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

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 Australia, 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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Contents

Abbreviations and acronyms

AAU	assigned amount unit
ACT	Australian Capital Territory
AR4	Fourth Assessment Report of the Intergovernmental Panel on Climate Change
ARENA	Australian Renewable Energy Agency
BR	biennial report
CEFC	Clean Energy Finance Corporation
CER	certified emission reduction
CH_4	methane
CO_2	carbon dioxide
CO_2 eq	carbon dioxide equivalent
CTF	common tabular format
ERF	Emissions Reduction Fund
ERT	expert review team
GCF	Green Climate Fund
GDP	gross domestic product
GHG	greenhouse gas
HFC	hydrofluorocarbon
ICAO	International Civil Aviation Organization
IMO	International Maritime Organization
IPCC	Intergovernmental Panel on Climate Change
IPPU	industrial processes and product use
LRET	Large-scale Renewable Energy Target
LULUCF	land use, land-use change and forestry
NA	not applicable
NC	national communication
NE	not estimated
NEPP	National Energy Productivity Plan
NF_3	nitrogen trifluoride
NGO	non-governmental organization
NIR	national inventory report
NO	not occurring
non-Annex I Party	Party not included in Annex I to the Convention
N_2O	nitrous oxide
NSW	New South Wales
OECD	Organisation for Economic Co-operation and Development
OECD DAC	OECD Development Assistance Committee
PaMs	policies and measures
PFC	perfluorocarbon
Reporting guidelines for supplementary information	"Guidelines for the preparation of the information required under Article 7 of the Kyoto Protocol. Part II: Reporting of supplementary information under Article 7, paragraph 2"
RET	Renewable Energy Target
SF_6	sulfur hexafluoride
SRES	Small-scale Renewable Energy Scheme
UNFCCC reporting guidelines on BRs	"UNFCCC biennial reporting guidelines for developed country Parties"
UNFCCC reporting guidelines on NCs	"Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part II: UNFCCC reporting guidelines on national communications"
WAM	'with additional measures'
WEM	'with measures'
WOM	'without measures'

I. Introduction and summary

A. Introduction

1. This is a report on the in-country technical review of the BR3[1] of Australia. 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 Australia, which provided comments that were considered and incorporated, as appropriate, into this final version of the report.

3. The review was conducted from 28 May to 2 June 2018 by the following team of nominated experts from the UNFCCC roster of experts: Ms. Christine Dragisic (United States of America), Mr. Xiang Gao (China), Ms. Maria Purzner (Austria), Mr. Arthur Rolle (Bahamas) and Mr. Harry Vreuls (Netherlands). Mr. Gao and Mr. Vreuls were the lead reviewers. The review was coordinated by Ms. Ruta Bubniene (UNFCCC secretariat).

B. Summary

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

1. Timeliness

5. The BR3 and the CTF tables were submitted on 28 December 2017, before the deadline of 1 January 2018 mandated by decision 2/CP.17. Australia resubmitted the projections section of the BR3 on 4 May 2018. Australia resubmitted the CTF tables on 31 May and the entire text of the BR3 on 15 June in response to the findings made by the ERT during the review.

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

Table 1
Summary of completeness and transparency of mandatory information reported by Australia 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	Mostly transparent	Issues 1 and 2 in table 4
Progress in achievement of targets	Complete	Transparent	
Provision of support to developing country Parties	Complete	Transparent	

Note: A list of recommendations pertaining to the completeness and transparency issues identified in this table is included in chapter III below.

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

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. Information on greenhouse gas inventory arrangements, emissions, removals and trends

(a) Technical assessment of the reported information

7. Total GHG emissions[2] excluding emissions and removals from LULUCF increased by 30.7 per cent between 1990 and 2016, whereas total GHG emissions including net emissions or removals from LULUCF decreased by 9.0 per cent over the same period. Table 2 illustrates the emission trends by sector and by gas for Australia.

[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 2018 annual submission.

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

	GHG emissions (kt CO_2 eq)						*Change (%)*		*Share (%)*	
Sector	*1990*	*2000*	*2005*	*2010*	*2015*	*2016*	*1990–2016*	*2015–2016*	*1990*	*2016*
1. Energy	294 010.18	364 552.31	399 994.36	421 032.15	421 911.49	433 528.46	47.5	2.8	70.0	78.9
2. Fuel combustion (sectoral approach)	256 777.72	324 357.83	361 200.07	378 509.65	376 134.62	384 482.85	49.7	2.2	61.1	70.0
A1. Energy industries	143 099.58	192 159.28	216 461.87	226 111.20	211 998.41	220 412.20	54.0	4.0	34.1	40.1
A2. Manufacturing industries and construction	36 256.19	38 952.22	41 584.24	41 435.58	43 952.45	41 663.39	14.9	–5.2	8.6	7.6
A3. Transport	61 394.56	74 388.55	82 453.71	89 190.54	96 181.75	97 462.60	58.7	1.3	14.6	17.7
A4. and A5. Other	16 027.39	18 857.78	20 700.25	21 772.34	24 879.31	24 944.65	55.6	0.3	3.8	4.5
B. Fugitive emissions from fuels	37 232.46	40 194.48	38 794.30	42 522.50	45 776.87	49 045.61	31.7	7.1	8.9	8.9
C. CO_2 transport and storage	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA
2. IPPU	26 080.61	26 768.02	32 060.55	35 363.43	32 327.34	34 174.23	31.0	5.7	6.2	6.2
3. Agriculture	80 178.51	78 625.09	76 186.25	66 449.58	70 011.73	69 140.89	–13.8	–1.2	19.1	12.6
4. LULUCF	156 700.24	61 673.65	82 297.89	22 730.00	–20 345.86	–24 120.95	–115.4	18.6	NA	NA
5. Waste	19 658.31	15 420.75	14 092.14	14 923.01	11 367.98	12 314.13	–37.4	8.3	4.7	2.2
6. Other	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA
Indirect CO_2	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NO, NE	NA	NA	NA	NA
NAN Gas[a]										
CO_2	415 581.74	394 363.17	452 512.61	412 174.30	368 529.37	374 481.85	–9.9	1.6	98.9	68.2
CH_4	133 188.54	124 423.28	119 321.48	113 407.69	111 335.05	112 689.42	–15.4	1.2	31.7	20.5
N_2O	21 777.99	25 099.88	25 865.65	26 477.08	24 185.71	24 293.06	11.5	0.4	5.2	4.4
HFCs	1 424.68	1 613.20	5 002.48	9 415.04	12 814.90	13 176.44	824.9	2.8	0.3	2.4
PFCs	4 607.01	1 287.06	1791.70	283.32	171.32	224.92	–95.1	31.3	1.1	0.04
SF_6	220.56	212.43	196.22	144.40	168.64	171.07	–22.4	1.4	0.1	0.03
NF_3	NO	NO	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions without LULUCF	**420 100.30**	**485 325.37**	**522 392.25**	**539 171.83**	**537 550.85**	**549 157.72**	**30.7**	**2.2**	**100.0**	**100.0**
Total GHG emissions with LULUCF	**576 800.53**	**546 999.03**	**604 690.14**	**561 901.83**	**517 204.99**	**525 036.77**	**–9.0**	**1.5**	**NA**	**NA**

