Green Deal as a road map with actions for making the EU economy sustainable. The European Council endorsed in December 2019 the objective of making the EU climate-neutral by 2050. As part of the European Green Deal, the Commission proposed in March 2020 to enshrine the 2050 climate-neutrality target into the first European Climate Law. The European Green Deal calls for increased ambition in the 2030 emission reduction target to at least 50 per cent below the 1990 level. Member States will set out any increased ambition in the update of their NECPs.

15. Spain has a national target of reducing its GHG emissions to 10 per cent below the 2005 level by 2020 for sectors under the ESD. This target has been translated into binding quantified AEAs for 2013–2020. Spain's AEAs change following a linear path from 227,563.76 kt CO_2 eq in 2013 to 212,390.48 kt CO_2 eq in 2020.⁴

16. In addition to its ESD target, Spain also reported on its target to achieve carbon neutrality by 2050. To that end, Spain has committed to reducing its total national emissions by 23.0 per cent by 2030 compared with the 1990 level in its NECP 2021–2030.

2. Assessment of adherence to the reporting guidelines

17. The ERT assessed the information reported in the BR4 of Spain 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

18. Spain provided information on its package of PaMs implemented and adopted, and information on some of its planned PaMs, by sector and by gas, in order to fulfil its commitments under the Convention. Spain reported on its policy context and legal and institutional arrangements in place for implementing its commitments and monitoring and evaluating the effectiveness of its PaMs.

19. Spain provided information on a set of PaMs similar to those previously reported, with a few exceptions (some measures implemented in 2008, 2010 and 2015 relate to improvements in residential and public administration buildings and the means of transport

⁴ European Commission decision 2017/1471 amended decision 2013/162/EU to revise member States' AEAs for 2017–2020.

of public administration employees to and from these buildings for work). The main difference is the inclusion of a set of measures aimed at reducing emissions in the energy sector, derived on the basis of the draft NECP for 2021–2030, submitted in February 2019, which aims to achieve decarbonization and contribute to carbon neutrality in the economy by 2050. The Party also provided information on changes 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. The main institutional change is the grouping, since 2017, of electricity, energy, climate change and environment portfolio responsibilities under the Ministry for Ecological Transition and Demographic Challenge. An interministerial working group has been created to coordinate the drafting of a law on climate change and energy transition and preparation of the NECP, and the Interministerial Commission has been formed to develop the Spanish Circular Economy Strategy in response to the request in the EU circular economy action plan.

20. In its reporting on its PaMs, Spain provided the estimated emission reduction impacts for many of its PaMs, namely those that are focused on mitigation and were included in the draft NECP. Where estimated impacts were not provided, the Party supplied an explanation applicable to all PaMs. The Party explained that it is making efforts to improve its emission projection systems, develop possible scenarios and evaluate the impacts of the different PaMs within the framework of the NECP. Spain estimated the impacts of some of its PaMs as groups (energy mix, industrial, refining, road transport, railways, residential, commercial, and institutional), and explained why it had done so.

21. Energy use was modelled using the TIMES-SINERGIA tool, which determines the installed capacity, energy consumption, emissions and prices on the basis of demand for services, energy prices and availability of resources. Another tool was used for modelling mitigation measures in non-energy sectors, that is, measures related to agriculture, livestock, waste management and F-gases. Spain did not provide estimates of the mitigation impacts of many of its planned PaMs. During the review, the Party reported that it would provide this information in future BRs.

22. Spain reported on its self-assessment of compliance with its emission reduction targets and national rules for taking action against non-compliance. The process for monitoring and reporting GHG emissions is harmonized through the EU monitoring mechanism regulation.

23. The key overarching related cross-sectoral policy in the EU is the 2020 climate and energy package, adopted in 2009, which includes the revised EU ETS and the ESD. The package is supplemented by renewable energy and energy efficiency legislation and legislative proposals on the 2020 targets for CO_2 emissions from cars and vans, the carbon capture and storage directive, and the general programmes for environmental conservation, namely the 7th Environment Action Programme and the clean air policy package. The 2030 climate and energy framework, adopted in 2014, includes more ambitious targets that will be updated as part of the European Green Deal.

24. The achievement of the Energy Union objectives and targets is ensured through a combination of Union initiatives and national policies set out in integrated NECPs. The NECPs are periodically updated to reflect changes to EU policy, such as the implementation of the European Green Deal. Spain's NECP specifies measures that will decrease the total national GHG emissions by 23.0 per cent by 2030 compared with the 1990 level and contribute to achieving carbon neutrality by 2050.

25. In operation since 2005, the EU ETS is a cap-and-trade system that covers all significant energy-intensive installations (mainly large point emissions sources such as power plants and industrial facilities), which produce 40-45 per cent of the GHG emissions of the EU. It is expected that the EU ETS will guarantee that the 2020 target (a 21 per cent emission reduction below the 2005 level) will be achieved for sectors under the scheme. The third phase of the EU ETS started in 2013 and the system now includes aircraft operations (since 2012) as well as N₂O emissions from chemical industry, PFC emissions from aluminium production and CO₂ emissions from some industrial processes that were not covered in the previous phases of the EU ETS (since 2013). Auctioning is the default method for allocating allowances; however, harmonized rules for free allocations, based on

benchmark values achieved by the most efficient 10 per cent of installations, are still in place as a safeguard for the international competitiveness of industrial sectors at risk of carbon leakage. For 2030, an emission reduction target of 43 per cent below the 2005 level has been set for the EU ETS.

26. The ESD became operational in 2013 and covers 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. The EU effort-sharing regulation, successor to the ESD, was adopted in 2018. It sets national emission reduction targets for 2030 ranging from 0 to 40 per cent below the 2005 level, and trajectories with annual limits for 2021–2030, for all member States, and keeps many of the flexibilities of the ESD.

27. Spain highlighted the EU-wide mitigation actions that are under development, such as the NECPs for 2021–2030. Among the mitigation actions that will have a significant impact on future emissions are increasing the use of renewable energy; reducing energy losses; improving energy efficiency in the energy and transformation sectors; improving the energy efficiency of buildings; switching to less carbon-intensive fuels; shifting from road to rail transport; promoting the use of electric cars; and managing energy demand.

28. Spain introduced national-level policies to achieve its targets under the ESD and domestic emission reduction targets. The key policies reported are aimed at increasing the use of renewable energy; reducing energy losses; improving energy efficiency in the energy sector; and rehabilitating buildings of the General State Administration. The mitigation effect of the set of measures focused on the energy sector is the most significant until 2025. In the short term (until 2020), the national tax on F-gases has the most significant mitigation effect. Other policies that have delivered significant emission reductions are the promotion of public transportation use by the workforce; the improvement of energy efficiency and promotion of renewable energy use in ports and airports; the facilitation of purchase of low-emission vehicles, particularly electric vehicles, and low-emission agricultural machinery; the introduction of payments for farmers for deploying agricultural practices that are beneficial for the environment; and the implementation of climate projects based on purchases of verified emission reductions.