Note: Values in this table are calculated on the basis of the 2018 annual submission, as submitted by the Party and which has not yet undergone expert review.

8. The biggest drivers for the increase in emissions in the period 1990–2016 are from the stationary fuel combustion in the energy sector, with an overall increase of energy production owing to the increasing population and higher household incomes, as well as increases in exports of fuel. However, emissions from electricity generation peaked in 2009 and have since fallen, because of a combination of lower electricity demand and changes in the fuel mix used to generate electricity. Emissions from road transportation have been growing over the years, owing to growth in the number of passenger vehicles, as well as an increase in diesel consumption in heavy-duty vehicles. Fugitive emissions have also been increasing, owing to increased production from open cut coal mines and increased gas production (Australia is the world's biggest exporter of liquefied natural gas).

9. Emissions from IPPU have been increasing since 1990, owing to the growth of emissions of HFCs, as well as an increase of emissions from chemical industry. The increase of emissions is offset by a reduction of emissions mainly because of the decline in land clearance in the LULUCF sector (a reduction in the amount of forest land converted to cropland and grassland), as well as a reduction of emissions from the waste sector (owing to increased CH_4 recovery) and from agriculture owing to a decline in sheep numbers (although this was partly offset by an increase in cattle numbers) which, together, led to an overall decrease of total GHG emissions including LULUCF. As the changes in the LULUCF sector are the major driver for the reduction of emissions, there is an overall increase of total GHG emissions excluding LULUCF.

10. Australia's national inventory arrangements were established in accordance with the guidelines for national systems (decision 19/CMP.1 annex paragraph 12(a) and decision 3/CMP.11). Overall responsibility is with the Australian Department of the Environment and Energy. The changes in the arrangements since the BR2 include changes enacted by the Australian Government to the makeup of Australian Government departments. These changes included moving the national inventory functions from the former Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education to the Department of the Environment (in the BR2), and since then to the Department of the Environment and Energy. The national system has remained the same since the BR2, with the addition of the improvements on reporting that are an integral part of Australia's inventory team and are ongoing.

(b) Assessment of adherence to the reporting guidelines

11. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting 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. Assumptions, conditions and methodologies related to the quantified economy-wide emission reduction target and related assumptions, conditions and methodologies

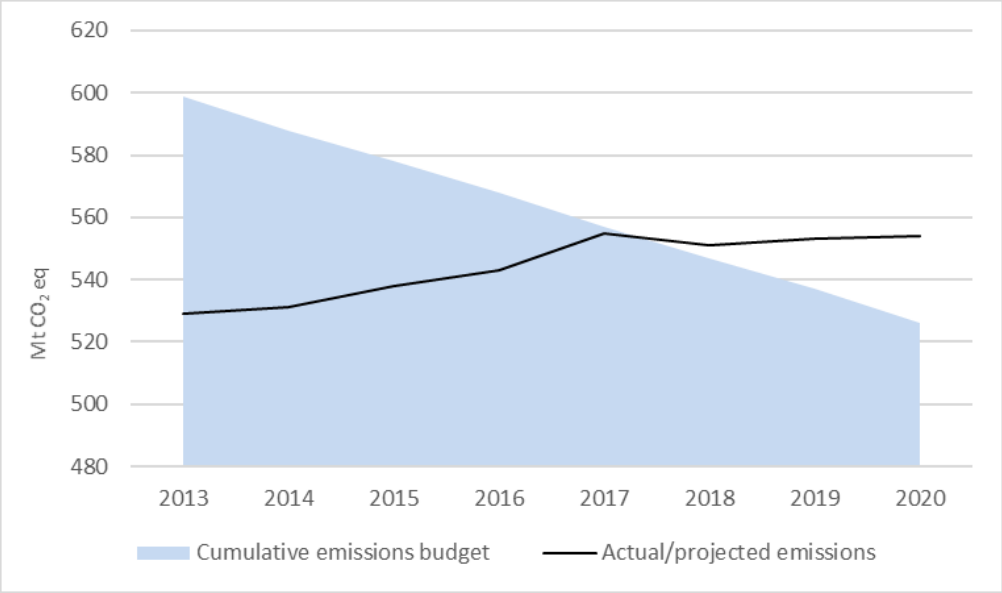
1. Technical assessment of the reported information

12. For Australia the Convention entered into force on March 21, 1994. Under the Convention, Australia committed to reducing its GHG emissions by 5.0 per cent below the 2000 level by 2020, using an emissions budget approach. The target represents net emissions. The target includes all GHGs included in the "Guidelines for the preparation of national communications by Parties included in Annex I to the Convention, Part I: UNFCCC reporting guidelines on annual greenhouse gas inventories", namely CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3. It also includes all IPCC sources and sectors included in the annual GHG inventory, using the LULUCF net -net accounting approach and subclassifications specified in paragraphs 15 - 16 below. Australia will calculate CO_2 eq for the included gases using global warming potential for a 100-year time horizon. The global warming potential values used are from the AR4. Australia reported that it may use the market-based mechanism to achieve its target (see para. 18 below).

13. During the review and in its resubmission of the BR3, Australia provided further clarity on its design and accounting for the 2020 target. The 2013–2020 emissions budget is calculated by taking a linear decrease from 2010 (the target under the first commitment period of the Kyoto Protocol of 108 per cent of the 1990 level) to 2020 (5 per cent below the 2000 level in 2020).

14. The current estimated value of the 2013–2020 emissions budget is 4,500 Mt CO_2 eq. The value of this emissions budget is subject to change on that basis of recalculations of the national GHG inventory for 1990 and 2000. Australia's cumulative national net GHG emissions from 2013–2020 will be compared with this emissions budget. Should the actual level of cumulative net emissions from 2013–2020 be lower than the emissions budget, Australia will consider that it has achieved the 2020 target. Figure 1 below presents the current estimates and projections of net GHG emissions for 2013–2020 compared with the emissions budget for the same period based on materials received during the review, and also found in the resubmitted BR3.

Figure 1
Net greenhouse gas emissions compared with the cumulative emission budget for the period 2013–2020



Source: prepared by the ERT during the review, based on the information reported in the BR3 and provided during the review week.

15. Australia uses the Kyoto Protocol classifications for LULUCF for its 2020 target, and includes the following LULUCF subclassifications in its target: deforestation, afforestation, reforestation, forest management, cropland management, grazing land management and revegetation. This includes the use of the narrow definition for forest management under the Kyoto Protocol (i.e. forest management only includes lands managed for timber production). Section 3 of the BR3 provides a description of this approach, while CTF tables 4.2, 4(a)I-1 and a supplementary table in the BR3 (section 4.2) provide additional details on the classifications.

16. Although the LULUCF classifications under the Kyoto Protocol are used for the 2020 target, the Kyoto Protocol accounting approaches[3] are not applied to these classifications, and a forest management reference level will not be used when accounting for emissions and

[3] Under the Kyoto Protocol, the accounting rules specify accounting approaches for each LULUCF activity. Summarized briefly, these comprise: gross–net accounting for afforestation/reforestation and deforestation; net–net accounting against a forest management reference level for forest management; and net–net accounting for grazing land management, cropland management, revegetation, and wetland drainage and rewetting. See decision 2/CMP.7 for details.

removals under the forest management classification. There is no cap to accounting for forest management. LULUCF will be accounted for on a net–net basis, as will the other sectors included in the 2020 target. The Kyoto Protocol default approach[4] will be used in addressing emissions and removals from natural disturbances, and the IPCC production approach[5] will be used in accounting for harvested wood products.

17. The accounting approach adopted is the reason why there are variations in the numbers reported in Australia's BR3, namely, the BR3 sections relating to the national GHG inventory do not apply the elements of Kyoto Protocol accounting (see paragraph 60 below), while the BR3 sections relating to progress towards the target and projections do use these elements of Kyoto Protocol accounting.

18. Australia reported that it may use Kyoto Protocol market-based mechanisms to achieve its 2020 target under Convention. Australia will carry over the units from the first commitment period of the Kyoto Protocol: 127.7 Mt CO_2 eq of AAUs and 21.8 Mt CO_2 eq of CERs received through a voluntary Waste Industry Protocol. Australia also plans to use an additional 6.7 Mt CO_2 eq of CERs received through the same protocol for the second commitment period of the Kyoto Protocol. Australia reported in the BR3 that both the carry-over and the CERs may be used towards its 2020 target. Australia confirmed during the review that it would use these units in accounting for its 2020 quantified economy-wide emission reduction target under the Convention. It also noted that this 2020 target was intended to be consistent with its commitment under the second commitment period of the Kyoto Protocol.

19. However, the ERT noted that the BR3 did not include additional details on how the carry-over from the first commitment period of the Kyoto Protocol to the second commitment period (2013–2020) will be incorporated in the accounting for its 2020 target under the Convention. Australia clarified during the review that, should these units be used towards the 2020 target, they would be added to the 2013–2020 emission budget before this total amount is compared with cumulative 2013–2020 net emissions.

20. Australia further clarified during the review week that the use of an emissions budget for accounting of its 2020 target under the Convention was first communicated in "Australia's Abatement Task and 2013 Emissions Projections" (2013).[6] The methodology was first formally communicated to the UNFCCC in December 2015 in chapter 3 of the BR2 (submitted in 2015). The 2020 target, as originally communicated by the Party,[7] was as follows: "Australia will reduce its greenhouse gas (GHG) emissions by 25 per cent compared with 2000 levels by 2020 if the world agrees to an ambitious global deal capable of stabilizing levels of GHGs in the atmosphere at 450 ppm CO_2 eq or lower. Australia will unconditionally reduce its emissions by 5 per cent compared with 2000 levels by 2020 and by up to 15 per cent by 2020."

21. The ERT recognized that Australia improved the transparency of its reporting by accommodating suggestions made in the previous review report (FCCC/TRR.2/AUS), including on the provision of absolute values used to define the emissions budget for the target. The ERT noted that the provision of a comparison of the subclassifications for

[4] For more information on the Kyoto Protocol default approach to natural disturbances see decision 2/CMP.7.