29. Spain highlighted the domestic mitigation actions that are under development, such as the measures aimed at improving the energy mix included in the draft NECP 2021–2030. Among the mitigation actions that provide a foundation for significant additional action are measures in the transport and residential sectors aimed at reducing energy consumption, including by switching to less carbon-intensive fuels, improving the energy efficiency of buildings, promoting the use of low-emission and electric cars, introducing fleet renewal schemes, and promoting the use of biomass-derived energies. Table 3 provides a summary of the reported information on the PaMs of Spain.

Sector	Key PaMs	Estimate of mitigation impact in 2020 (kt CO ₂ eq)	Estimate of mitigation impact in 2030 (kt CO ₂ eq)
Policy framework and cross-sectoral measures	NECP 2021–2030, focused on improvements in the energy sector	$-4~768.20^{a}$	21 249.20
	Climate projects based on purchases of verified emission reductions	2 144.00	1 638.00
	Projects implemented in the non-energy sector	NE	NE
Energy			
Transport	Infrastructure, housing and transport plan	1 100.00	1 800.00
Renewable energy	Introduction of biofuels in transport	4 000.00	4 000.00
IPPU	Tax on F-gases	6 000.00	11 000.00

Table 3

Summary of information on policies and measures reported by Spain

Sector	Key PaMs	Estimate of mitigation impact in 2020 (kt CO ₂ eq)	Estimate of mitigation impact in 2030 (kt CO ₂ eq)
Agriculture	Improvement of manure management	28.50	3 931.90

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.

^{*a*} Spain explained during the review that this negative value, indicating increased emissions in 2020, is the result of optimizing emission reductions for 2030. This optimization leads to increased electricity production, which is primarily from natural gas to 2020 but is increasingly from renewable sources leading up to 2030.

(b) Policies and measures in the energy sector

30. **Energy efficiency.** National energy efficiency action plans were implemented for 2014–2020. From 2021, the PaMs in the NECP 2021–2030, which are based on the EU clean energy for all Europeans package for 2030, will be implemented. Among the policies proposed are increasing electrification, reducing the consumption of fossil fuels and increasing the consumption of energy from renewable sources. The National Energy Efficiency Action Plan 2014–2020, which was updated by the National Energy Efficiency Action Plan 2017–2020, includes a set of PaMs aimed at achieving a total cumulative energy saving of 15,979 ktoe by 2020 (571 ktoe/year).

31. **Energy supply and renewables.** The National Renewable Energy Action Plan 2011–2020 aims to achieve a renewable energy share of 20 per cent in total national gross energy consumption in 2020 and to increase the share of renewable energy in the transport sector to 10 per cent by 2020. Other programmes offer subsidies for improving energy efficiency in existing buildings.

32. **Residential and commercial sectors.** The Spanish Urban Agenda was published in 2019 with the aim of increasing energy efficiency and savings in energy consumption in buildings. It sets out policies that promote improvements to the energy efficiency of existing buildings and ensure high energy efficiency in new buildings. Spain has implemented programmes to replace refrigeration facilities using F-gases, which have a high GWP value, in commercial food distribution establishments (such as hypermarkets and supermarkets) with gases with lower GWP values.

33. **Transport sector.** Mitigation measures in the transport sector follow the recommendations of the EU White Paper on Transport and include shifting from road to rail transport for passengers and freight, promoting the use of low-emission fuels, improving vehicle efficiency and energy-efficient driving, and facilitating the purchase of low-emission vehicles (especially electric vehicles).

34. **Industrial sector.** Most emissions from the industrial sector fall under the EU ETS; therefore, the EU ETS is the main measure in this sector. Industries related to the production of cement, steel, ceramic products, chemical products, lime and paper are examples of those included in the EU ETS.

(c) Policies and measures in other sectors

35. **Industrial processes.** Measures in this sector include a set of fiscal, regulatory and voluntary measures to reduce F-gas emissions from electric and cooling equipment. Other PaMs, as reported by the Party in CTF table 3, include measures relating to the refining sector, the implementation of the EU ETS, and the implementation of the Spanish Circular Economy Strategy.

36. **Agriculture.** Under the EU Common Agricultural Policy, greening or green payments are deployed to reward farmers for agricultural practices that are beneficial to the environment (such as diversifying crops, maintaining existing permanent pastures and preserving areas of ecological interest on farms). Additional measures are planned for 2030 onward, such as promoting rotations of herbaceous rain-fed crops, adjusting the quantity of nitrogen according to the crop, reducing burning of pruning remains in fields, improving the management and treatment of slurry by frequently emptying and covering ponds, and separating and composting solid and liquid manure.

37. **LULUCF.** The Party's forest plan structures actions for developing a national forest policy and has a 30-year timespan (2002–2032), during which there will be two in-depth revisions of the document, one of which is currently in progress. The plan promotes sustainable forest management, including measures to prevent forest fires, restore vegetation cover and expand the forest area of the country.

38. **Waste management.** The mitigation measures for the waste sector are based on the Plan for Waste 2017–2022. Domestic legislation arising from the EU circular economy package has been put in place which requires, for instance, the separate collection of organic and textile waste; less than 10 per cent of waste to consist of non-recyclable materials by 2035; and 70 per cent of packaging and up to 85 per cent of paper packaging to be recycled by 2030.

(d) Response measures

39. Spain reported on its assessment of the economic and social consequences of its response measures. The Party initiatives aimed at minimizing adverse impacts include gradually reducing or eliminating market imperfections, fiscal incentives, exemptions and subsidies in GHG-emitting sectors in the economy, with the ultimate goal being that energy prices accurately reflect both market conditions and externalities. Other initiatives include research, development and demonstration projects (including more than 40 related to renewable energy and energy efficiency), and tax incentives or carbon taxes.

(e) Assessment of adherence to the reporting guidelines

40. The ERT assessed the information reported in the BR4 of Spain and identified an issue relating to completeness and thus adherence to the UNFCCC reporting guidelines on BRs. The finding is described in table 4.

Table 4

Findings on mitigation	actions and their effects fro	om the review of the fourtl	n biennial report of Spain
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No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in CTF table 3	As in the BR3, the Party did not report in its BR4 an estimate of the mitigation impact for some of its PaMs or clearly explain why such information could not be reported.
	Issue type: completeness Assessment:	During the review, Spain explained some of the challenges it faces in quantifying the estimated impacts of some PaMs and indicated that it is continuing its efforts to improve in this area, particularly with respect to its NECP.
	recommendation	The ERT reiterates the recommendation from the previous review report for the Party to include in its next BR and CTF table 3 estimates of the mitigation impacts of individual PaMs or provide a clear explanation, applicable to the PaMs affected, of why such information cannot be reported owing to national circumstances.

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 UNFCCC reporting guidelines on CTF tables. 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 marketbased mechanisms and land use, land-use change and forestry

(a) Technical assessment of the reported information

41. Spain reported that it does not intend to use units from market-based mechanisms under the Kyoto Protocol and other market-based mechanisms under the Convention to meet its commitment under the ESD. It reported in CTF tables 4 and 4(b) that it did not use any units from market-based mechanisms in 2016 or 2017. Given that the contribution of LULUCF activities is not included in the joint EU target under the Convention, reporting of contributions of LULUCF activities is not applicable for Spain. Table 5 illustrates Spain's ESD emissions and the use of units from market-based mechanisms to achieve its ESD target.

Table 5

Year	ESD emissions (kt CO ₂ eq)	AEA (kt CO ₂ eq)	Use of units from market- based mechanisms (kt CO2 eq) ^a	Annual AEA surplus/deficit (kt CO2 eq) ^b	Cumulative AEA surplus/deficit (kt CO2 eq)
2013	199 490.00	227 563.76	NA	28 073.76	28 073.76
2014	199 584.79	225 648.30	NA	26 063.51	54 137.27
2015	198 505.34	223 732.84	NA	25 227.50	79 364.77
2016	200 659.17	221 817.38	NA	21 158.22	100 522.98
2017	200 810.43	218 263.21	NA	17 452.78	117 975.76
2018	203 851.21	216 305.63	NA	12 454.42	130 430.18

Summary of information on the use of units from market-based mechanisms by Spain to achieve its target

Sources: Spain's BR4 and CTF table 4(b), and information provided by the Party during the review.

^{*a*} The use of "NA" indicates that the Party stated in its BR that it does not intend to use market-based mechanisms to achieve its target.

^b A positive number (surplus) indicates that ESD emissions were lower than the AEA, while a negative number (deficit) indicates that ESD emissions were greater than the AEA.

42. In assessing the progress towards achieving the 2020 joint EU target, the ERT noted that Spain's emission reduction target for the ESD is 10 per cent below the base-year level (see para. 15 above). In 2018, Spain's emissions covered by the ESD were 5.8 per cent (12,454.42 kt CO_2 eq) below the AEA under the ESD. Taking into account that Spain does not plan to use market-based mechanisms to achieve its target, the Party has a cumulative surplus of 130,430.18 kt CO_2 eq with respect to its AEAs between 2013 and 2018.

43. The ERT noted that Spain is making progress towards its ESD target by implementing mitigation actions that are delivering emission reductions and limiting overall emissions growth.

(b) Assessment of adherence to the reporting guidelines

44. The ERT assessed the information reported in the BR4 of Spain 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

45. Spain reported updated projections for 2020 and 2030 relative to actual inventory data for 2016 under the WEM scenario. During the review, Spain explained that the projections are based on the NECP, which was prepared on the basis of the 2018 inventory (with data for 1990–2016), and not the 2019 inventory (with data for 1990–2017), although this was available at the time Spain submitted its BR4. The WEM scenario reported by Spain includes implemented and adopted PaMs until 2016.

46. In addition to the WEM scenario, Spain reported the WAM scenario. A WAM scenario was not presented in the BR3 and the ERT welcomes this improvement in the Party's reporting. The WAM scenario includes planned PaMs, which are shown in table 14 of Spain's BR4. Spain provided a definition of its scenarios, explaining that its WEM and WAM scenarios contain policies included in the draft NECP and draft National Air Pollution Control Programme, with the measures being implemented to varying extents depending on the scenario. The measures were organized into 17 groups comprising all sectors of the GHG inventory but focused mostly on the energy sector. The definitions indicate that both scenarios were prepared according to the UNFCCC reporting guidelines on BRs. Spain did not report a 'without measures' scenario in its BR4.

47. The projections are presented on a sectoral basis, using the same sectoral categories as those used in the reporting on mitigation actions for 1990–2040, and on a gas-by-gas basis for CO₂, CH₄, N₂O, PFCs, HFCs and SF₆ (treating PFCs and HFCs separately in each case)

for 1990–2030. The projections are also provided in an aggregated format for each sector and for a Party total using GWP values from the AR4. Spain reported on factors and activities affecting emissions for each sector.

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

48. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the NC7. Spain did not provide detailed information on the changes since the submission of its NC7 in the assumptions, methodologies, models and approaches used in the projection scenarios. The Party reported supporting information further explaining the methodologies and the changes made since the NC7. The main difference was that for the BR4, the expected impact of a single group of mitigation measures was assessed in terms of both projections of local atmospheric pollutants included under the National Air Pollution Control Programme and projections of GHGs included under the NECP. Both sets of projections are methodologically consistent and assess the same packages of PaMs. Furthermore, unlike the NC7, which used an ad-hoc statistical analysis projecting 111 variables representing activity in all sectors coupled with emission factors, the BR4 used sectoral models, deploying the TIMES-SINERGIA modelling tool for the energy sector and the M3E model for non-energy sectors. For the BR4, projections were prepared using the Spanish Inventory System of the Ministry for Ecological Transition and Demographic Challenge. Spain reported in CTF table 5 the key variables and assumptions used in the preparation of the projection scenarios.

49. To prepare its projections, Spain relied on key underlying assumptions relating to population, energy and technology prices, and economic development indicators. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections. The underlying assumptions include gross domestic product, energy production and consumption, livestock populations, fertilizer use and municipal solid waste.

50. The PaMs included in the WEM and WAM scenarios were derived from the NECP 2021–2030 and its annex, and assessed economic, employment, social and health impacts. During the review, the Party provided the final version of the NECP 2021–2030 and its annex to the ERT – these were not available in final version when the BR4 was submitted. The Council of Ministers had officially approved the final documents. Additional information on the models used was also provided during the review.

51. Spain also provided information on sensitivity analyses. Sensitivity analyses were conducted for a number of important assumptions, such as a 25 per cent increase or decrease in energy prices (energy sector), a 10 per cent increase or decrease in the number of some livestock populations (agriculture sector) and a 5 per cent increase or decrease in population trends (waste sector). Of the three sectoral analyses conducted, the most relevant for GHG emissions was the analysis for the energy sector, which used a dynamic econometric national input–output model owing to the variations in energy prices and the large quantity of emissions associated with this sector. The results from using the model are described in terms of macroeconomic variables, such as employment and gross domestic product, which both rise as a result of increases in energy prices.