[5] For details of the IPCC production approach used by Australia to estimate emissions from harvested wood products, see the *2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol*, chapter 2.8 ("Harvested wood products"), available at https://www.ipcc-nggip.iges.or.jp/public/kpsg/index.html. The accounting approach adopted is the reason for the variations in the numbers reported in Australia's BR3; namely, the BR3 sections relating to the national GHG inventory apply the UNFCCC reporting classifications for LULUCF and do not apply the elements of Kyoto Protocol accounting (see para. 40 below), while the BR3 sections relating to progress towards the target and projections do apply Kyoto Protocol accounting.

[6] Available at: https://www.environment.gov.au/system/files/resources/51b72a94-7c7a-48c4-887a-02c7b7d2bd4c/files/abatement-task-summary-report_1.pdf.

[7] FCCC/SBSTA/2014/INF. Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention, available at: https://unfccc.int/topics/mitigation/workstreams/pre-2020-ambition/compilation-of-economy-wide-emission-reduction-targets-to-be-implemented-by-parties-included-in-annex-i-to-the-convention.

LULUCF under the Convention and under the Kyoto Protocol added useful clarity on how emissions and removals from each categorization approach.

22. The ERT noted that, in the BR3 submission of 28 December 2017, the description of the accounting approach for the 2020 target, including how the achievement of the 2020 target would be calculated and assessed, was not fully transparent. During the review and in its resubmitted BR3 (15 June 2018), Australia provided additional clarification and useful additional detail on the accounting approach that Australia uses to define and track progress towards its 2020 target. The ERT considers that this has greatly enhanced the clarity of the target and of progress made to date.

23. The ERT notes that some of the critical detail on the accounting approach for the 2020 target related to accounting for LULUCF was provided in section 4.2 of the BR3. For ease of reading, the ERT considers that it may be useful to consolidate all the details of the accounting approach that will be used for the 2020 target in one section of the next BR, or to make clear reference to where additional details on this approach may be found in the document.

2. Assessment of adherence to the reporting guidelines

24. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting is complete, transparent and adhering to the UNFCCC reporting guidelines on NCs. There were no issues raised during the review relating to the topics discussed in this chapter of the review report.

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

25. Australia provided information on its package of PaMs implemented, adopted and planned, by sector and by gas, in order to fulfil its commitments under the Convention. Australia reported on its policy context and legal and institutional arrangements put in place to implement its commitments and monitor and evaluate the effectiveness of its PaMs.

26. Australia provided information on a set of PaMs similar to those previously reported, with a few exceptions. Australia also provided information on changes made since the previous submission 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. The BR3 made reference to the NC7 for details of changes in institutional, legal, administrative and procedural arrangements. These changes include the 2016 merger of the energy and environment portfolios to form the Department of the Environment and Energy, which is responsible for developing and implementing the national response to climate change.

27. Australia provides information in its BR3 on several international GHG mitigation targets and domestic energy targets, which are expected to have an impact on reducing the overall level of emissions. In addition to the 2020 target described below, Australia has a 2030 target to reduce emissions by 26–28 per cent below the 2005 level. Australia also has the LRET, which aims for 33,000 GWh from renewable sources by 2020. The LRET and SRES, together, are expected to result in a share of at least 23.5 per cent for electricity generated by renewables by 2020. The NEPP aims to accelerate a 40 per cent improvement in energy productivity by 2030.

28. The ERT noted that Australia did not include in its BR3 a reference to its target under the second commitment period of the Kyoto Protocol. Australia confirmed during the review that its ratification of the Doha Amendment included the following target: “Australia has now committed to reducing its GHG emissions to 99.5 per cent of 1990 levels for the Kyoto Protocol’s second commitment period (2013–20). This is consistent with Australia’s 2020 target to reduce emissions by 5 per cent below 2000 levels by 2020.”

29. Australia reported on its self-assessment of compliance with emission reduction targets and national rules for taking action against non-compliance. Through the National Greenhouse and Energy Reporting Act 2007 a legislative framework was established. This framework provides for Australia's international inventory reporting and incorporates measurement, reporting and verification arrangements. The Australian Department of the Environment and Energy, tracks progress against Australia's emissions reduction target. The Australian Government regularly reviews its climate change policies. In 2017, these policies were reviewed to ensure they remain effective in achieving Australia's 2030 target and Paris Agreement commitments. Stakeholders were consulted extensively on the opportunities and challenges of reducing emissions on a sector-by-sector basis. Australia reports that it will continue to review and refine its climate change policies to ensure they remain effective in achieving Australia's targets.

30. The key overarching cross-sectoral policy reported by Australia is the ERF and its Safeguard Mechanism. This is also the policy with the most significant mitigation effect. The ERF is made up of three interrelated elements: crediting emission reductions, purchasing emission reductions and safeguarding emission reductions. The ERF defines activities in a number of sectors that are eligible to receive carbon credits, and registers projects. The Australian Government has allocated 2.5 billion Australian dollars for the Clean Energy Regulator to purchase carbon credits through the ERF, using competitive processes. The Safeguard Mechanism places emission limits on the largest emitters in the country, and covers around 140 businesses. Other policies that are estimated to deliver significant emission reductions by 2020 are the RET scheme, which supports the deployment of both large- and small-scale renewable energy projects; and the NEPP, which aims to accelerate a 40 per cent improvement on Australia's energy productivity by 2030. The NEPP will deliver emission reductions through: higher standards for equipment, appliances, light vehicles, and residential and commercial buildings; improved disclosure to purchasers or lessors of the energy performance of residential and commercial buildings; and improved uptake of innovative, more energy-efficient technologies through funding from ARENA and CEFC.