(c) Results of projections

52. The projected emission levels under the WEM and WAM scenarios and information on the quantified economy-wide emission reduction target are presented in table 6 and figure 1.

Table 6

Summary of greenhouse gas emission projections for Spain

	Total GHG	emissions	Emissions under the ESD		
	GHG emissions (kt CO ₂ eq per year)	0	ESD emissions (kt CO2 eq per year)	Comparison to 2020 AEA (%)	
2020 AEA under the ESD ^a	NA	NA	212 390.48	NA	
Inventory data 1990	288 492.48	_	NA	NA	

	Total GHG	emissions	Emissions under the ESD		
	GHG emissions (kt CO ₂ eq per year)	Change in relation to 1990 level (%)	ESD emissions (kt CO ₂ eq per year)	Comparison to 2020 AEA (%)	
Inventory data 2017	340 230.88	17.9	200 810.43	94.5	
WEM projections for 2020	296 452.63	-	202 643.20	95.4	
WAM projections for 2020	286 018.95	2.8	195 741.57	92.2	
WEM projections for 2030	279 043.57	-0.9	197 474.1	NA	
WAM projections for 2030	190 715.60	_	144 718.2	NA	

Source: Spain's BR4 and CTF table 6. ESD emissions and projections data provided by Spain during the review. *Note*: The projections are for GHG emissions excluding LULUCF and indirect CO₂.

^{*a*} The quantified economy-wide emission reduction target under the Convention is a joint target of the EU and its member States. The target is to reduce emissions by 20 per cent compared with the base-year (1990) level by 2020. Spain's target under the ESD is 10 per cent below the 2005 level by 2020.

Figure 1



Greenhouse gas emission projections reported by Spain

Sources: EU transaction log (AEAs) and Spain's BR4 and CTF tables 1 and 6. ESD emissions and projections data provided by Spain during the review.

53. Spain's total GHG emissions excluding LULUCF in 2020 and 2030 are projected under the WEM scenario to increase by 15.0 and 7.7 per cent, respectively, above the 1990 level. Under the WAM scenario, emissions in 2020 are projected to be higher than those in 1990 by 13.5 per cent, whereas emissions in 2030 are projected to be lower than those in 1990 by 21.4 per cent.

54. Spain's target under the ESD is to reduce ESD emissions by 10 per cent below the 2005 level by 2020 (see para. 15 above). Spain's AEAs, which correspond to its national emission target for ESD sectors, change linearly from 227,563.76 kt CO_2 eq in 2013 to 212,390.48 kt CO_2 eq for 2020. The projected level of emissions under the WEM and WAM scenarios is 4.6 and 7.8 per cent, respectively, below the AEAs for 2020. The ERT noted that the Party's cumulative surplus of AEAs is 130,430.18 kt CO_2 eq by 2018, which suggests that Spain expects to meet its target under the WEM scenario.

55. Spain presented the WEM and WAM scenarios by sector for 2020 and 2030, as summarized in figure 2 and table 7.



Figure 2



.

Table 7 Summary of greenhouse gas emission projections for Spain presented by sector

	GHG emissions and removals ($kt CO_2 eq$)						Change (%)			
		202	20	20	30	1990–2	020	1990–2	2030	
Sector	1990	WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM	
Energy (not including transport)	154 516.54	162 412.60	162 427.29	143 943.67	101 635.43	5.1	5.1	-6.8	-34.2	
Transport	58 655.37	89 851.02	85 722.27	92 130.56	57 695.04	53.2	46.1	57.1	-1.6	
Industry/industrial processes	29 707.10	31 015.59	31 007.81	27 813.65	27 781.74	4.4	4.4	-6.4	-6.5	
Agriculture	36 302.76	34 622.68	34 628.47	34 534.94	29 975.28	-4.6	-4.6	-4.9	-17.4	
LULUCF	-35 875.42	-35 281.47	-41 423.98	-31 588.50	-36 021.46	-1.7	15.5	-11.9	0.4	
Waste	9 310.72	13 832.21	13 657.11	12 209.23	9 649.56	48.6	46.7	31.1	3.6	
Total GHG emissions excluding LULUCF	288 492.50	331 734.10	327 442.93	310 632.07	226 737.06	15.0	13.5	7.7	-21.4	

Source: Spain's BR4 CTF table 6.

56. According to the projections reported for 2020 under the WEM scenario, the most significant emission reductions are expected to occur in the agriculture sector, amounting to projected reductions of 1,680.08 kt CO_2 eq (4.6 per cent) between 1990 and 2020. The pattern of projected emissions reported for 2030 under the same scenario is significantly different owing to the reductions projected in the energy (10,572.87 kt CO_2 eq) and industry/industrial processes (1,893.45 kt CO_2 eq) sectors, which are higher than those in the agriculture sector (1,767.82 kt CO_2 eq). This is in line with the assumption that the share of renewable energy in the energy mix will progressively increase.

57. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions presented by sector are significantly different for the 2020 projections compared with the WEM scenario owing to the projected reductions in the LULUCF sector (5,548.56 kt CO_2 eq of additional net removals compared with 1990). The patterns are also significantly different for the 2030 projections compared with the WEM scenario owing to emission reductions in all sectors. Similarly to the WEM scenario, the most significant emission reductions are in the energy sector (52,881.11 kt CO_2 eq).

58. Spain presented the WEM and WAM scenarios by gas for 2020 and 2030, as summarized in table 8.

Table 8 Summary of greenhouse gas emission projections for Spain presented by gas

	GHG emissions and removals ($kt CO_2 eq$)					Change (%)			
		2020)	203	0	1990–20	020	1990–20)30
Sector	1990	WEM	WAM	WEM	WAM	WEM	WAM	WEM	WAM
CO_2^a	231 061.41	269 552.70	265 400.61	254 427.51	177 992.72	16.7	14.9	10.1	-23.0
CH ₄	35 233.04	37 049.61	36 884.87	35 231.65	29 017.66	5.2	4.7	-0.004	-17.6
N ₂ O	17 929.76	16 772.17	16 797.83	16 832.67	15 586.44	-6.5	-6.3	-6.1	-13.1
HFCs	3 039.92	8 007.08	8 007.08	3 740.73	3 740.73	163.4	163.4	23.1	23.1
PFCs	1 164.38	97.83	97.83	103.57	103.57	-91.6	-91.6	-91.1	-91.1
SF ₆	63.99	254.71	254.71	295.94	295.94	298.0	298.0	362.5	362.5
NF ₃	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total GHG emissions without	200 402 50	221 724 10	227 442 02	210 (22 07	226 222 26	15.0	125		21.4
LULUCF	288 492.50	331 734.10	327 442.93	310 632.07	226 737.06	15.0	13.5	7.7	-21.4

Source: Spain's BR4 CTF table 6.

^a Spain did not include indirect CO₂ emissions in its projections.

59. For 2020, the most significant reductions under the WEM scenario are projected for N_2O and PFC emissions: 1,157.59 kt CO_2 eq (6.5 per cent) and 1,066.55 kt CO_2 eq (91.6 per cent) between 1990 and 2020, respectively. Emissions of all other direct GHGs are projected to increase.

60. For 2030, the most significant reductions under the WEM scenario are also projected for N_2O and PFC emissions: 1,097.09 kt CO_2 eq (6.1 per cent) and 1,060.81 kt CO_2 eq (91.1 per cent) between 1990 and 2030, respectively. There is a slight decrease in CH₄ emissions (<0.01 per cent), but all emissions of all other direct GHGs are projected to increase.

61. If additional measures are considered (i.e. under the WAM scenario), the patterns of emission reductions by 2030 presented by gas are significantly different because the WAM scenario includes additional measures in the energy and agriculture (livestock) sectors, thus resulting in projected emission reductions for CO_2 (by 23.0 per cent) and CH_4 (17.6 per cent).

(d) Assessment of adherence to the reporting guidelines

62. The ERT assessed the information reported in the BR4 of Spain and identified issues relating to completeness and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 9.

Table	9
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No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in paragraph 35	The Party did not report projections of indirect GHG emissions in its BR4. During the review Spain explained that indirect GHG emissions are reported as "NE" in the national inventory, and without this information, projections are not possible.
	Issue type: completeness	The ERT encourages Spain to provide projections of indirect GHG emissions or explain why this was not possible in its next BR.
	Assessment: encouragement	
2	Reporting requirement specified in paragraph 43	The Party did not report in its BR4 details of the type and main features of models and tools used to project GHG emissions in the agriculture (including livestock), waste and industrial processes sectors, or any associated references. The Party also

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
	Issue type: completeness	did not explain in its BR4 how its models and approaches account for overlaps and synergies between different PaMs used in its sectoral projections, as per paragraph 43(e) of the UNFCCC reporting guidelines on NCs.
	Assessment: encouragement	During the review, Spain explained that it uses the M3E model, which enables the evaluation of sectoral mitigation measures for non-energy sectors. The Party also explained that it had difficulties in identifying overlaps and synergies in the data used for its sectoral projections because it used different sources and types of data, including from various institutions. Spain encountered the problems that not all the PaMs already in place had been quantified yet and possible double counting had not been clearly identified owing to, for example, the fact that some measures establish overarching or strategic frameworks whose aggregated positive effects in reducing GHG emissions are difficult to calculate; the calculation of measures' impact is carried out in different periods of time; and the data used to feed the models include different assumptions. Spain reported that it was working to resolve these issues, but that this work depends on national legal and administrative arrangements being enhanced.
		The ERT encourages Spain to enhance the completeness of its reporting by providing information on the type and main features of models and tools used to project GHG emissions for the agriculture (including livestock), waste and industrial processes sectors, as well as any associated references to methodologies and models. Further, the ERT encourages Spain to explain in its next BR how it accounts for overlaps and synergies between different PaMs in its models used for performing GHG emission projections.
3	Reporting requirement specified in paragraph 45	Spain did not report on the main differences in assumptions, methods and results between the projections presented in the BR4 and those presented in previous BRs, as required by paragraph 45 of the UNFCCC reporting guidelines on NCs.
	Issue type: completeness	During the review, Spain provided information on the differences in the assumptions, methods and results of the current projections since the BR3. For example, Spain explained that emission projections presented in 2019 were prepared
	Assessment: encouragement	within the framework of the work to prepare the NECP and the National Air Pollution Control Programme. The models used for the 2019 emission projections are the same as those used for the aforementioned programmes, as well as for the PaMs identified in the BR4. Spain also reported that there have been changes in the GWP values and methodological guidelines since the BR3, which means that the projection data sets are in principle not comparable.
		The ERT reiterates the encouragement from the previous review report for Spain to report in its next BR the main differences in the assumptions, methods and results of the current projections compared with previous BRs or explain why a comparison is not possible.

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

1. Technical assessment of the reported information

(a) Approach and methodologies used to track support provided to non-Annex I Parties

63. In its BR4 Spain reported information on its provision of financial, technological and capacity-building support to non-Annex I Parties.

64. Spain provided details on how the support it has provided is "new and additional", including how it has determined resources as being "new and additional". Spain's definition is contributions to activities that are new and specific to climate change.

65. Spain reported the support that it has provided to non-Annex I Parties, distinguishing between support for mitigation and adaptation activities and recognizing the capacity-

building elements of such support. It explained how it tracks finance for adaptation and mitigation using the Rio markers.

66. The BR4 includes information on the national approach to tracking the provision of support, indicators, delivery mechanisms used and allocation channels tracked. The methodology is the same as that used in Spain's NC7, as indicated in CTF table 7.

67. Spain described the methodology and underlying assumptions used for collecting and reporting information on financial support, including underlying assumptions and/or indicators. For bilateral official development assistance, Spain uses the Rio markers. For multilateral official development assistance, Spain differentiates between general contributions to multilateral organizations and contributions to specific climate change funds or programmes. For these latter funds or programmes, the entire contribution is considered to go towards climate change activities. In the case of multilateral organizations, only the proportion of the contribution received from Spain that is destined for climate change activities, as reported by the organization, is included as financial support in the BR4. When it comes to other official flows, contributions are determined on a project-by-project basis by analysing the description of projects financed and assessing whether the projects are linked to climate change.

68. In accordance with the EU guidelines on reporting climate-related information, Spain reported the status of bilateral contributions as "committed" and multilateral contributions as "disbursed" in its BR4.

(b) Financial resources

69. Spain reported information on its provision of financial support to non-Annex I Parties as required under the Convention, including on financial support provided, committed and pledged, allocation channels and annual contributions.

70. Spain described how its resources address the adaptation and mitigation needs of non-Annex I Parties. It also described how those resources assist non-Annex I Parties in mitigating GHG emissions and adapting to the adverse effects of climate change and any economic and social consequences of response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation.

71. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Spain reported that its climate finance has been allocated on the basis of agreements with recipient countries for bilateral support and on information provided by multilateral organizations, taking into account the needs of developing countries. Most bilateral projects and programmes supported by Spain incorporate mitigation objectives, while most multilateral support provided by Spain is cross-cutting, and incorporates both adaptation and mitigation objectives.

72. Spain notes in its BR4 that it has made considerable efforts to support programmes, projects and funds specific to climate change as well as to integrate climate change into international cooperation activities with developing countries. Official development assistance is mainly mobilized by the Spanish Agency for International Development Cooperation and the Ministry for Ecological Transition and Demographic Challenge. Autonomous communities and local entities also engage in development cooperation related to climate change. In addition, various national agencies help to finance climate change projects in developing countries, including the Spanish Development Finance Institution, the Corporate Internationalization Fund and the Spanish Export Credit Agency.