31. The ERT noted that Australia increased the transparency of its reporting by providing in the BR3 details on its ERF, including examples of eligible project activities, the number of registered projects, number of contracted projects, and contracted emission reductions for each project type. This reflects a recommendation made in the previous review report. Australia also separated its reporting on the LRET and SRES, as encouraged in the previous review report.

32. The BR3 includes information on a series of cross-cutting PaMs that include projects or actions in a number of sectors. A number of other PaMs were also reported in the energy sector, and a few in the transportation and industrial processes sectors. These included federal PaMs, as well as some PaMs under the authority of states, territories and local councils.

33. The ERT noted that no policies were reported separately for the LULUCF, agriculture or waste sectors. Given the significance of emissions and removals from these sectors to Australia's national totals, and the significant decline in net LULUCF emissions reported in recent years, the ERT considers that providing additional information on federal, state/territory, and or local PaMs in this area would enhance the completeness of reporting on mitigation efforts and their results.

34. Australia highlighted the mitigation actions that are under development, such as the such as the measures to address vehicle emissions through the Ministerial Forum on Vehicle Emissions, and an HFC management policy or the phase-down of HFC imports, complemented by measures to encourage regular system maintenance, including testing for leaks in installed equipment, to improve energy performance and reduce HFC emissions from leakages. These additional mitigation actions will contribute to Australia's efforts to attain its 2030 emission reduction target. Table 3 provides a summary of the reported information on the PaMs of Australia.

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

Sector	*Key PaMs*	*Estimate of mitigation impact by 2020 (kt CO_2 eq)*
Policy framework and cross-sectoral measures	ERF	21 825
	Safeguard Mechanism	NE
	National Carbon Offset Standard	NE
Energy	Ministerial Forum on Vehicle Emissions	
Transport	Green Vehicle Guide	
Renewable energy	LRET	19 838
	SRES	NE
	Australian Renewable Energy Agency funding	NE
	Concentrated Solar Thermal	NE
Energy efficiency	NEPP	6 608
	National Energy Guarantee	NE
	Clean Energy Finance Corporation	NE[a]
IPPU	HFC management (imports)	0
	HFC management (leakage info)	NE
Agriculture	Not reported	NA
LULUCF	Not reported	NA
Waste	Not reported	NA

Notes: (1) 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. (2) The funded projects which CEFC will support are estimated to deliver 9 Mt CO_2 eq by 2020, but CEFC does not claim that this abatement occurs independent of complementary policies such as the renewable energy target.

35. Australia provided information in its submissions on the contracted emission reductions per project type under the ERF. The ERF is a significant component of Australia's efforts towards its 2020 target. The ERF has contracted a total emission reduction of 191.7 Mt CO_2 eq to date, from 438 projects across a variety of sectors. AUD 2.5 billion has been allocated to date to purchase carbon credits through the ERF. The ERT was unable to assess the accuracy of the estimates provided for the overall mitigation impact of the ERF in 2020 as it was not able to analyse in sufficient detail the annual projections of emission reductions expected for each contracted project.

36. Numerous other PaMs reported at the national, state, territory and local level may also make important contributions to mitigation efforts in 2020. Several of these, including the Ministerial Forum on Vehicle Emissions and HFC management policies to improve system maintenance, are not yet implemented. Other reported PaMs are under implementation, but do not have reported estimates of mitigation impacts for 2020. As estimates for these PaMs were not reported, it is not possible to assess their potential contribution to mitigation in 2020.

(b) Policies and measures in the energy sector

37. **Energy supply**. The CEFC is intended to increase the flow of finance into the clean energy sector by using debt and equity finance to promote investment in clean energy technologies. The CEFC has made investments of more than AUD 5 billion since 2013 for projects with a total value of more than AUD 19 billion. In 2016 the Australian Government created three new funds within the CEFC: the Sustainable Cities Investment Program to support the national Smart Cities Agenda; the Reef Funding Program providing up to AUD

1 billion over 10 years to clean energy programmes benefiting the Great Barrier Reef; and the Clean Energy Innovation Fund. This latter fund, managed by CEFC and ARENA includes AUD 200 million to support early stage and emerging clean energy technologies. More than AUD 43 million has been invested in seven projects addressing issues such as energy use management devices, the conversion of medium-duty trucks and commercial vans to electric vehicles and the introduction of light-weight carbon fibre cars. While the mitigation impact of the CEFC is not estimated, the projects it supports are expected to achieve annual abatement of 9 Mt CO_2 eq in 2020. This abatement is not claimed independently of complementary policies such as the RET scheme.

38. The Australian Government released a Low Emissions Technology Roadmap in 2017. This Roadmap outlined four options or pathways to decarbonize the energy sector, and considered the possible mix of energy technologies to make a greater contribution to Australia's 2030 target. The Australian Government and private sector are contributing to several carbon capture and storage research, development and deployment activities. One of these, Chevron's Gorgon project in Western Australia, is expected to commence in 2018 and reduce emissions from the natural gas facility by 40 per cent each year through the injection of 3–4 Mt CO_2 eq into undersea storage. Australia is also a founding member of Mission Innovation, a global initiative to increase public investment in clean energy research and development in order to accelerate breakthroughs in clean energy technologies. The Australian Government has committed to double public expenditure on clean energy research and development from 2015 levels by 2020.

39. **Renewable energy sources**. Australia has put in place the RET scheme, which is expected to result in a share of at least 23.5 per cent for electricity from renewable sources in Australia by 2020. The scheme has two components: LRET and SRES. LRET, which aims for 33,000 GWh from eligible renewable sources by 2020, encourages investment in large-scale projects by obligating electricity retailers to buy and surrender a certain number of certificates to the Clean Energy Regulator each year. These certificates may be created by eligible large-scale renewable energy projects such as solar and wind farms, hydroelectricity and biomass power stations. LRET is expected to reduce 19,838 kt CO_2 eq emissions in 2020. SRES assists homeowners and small businesses with the costs of installing small-scale wind-, hydro- and solar-power systems. The scheme has helped households install more than 1.8 million solar photovoltaic systems and 1 million solar water heater systems. Its potential mitigation impacts has not been estimated separately.