73. Spain's policy on development cooperation for 2018–2021 is framed in the context of its 5th Master Plan for Spanish Cooperation, which sets out guiding principles and clear mandates for all institutions involved in development cooperation, with climate change and environmental sustainability identified as cross-cutting principles. The mitigation and adaptation needs of non-Annex I Parties are addressed differently depending on the type and channel of funding. When it comes to multilateral official development assistance, developing country needs are identified by multilateral organizations together with recipient countries. Likewise, bilateral contributions are jointly agreed between Spain and recipient countries; in the case of funds managed by the Spanish Agency for International

Development, for example, developing country needs are presented in country association frameworks. With regard to other official flows, each institution that manages funds has its own requirements, which include environmental requirements. Table 10 summarizes the information reported by Spain on its provision of financial support.

Table 10

Summary of information on provision of financial support by Spain in 2017–2018 (Millions of United States dollars)

	Year of disbursemen	t
Allocation channel of public financial support	2017	2018
Climate-specific contributions through multilateral channels, including:	26.88	49.60
Global Environment Facility	4.45	12.51
Green Climate Fund	16.91	29.67
Trust Fund for Supplementary Activities	0.06	—
Other multinational climate change funds	5.46	7.43
Financial institutions, including regional development banks	115.35	83.17
United Nations bodies	-	1.60
Climate-specific contributions through bilateral, regional and other channels	473.14	675.27

Sources: BR4 CTF tables and Query Wizard for International Development Statistics, available at <u>http://stats.oecd.org/qwids/</u>.

74. Spain reported on its climate-specific public financial support, totalling USD 615.37 million in 2017 and USD 809.65 million in 2018. It has increased its contributions by 15.3 per cent since the BR3, as reported in its local currency (euros), or 24.8 per cent in United States dollars.

75. The ERT noted that Spain reported in CTF table 7(b) its bilateral support through grants centred on various countries, including Bolivia (Plurinational State of), Cuba, Ecuador, El Salvador, Ethiopia, Guatemala, Haiti, Mali, Mauritania, Mozambique, Nicaragua, the Niger, Peru, State of Palestine, the Philippines and Senegal. Support through concessional and non-concessional loans and export credit was also provided, for example to Angola, Argentina, Chile, Côte d'Ivoire, the Dominican Republic, Ecuador, Mexico, Morocco, Panama, Peru, South Africa, Turkey and the United Arab Emirates. Information on climate-specific financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by target area is presented in figure 3 and table 11. Note that variances in contribution amounts from year to year can occur that are not reflective of trends due to factors such as biennial or triennial contribution cycles of some multilateral funds, timing of approval of individual bilateral projects or changes in exchange rates.

76. The BR4 includes detailed information on the financial support provided through multilateral, bilateral and regional channels in 2017 and 2018. More specifically, Spain contributed through multilateral channels, as reported in the BR4 and in CTF table 7(a), USD 142.24 million and 134.37 million for 2017 and 2018, respectively. While some of the contributions were made to specialized multilateral climate change funds, such as the Green Climate Fund, the Global Environmental Facility and other multilateral climate change funds (mainly the Multilateral Fund for the Implementation of the Montreal Protocol), most went to multilateral financial institutions and regional development banks, in particular the World Bank and the Asian Infrastructure Investment Bank.

77. The BR4 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral and regional channels (USD 473.14 million and 675.27 million in 2017 and 2018, respectively). Regional and multilateral channels include the NDC Support Programme of the United Nations Development Programme and the REGATTA project of the United Nations Environment Programme.





Source: Spain's BR4 CTF tables 7, 7(a) and 7(b).

Table 11

Summary of information on channels of financial support used in 2017–2018 by Spain (Millions of United States dollars)

(Millions of United States dollars)

	Year of disburse	ment			Share (%)	
Allocation channel of public financial support	2017	2018	Difference	Change (%)	2017	2018
Detailed information by type of channel						
Multilateral channels						
Mitigation	5.31	7.25	1.94	36.5	3.7	5.4
Adaptation	-	1.60	_	-	_	1.2
Cross-cutting	136.92	125.52	-11.40	-8.3	96.3	93.4
Other	_	_	_	_	_	-
Total multilateral	142.24	134.37	-7.86	-5.5	100.0	100.0
Bilateral channels						
Mitigation	394.82	533.67	138.85	35.2	83.4	79.0
Adaptation	35.77	52.71	16.93	47.3	7.6	7.8
Cross-cutting	42.54	88.90	46.36	109.0	9.0	13.2
Other	_	_	_	_	_	-
Total bilateral	473.14	675.27	202.13	42.7	100.0	100.0
Total multilateral and bilateral	615.38	809.65	194.27	31.6	100.0	100.0

Source: Spain's BR4 CTF tables 7, 7(a) and 7(b).

78. The BR4 provides information on the types of support provided. In terms of the focus of public financial support, as reported in CTF table 7 for 2017, the shares of the total public financial support allocated for mitigation, adaptation and cross-cutting projects were 65.0, 5.8 and 29.2 per cent, respectively. In addition, 23.1 per cent of the total public financial support was allocated through multilateral channels and 76.9 per cent through bilateral, regional and other channels. In 2018, the shares of total public financial support allocated for mitigation, adaptation and cross-cutting projects were 66.8, 6.7 and 26.5 per cent,

respectively. Furthermore, 16.6 per cent of the total public financial support was allocated through multilateral channels and 83.4 per cent through bilateral, regional and other channels.

79. The ERT noted that in both 2017 and 2018 most financial contributions made through multilateral channels were allocated to cross-cutting projects, as reported in CTF table 7(a). In both 2017 and 2018, a majority of financial contributions made through bilateral and regional channels were allocated to energy, water supply and sanitation, agriculture, and transport, as reported in CTF table 7(b).

80. CTF tables 7(a) and 7(b) include information on the types of financial instrument used for providing assistance to developing countries, which include grants, concessional loans, non-concessional loans, equity and other (export credit). The ERT noted that a large number of projects benefited from grants provided in 2017 and 2018 and that loans and export credit accounted for a substantial amount of the total public financial support in 2017 and 2018.

81. Spain clarified that private finance is mainly mobilized for technologies and services in the energy, transport, and water and sanitation sectors. Spain reported on how it uses public funds to promote private sector financial support to increase mitigation and adaptation efforts, while acknowledging the difficulty in collecting information and reporting on private financial flows leveraged by bilateral climate finance for mitigation and adaptation activities in non-Annex I Parties, which is due to the lack of systematized data collection and quantification practices. In its BR4 Spain provided examples of public and semi-public organizations and agencies that promote the scaling up of private investment by granting loans to businesses, such as the Official Credit Institute, the Corporate Internationalization Fund and the Spanish Export Credit Agency. Notably, in 2018, the Spanish Development Finance Institution was designated as an accredited entity by the Green Climate Fund; this accreditation will help Spain increase the amount of private sector finance for climate change initiatives in developing countries in the future.

(c) Technology development and transfer

82. Spain provided information on steps, measures and activities related to technology transfer, access and deployment benefiting developing countries, including information on activities undertaken by the public and private sectors. Spain provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties.

83. The ERT took note of the information provided in CTF table 8 on recipient countries, target areas, measures and focus sectors of technology transfer programmes. For example, Spain reported on projects such as EUROCLIMA+, through which the national Meteorological Agency generates regionalized climate scenarios for Central America; a project to fund and support the creation of the Centre for Renewable Energy and Energy Efficiency of the Economic Community of West African States; the Zero Carbon Resorts project to support the tourism sector in the Philippines and Thailand; and biomass gasification projects in Algeria, Jordan and Tunisia under the Centre for Energy-related, Environment and Technology Research. CTF table 8 also includes information on various projects undertaken by the Spanish Patent and Trademark Office, including the LATIPAT data search interface, which provides a free and public access point for the search of technical information in Spanish and Portuguese on patent documents of Latin American countries and Spain.

84. The ERT noted that Spain reported on its measures and activities, including on most of the activities implemented or planned since its NC7 or BR3, and in particular on measures taken to promote, facilitate and finance the transfer and deployment of climate-friendly technologies. The REGATTA project, for example, implemented by the United Nations Environment Programme and funded mainly by Spain since 2010, aims primarily to promote the sharing of knowledge and experience of climate change technologies for adaptation and mitigation in Latin America and the Caribbean.

85. The ERT noted that, for some of the multi-year and ongoing technology transfer programmes reported in CTF table 8, the Party did not describe any measures and activities implemented or planned since the BR3, but only provided a general description of the projects. During the review, Spain provided further details on the activities undertaken as part of these projects in 2017–2018. For the REGATTA project, Spain reported that many

activities had been carried out through webinars and/or workshops related to the REGATTA communities of practices, which address topics such as adaptation plans, ecosystem-based adaptation, health, transparency and electric mobility.

(d) Capacity-building

86. In its BR4 and CTF table 9, Spain supplied information on how it has provided capacity-building support for mitigation, adaptation and technology that responds to the existing and emerging needs identified by non-Annex I Parties. Spain described measures and activities related to capacity-building support in textual and tabular format. Examples include the Ibero-American Network of Climate Change Offices, created in 2004 and funded primarily by Spain, which promotes a continuous dialogue on climate change through annual meetings and regional capacity-building workshops to facilitate a better understanding of the climate change priorities, challenges and experience of the Ibero-American region. The Network also conducts regional studies on areas identified as a priority for its 22 member countries, such as an assessment of adaptation actions on climate change, which is expected to be finalized in 2020 and serve as a resource on adaptation experience in the region for decision makers and the public.

For 2017-2018, Spain reported that it has supported climate-related capacity 87. development activities relating to adaptation and mitigation, including energy transition, climate financing, and meteorological and hydrological analysis and management. Spain also reported on how it has responded to the existing and emerging capacity-building needs of non-Annex I Parties by ensuring stakeholder participation and cooperation between donors and across programmes. Most organizations have their own cooperation agreements with their counterparts in non-Annex I Parties. Examples of cooperation include training, workshops and seminars on renewable energy technologies (including solar, municipal waste, biofuels and system integration), climate data management, and agriculture and food security. Spain has also been involved, together with the United Nations Industrial Development Organization, in training and certification programmes to support the Caribbean islands and territories in achieving the sustainable energy targets under their intended nationally determined contributions. Most climate-related capacity development activities are supported by the Spanish Cooperation Plan for Knowledge Transfer, Exchange and Management in Latin America and the Caribbean, which focuses on knowledge management and aims to strengthen public administrations through specialized technical training.

2. Assessment of adherence to the reporting guidelines

88. The ERT assessed the information reported in the BR4 of Spain and identified issues relating to completeness and transparency and thus adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 12.

Table 12 Findings on provision of support to developing country Parties from the review of the fourth biennial report of Spain

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
1	Reporting requirement specified in CTF 7(b)	Spain included detailed information on the annual financial support that it has provided to non-Annex I Parties. However, as was the case for the BR3, the ERT was not able to identify the recipient country, region, project or programme of the financial support provided by Spain in CTF table 7(b).
	Issue type: completeness Assessment: Recommendation	During the review, Spain explained that, as for the BR3, this was due to methodological issues encountered when collecting, analysing and classifying information from the Ministry for Foreign Affairs and Cooperation, and that, for some contributions from international or regional institutions, information on the recipient country or region was not available.
		The ERT recommends that Spain improve the completeness of its reporting by including in CTF table 7(b) the recipient country, region, project or programme of the financial support provided, or explaining, possibly in a footnote to the table, the methodological issues preventing the Party from reporting this information.

No.	Reporting requirement, issue type and assessment	Description of the finding with recommendation or encouragement
2	Reporting requirement specified in	As in the BR3, Spain's BR4 does not include information on success and failure stories related to technology development and transfer.
	paragraph 21 Issue type: completeness	During the review, Spain explained that this omission was due to a lack of reported information from its own agencies and departments, and reported that it would include this information in the next BR.
	Assessment: Encouragement	The ERT reiterates the encouragement from the previous review report for Spain to enhance the completeness of its reporting by providing in its next BR information on success and failure stories related to technology development and transfer.
3	Reporting requirement specified in paragraph 22 Issue type: transparency	Spain provided many examples of measures and activities related to technology transfer in its BR4. However, in some cases, the information is identical to that provided in the BR3. Moreover, for these cases, the Party provided a description of the projects or programmes and their goals, but did not specify the measures and activities that have been implemented or planned since the last NC or BR, as required by paragraph 22 of the UNFCCC reporting guidelines on BRs.
	Assessment: Recommendation	During the review, Spain explained that the repetition from the BR3 refers to multi- year and ongoing projects or programmes and provided examples of specific measures and activities undertaken under some of these ongoing projects.
		The ERT recommends that Spain enhance the transparency of its reporting on multi- year and ongoing projects or programmes by reporting different activities with different starting years as individual activities or by clearly identifying in CTF table 8 which activities have been implemented or planned since the last BR. The ERT considers that it would also be helpful if Spain explained in a footnote to CTF table 8 its approach to reporting on those multi-year and ongoing programmes.

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.