40. The National Energy Guarantee, proposed in October 2017, requires electricity retailers to contract or invest in energy resources to supply an amount of dispatchable energy while also meeting a specified emission level for the electricity they buy. Each retailer determines how it will meet the requirements of the Guarantee. The Australian Government will determine a 2030 target for the National Electricity Market based on the country's international commitments, and use this to set the annual level of the Guarantee for individual retailers.

41. ARENA provides research, development and grant funding to improve the supply and affordability of renewable energy funding. It has committed over AUD 1 billion to 317 projects in areas along the commercialization pathway. The 2020 mitigation impact of ARENA is not estimated.

42. The Solar Communities programme provides AUD 5 million in funding for community groups to install rooftop solar panels, solar hot water heaters and collar-connected battery systems. The Food Rescue Charities programme provides an additional AUD 1.2 million for solar or efficient refrigeration systems. Australia has also committed up to AUD 110 million, if needed, in equity investment for a solar thermal project in Port Augusta. The mitigation impact of these programmes is not estimated.

43. **Energy efficiency**. The NEPP aims to accelerate a 40 per cent improvement in Australia's energy productivity by 2030. It is a national framework and an economy-wide workplan that brings together national, state, territory and industry actions in a package of 34 measures designed to encourage more productive consumer energy choices and promote more productive consumer energy services. To date, the NEPP has, among other things: instigated a consultation on tighter energy efficiency standards under the Equipment Energy

Efficiency programme (expected to deliver 45 Mt CO_2 eq by 2030); led to the expansion of the Commercial Building Disclosure programme that requires sellers and lessors to disclose energy efficiency information (expected to deliver 3.5 Mt CO_2 eq between 2015 and 2019); targeted industry training and tools to help support compliance with energy performance requirements; and engaged with CSIRO in creating an Energy Use Data Model to understand Australia's energy consumption. The NEPP is expected to achieve a mitigation impact of 6,608 kt CO_2 eq in 2020.

44. **Residential and commercial sectors**. Australia did not report separate information on the residential and commercial sectors, although some relevant activities are included under cross-cutting and energy PaMs including the ERF and the NEPP.

45. **Transport sector**. The Ministerial Forum on Vehicle Emissions coordinates the Government's approach to addressing emissions from motor vehicles. It is consulting on three potential measures: fuel efficiency standards for light-duty vehicles; strengthening noxious emissions standards; and improving fuel quality. A Green Vehicle Guide provides information on vehicle fuel efficiency and emissions to inform buyers, and the Government provides exemptions on some luxury vehicle taxes to highly efficient vehicles.

46. The BR3 includes information on how Australia promotes and implements the decisions of ICAO and IMO to limit emissions from aviation and marine bunker fuels. Australia supported the adoption of ICAO's Carbon Offsetting and Reduction Scheme, and has volunteered to participate in this scheme beginning in 2021. Australia also supports negotiations within the IMO to develop a strategy to reduce GHG emissions from international shipping.

47. **Industrial sector**. Australia did not report PaMs specific to the industrial sector in the BR3, although some relevant activities are included under cross-cutting and energy PaMs including the ERF and the NEPP.

(c) Policies and measures in other sectors

48. **Industrial processes**. The Australian Government announced in 2016 a phase-down of HFC imports. It expects to reduce HFC imports by 85 per cent below a baseline of 8,000 kt CO_2 eq by 2036. During the review, Australia confirmed that no HFCs are produced domestically. While the phase-down of imports is expected to reduce emissions, the mitigation impact is expected to begin after 2020, thus an estimated emission reduction of zero was reported for 2020. The phase-down is expected to reduce HFC imports by 85 per cent below the Montreal Protocol's baseline of 10.7 megatonne CO_2 eq by 2036. The phase-down began on 1 January 2018, and is complemented by additional measures to reduce HFC emissions such as action to improve equipment maintenance to reduce HFC leaks and improve energy efficiency. Australia plans to use 25 per cent less HFCs than permitted under the Montreal Protocol over the period 2018–2036. The Montreal Protocol phase-down will see developed countries reducing HFC production and imports by 85 per cent below current levels by 2036, and developing countries taking on phase-down obligations.

49. **Agriculture**. Australia did not report PaMs specific to the agriculture sector in the BR3, although agriculture projects are included under the ERF. During the review Australia provided additional information on a 2017 Australia Food Waste Strategy, intended to halve food waste by 2030. Australia also noted that the CEFC may fund projects in the agricultural sector, including under the Reef Funding Program.

50. **LULUCF**. Australia did not report PaMs specific to the LULUCF sector in addition to LULUCF projects included under the ERF. During the review, Australia further explained that the significant decline in LULUCF emissions in recent years may be attributed to a number of factors, including: the previous Carbon Farming Initiative (now replaced by the ERF), which provided an early start to many offset programmes in the sector; state- and territory-level policies regulating land clearing; and commodity prices.

51. **Waste management**. Australia did not report PaMs specific to the waste sector, although waste projects are included under the ERF. During the review, Australia provided additional information on the Meeting of Environment Ministers Statement on Recyclable Waste, which aims to increase recycling and increase the percentage of reusable, recyclable

or biodegradable packaging. Australia also noted that large landfills are covered by the Safeguard Mechanism.

(d) Response measures

52. Australia reports on the assessment of the economic and social consequences of response measures in its NIR and NC7, while the BR3 is reported as an annex the NC7. The BR3 itself does not contain information on this topic and no clear reference is provided to the relevant sections in the NC7.