III. Conclusions and recommendations

89. The ERT conducted a technical review of the information reported in the BR4 and CTF tables of Spain 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 Spain towards achieving its target; and the Party's provision of support to developing country Parties.

90. Spain's total GHG emissions excluding LULUCF covered by its quantified economywide emission reduction target were estimated to be 15.5 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 16.9 per cent above its 1990 level, in 2018. Emissions reached the highest point in 2007 and decreased thereafter. The changes in total emissions were driven mainly by factors such as economic growth and weather conditions. Since 2013, Spain has been experiencing a period of economic recovery and gross domestic product growth, which has resulted in the stabilization of emission levels.

91. Under the Convention, Spain 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 CO₂, CH₄, N₂O, HFCs, PFCs and SF₆, expressed using GWP values from the AR4. Emissions and removals from the LULUCF sector are not included.

92. Under the ESD, Spain has a target of reducing its emissions by 10 per cent below the 2005 level by 2020. The 2013–2020 progression in Spain's AEAs (its national emission target under the ESD) is 227,563.76-212,390.48 kt CO₂ eq.

93. In addition to its ESD target, Spain also reported on its target to achieve carbon neutrality by 2050. To this end, Spain has committed to reducing its total emissions by 23.0 per cent by 2030 compared with the 1990 level in its NECP 2021–2030. The NECP aims to

advance decarbonization and establish a solid foundation for achieving carbon neutrality in the economy by 2050.

94. In 2018, Spain's ESD emissions were 5.8 per cent (12,454.42 kt CO_2 eq) below the AEA under the ESD. The ERT noted that the Party does not plan to use market-based mechanisms to meet its ESD target. Considering its ESD emissions for 2013–2018, Spain has a cumulative surplus of 130,430.18 kt CO_2 eq with respect to its AEAs. The ERT noted that Spain is making progress towards its ESD target.

95. The GHG emission projections provided by Spain in its BR4 correspond to the WEM and WAM scenarios. Under these scenarios, Spain's emissions are projected to be 14.6 and 13.2 per cent above the 1990 level by 2020, respectively. According to the projections under the WEM scenario, ESD emissions are estimated to reach 202,643.20 kt CO_2 eq by 2020. Under the WAM scenario, ESD emissions in 2020 are projected to be 195,741.57 kt CO_2 eq. The projected level of ESD emissions under the WEM and WAM scenarios is 4.6 and 7.8 per cent, respectively, below the AEAs for 2020. The ERT noted that the Party's projected cumulative surplus of AEAs is 130,430.18 kt CO_2 eq for 2018, which suggests that Spain expects to meet its target under the WEM scenario.

96. Spain's main policy framework relating to energy and climate change is framed within the joint EU quantified economy-wide emission reduction target of 20 per cent compared with the 1990 level by 2020. Key legislation supporting Spain's climate change goals includes the Spanish Strategy for Climate Change and Clean Energy, in place since 2007, and the NECP 2021–2030. The mitigation actions with the most significant mitigation impact are a set of measures included in the NECP focused on reducing emissions in the energy sector.

97. Spain continues to provide climate financing to developing countries in line with its climate finance programmes. It has increased its contributions by 15.3 per cent since the BR3, as reported in its local currency (euros), or 24.8 per cent in United States dollars; its public financial support in 2017 and 2018 totalled USD 615.37 million and 809.65 million, respectively. For those years, Spain provided most of its support for mitigation projects. The biggest share of financial support went to projects and programmes in the energy sector, followed by projects and programmes in the water supply and sanitation, transport and agriculture sectors.

98. Spain continues to provide information on support for technology development and transfer and capacity-building. Priority in technological support was given to projects and programmes in mitigation and adaptation in Latin America and the Caribbean. A highlight of Spain's support was the REGATTA project, which focuses on sharing knowledge and experience of climate change technologies for adaptation and mitigation in Latin America and the Caribbean. Priority in capacity-building support was given to projects and programmes in Ibero-American countries. A good example of support for capacity-building is the Ibero-American Network of Climate Change Offices, which promotes a continuous dialogue on climate change in the Ibero-American region.

99. In the course of the review, the ERT formulated the following recommendations for Spain 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) Estimating the mitigation impacts of individual PaMs in the BR and CTF table 3 or providing a clear explanation, applicable to the PaMs affected, of why such information cannot be reported owing to national circumstances (see issue 1 in table 4);

(ii) Including in CTF table 7(b), the recipient country, region, project or programme of the financial support provided, or explaining, possibly in a footnote to the table, the methodological issues preventing the Party from reporting this information (see issue 1 in table 12);

(b) To improve the transparency of its reporting by reporting, in the case of multiyear and ongoing projects or programmes, different activities with different starting years as individual activities or clearly identifying in CTF table 8 which activities have been implemented or planned since the last BR (see issue 3 in table 12).

Annex

Documents and information used during the review

A. Reference documents

2019 GHG inventory submission of Spain. Available at <u>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</u>.

2020 GHG inventory submission of Spain. Available at <u>https://unfccc.int/ghg-inventories-annex-i-parties/2020</u>.

BR3 of Spain. Available at <u>https://unfccc.int/process-and-meetings/transparency-and-reporting/reporting-and-review-under-the-convention/national-communications-and-biennial-reports-annex-i-parties/biennial-report-submissions/third-biennial-reports-annex-i.</u>

BR4 of the EU. Available at https://unfccc.int/BRs.

BR4 of Spain. Available at https://unfccc.int/BRs.

BR4 CTF tables of Spain. 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 <u>https://unfccc.int/resource/docs/2012/cop18/eng/08a03.pdf</u>.

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.

European Green Deal. Available at <u>https://ec.europa.eu/info/files/communication-european-green-deal_en</u>.

"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 <u>http://unfccc.int/resource/docs/cop5/07.pdf</u>.

"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.

National Energy and Climate Plan of Spain (2021–2030). Available at <u>https://www.idae.es/informacion-y-publicaciones/plan-nacional-integrado-de-energia-y-clima-pniec-2021-2030</u>.

Report on the technical review of the third biennial report of Spain. FCCC/TRR.3/ESP. Available at <u>https://unfccc.int/documents/184845</u>.

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

B. Additional information provided by the Party

Responses to questions during the review were received from Ramón López Pérez (Ministry for Ecological Transition and Demographic Challenge), including additional material. The following documents¹ were provided by Spain:

Ministry for the Ecological Transition. 2019. *Atmospheric Emissions Projections, Edition 2019*, available at <u>https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Proyecciones.aspx.</u>

Royal Decree 818/2018. 2018. *Measures for reduction of national emissions of some atmospheric pollutants*, available at <u>https://www.boe.es/eli/es/rd/2018/07/06/818</u>.

¹ Reproduced as received from the Party.