(e) Assessment of adherence to the reporting guidelines

53. The ERT assessed the information reported in the BR3 of Australia 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 the mitigation actions and their effects from the review of the third biennial report of Australia

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 Australia did not provide comprehensive reporting on mitigation actions by sector, because the PaMs for the LULUCF, agriculture and waste sectors were not reported separately, although actions are clearly being undertaken in these sectors by different levels of government. The ERT acknowledged that a number of cross-cutting PaMs were reported in the BR3. Given the significance of emissions and removals from these sectors to Australia's national totals, and the significant declines in net LULUCF emissions reported in recent years, the ERT considers that providing additional information on federal, state/territory and local PaMs for these sectors would enhance the completeness of reporting the PaMs which have the most significant impact in affecting GHG emissions and removals. During the review, Australia provided summary information on additional PaMs with mitigation impacts being implemented at the federal level, including the National Food Waste Strategy and measures included under the Meeting of Environment Ministers Statement on Recyclable Waste, as well as investments on bioenergy by ARENA and by CEFC on clean energy for agribusiness. The Party added that state- and territory-level policies on land clearing, and the previous Carbon Farming Initiative, have been important in reducing emissions from the LULUCF sector. Several initiatives are also under way in the states and territories, and by the private sector, to enhance public transportation options and improve the penetration of low-emission vehicles. To enhance completeness the ERT recommends that Australia report on additional PaMs being undertaken at the federal, state/territory, or local levels. This is especially important in the LULUCF, agriculture, waste and transportation sectors.
2	Reporting requirement specified in paragraph 6 Issue type: transparency Assessment: recommendation	The ERT noted that not all the PaMs included in table 3 quantified the expected 2020 mitigation impact and that although Australia reported a number of PaMs in narrative format in its BR3, many of the PaMs were not reflected in CTF table 3. The ERT also noted that it is not always clear how mitigation impacts where derived. During the review Australia provided additional information on how the potential 2020 mitigation impact of the ERF was calculated. Australia also noted that it is difficult to estimate the mitigation impact of many PaMs because, among other things, many PaMs are complementary and attribution may be challenging. To enhance the transparency of reporting on PaMs the ERT reiterates the recommendation made in the previous review report that Australia strive to estimate the mitigation impact of additional federal, state/territory and local PaMs or provide explanations as to why this may not be possible due to its national circumstances. The ERT noted in this respect that it would be useful if the Party provided further background information which would allow for an assessment of how the mitigation impact has been estimated – especially for complex cross-cutting PaMs such as the ERF.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
		To further increase transparency, Australia may wish to summarize in subsequent BRs the results of major future reviews of its climate change PaMs, for example, the Climate Change Authority's review of the Carbon Credits (Carbon Farming Initiative) Act 2011, the Review of the Future Security of the Energy Market, and the Australian Government's review of climate change policies.
	3.Reporting requirement specified in paragraph 8	The BR3 itself does not contain information on the assessment of the economic and social consequences of response measures, as this information is provided in the NIR and NC7. While the BR3 is an annex to the NC7, a clear reference to the relevant sections in the NC7 would assist readers.
	Issue type: transparency	During the review, Australia acknowledged the issue.
	Assessment: encouragement	The ERT encourages Australia to provide a reference in the BR to the relevant information in the NC7 on assessment of the economic and social consequences of response measures.

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

54. For 2014 Australia reported in CTF table 4 annual total GHG emissions excluding LULUCF of 525,792.13 kt CO_2 eq, which is 8.4 per cent above the 2000 level.

55. For 2015 Australia reported in CTF table 4 annual total GHG emissions excluding LULUCF of 533,282.71 kt CO_2 eq, which is 10.0 per cent above the 2000 level.

56. On the estimates of emission reductions and removals from LULUCF activities, Australia reported in CTF tables 4 and 4(a) that in 2014 and 2015 its net GHG emissions/removals from LULUCF were 4,902.75 kt CO_2 eq and 4,567.81 kt CO_2 eq, respectively. Australia's emissions and removals from LULUCF, reported in CTF table 4(a)I-1 and in a supplementary table provided in the BR3, show a marked decline in reported net emissions from this category since 2000. In 2000 the base-year emissions from LULUCF were 69,565 kt CO_2 eq, whereas in 2015 net emissions from LULUCF were 4,568 kt CO_2 eq, which was 64,997 kt CO_2 eq less than in the base year. This reflects significant declines in emissions from forests, especially from the Kyoto Protocol activity categories of deforestation and forest management. Afforestation/reforestation demonstrated a net increase in sequestration from 2000–2015. A decrease in emissions made cropland management and revegetation small net sinks in 2015, while net emissions from grazing land management decreased. Australia explained during the review that the significant decline in LULUCF emissions in recent years was due to a number of factors, including state/territory-level land clearing policies, the previous Carbon Farming Initiative and variations in commodity prices.

57. Australia reported that it may use units from market-based mechanisms. It reported in CTF tables 4 and 4(b) that it used "0" units from market-based mechanisms in 2014 and 2015 towards the achievement of its 2020 target. Australia specified during the review that it understands surrender of units as distinct from holding units, namely that surrender is when an entity or Party retires a unit for compliance purposes, and confirmed that Australia did not surrender any units in 2014 or 2015. As shown in CTF table 2(e)I Australia currently holds 127,650.77 kt CO_2 eq of AAUs from the first commitment period in a previous period surplus account. The same table shows that Australia also carried over 21,768.29 kt CO_2 eq of CERs from the first commitment period, and has 6,720.69 kt CO_2 eq of CERs for the second commitment period for use towards the 2020 target, in accordance with Kyoto Protocol rules. In accounting for the 2020 target, these AAUs and/or CERs would be added to the 2013–

2020 emission budget before this total amount is compared with cumulative 2013–2020 net emissions. Table 5 illustrates Australia'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 Australia to achieve its target

Year	*Emissions excluding LULUCF (kt CO_2 eq)*	*Contribution of LULUCF (kt CO_2 eq)*	*Emissions including contribution of LULUCF (kt CO_2 eq)*	*Use of units from market-based mechanisms (kt CO_2 eq)*
2000[a]	484 841.72	69 564.93	554 406.65	0
2010	537 159.26	26 633.08	563 792.34	0
2011	538 544.09	17 717.26	556 261.35	0
2012	541 258.26	6 443.98	547 707.24	0
2013	531 325.63	–1 853.51	529 472.12	0
2014	525 792.13	4 902.75	530 694.88	0
2015	533 282.71	4 567.31	537 850.02	0

Sources: *Australia*'s BR3 and CTF tables 1, 4, 4(a)I, 4(a)II and 4(b), version 4.0.

58. In assessing the progress towards the achievement of the 2020 target, the ERT noted that Australia's 2020 emission reduction target under the Convention is 5 per cent below the 2000 level, using an emissions budget approach. The 2013–2020 emissions budget is calculated by taking a linear decrease from 2010 (the target under the first commitment period of the Kyoto Protocol of 108 per cent of the 1990 level) to 2020 (5 per cent below the 2000 level in 2020). The current estimated value of the 2013–2020 emissions budget is 4,500 Mt CO_2 eq. Australia's cumulative national net GHG emissions from 2013–2020 will be compared with this emissions budget. Should the actual level of cumulative net emissions from 2013–2020 be lower than the emissions budget, Australia will consider that it has achieved the 2020 target.

59. In terms of emission reductions achieved to date, CTF table 4 shows a reduction in net emissions, including LULUCF, of 3.0 per cent from 2000 to 2015.

60. Australia reports in section 5 of the BR3 (and in sections 1, 4 and 5 of the NC7) that it is on track to overachieve its 2020 emission reductions target. The ERT noted that projections in the BR3 show cumulative net emissions of 4,354 Mt CO_2 eq from 2013–2020. This means that Australia expects to overachieve its 2020 target (i.e. net cumulative emissions will be 166 Mt CO_2 eq less than the 2013–2020 emissions budget without carry-over of the units). Including carry-over from the overachievement from the first commitment period target Kyoto Protocol, Australia expects to overperform its 2020 target by 294 Mt CO_2 eq. Australia confirmed during the review that LULUCF classifications under the Kyoto Protocol are used for the 2020 target and that the Kyoto Protocol accounting approaches are not applied to these classifications.

61. For reference, the 2020 projections provided in table 5.1 of NC7, which apply the UNFCCC reporting classification for LULUCF, show projected emissions in 2020 that are at approximately the same level as in 2000. CTF table 6(a), which does apply the elements of Kyoto Protocol accounting that are used for the 2020 target (as described in para. 16 above), indicates a decline of 0.05 per cent below the 2000 level of projected net annual emissions in 2020. See table 6 for additional details on projected emissions and removals.

62. In 2015 Australia's annual total GHG emissions excluding LULUCF were 533,282.71 kt CO_2 eq, which is 10.0 per cent above the 2000 levels. In addition, the ERT noted that in 2015 net emissions from LULUCF were 4,567.81 kt CO_2 eq and the use of market-based mechanisms accounted for 0 kt CO_2 eq. Australia's net emissions including LULUCF were approximately 3.0 per cent below the 2000 level in 2015, when the Kyoto Protocol accounting approach used for the 2020 target is applied.

63. The ERT noted that Australia is making progress in implementing mitigation actions that are delivering emission reductions and through the reduction of net emissions from LULUCF. On the basis of the results of the projections and the accounting approach, the ERT also noted that the Party is making progress towards achieving its target under the Convention.

(b) Assessment of adherence to the reporting guidelines

64. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting 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. Australia reported updated projections for 2020 and 2030 relative to actual inventory data for 2015 under the WEM scenario. The WEM scenario reported by Australia includes implemented and adopted PaMs. Projections are presented up to 2030; however, there are PaMs currently under discussion that are not yet included in the projections. It is expected that future PaMs currently under development will lead to a decrease in emissions after 2020.

66. Australia provided a definition of its WEM scenario, namely that the PaMs listed in NC7 table 4.1 as 'implemented' or 'adopted' have been included in the emission projections. Those PaMs are the ERF, the Safeguard Mechanism, LRET, SRES, the NEPP, the phase-down of HFCs, as well as measures introduced through the Australian Renewable Energy Agency and the Clean Energy Finance Corporation. For those PaMs, where Australia was able to isolate the effect of a policy for the year 2020, a mitigation estimate is provided in CTF table 3.

67. Projections are also presented on a gas-by-gas basis for CO_2, CH_4, N_2O, PFCs, HFCs and SF_6 for 1990–2030. NF_3 is reported as "NO" in Australia's NIR and CRF tables. 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. Emission projections related to fuel sold to ships and aircraft engaged in international transport were reported separately and were not included in the totals. Australia also reported on factors (e.g. increasing installation of solar panels) and measures affecting emissions for each sector in the chapters on projections for each sector, as well as in the projections methodology report that was published separately.[8]

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

69. The methodology used for the preparation of the projections is different from that used for the preparation of the emission projections for the NC6/BR1, but the same as that used for the BR2. Australia reported supporting information further explaining the methodologies and the changes made since the NC6/BR1 and the BR2. For the NC6,/BR1 Australia used a model comprising a combination of computable general equilibrium and partial equilibrium models and sector-specific models, which was the basis for the design of an economy-wide emission reduction mechanism. Projections for Australia's BR3 were based on largely the same kind of combination of top-down and bottom-up sectoral models as used for the BR2, but with some changes in assumptions.

70. During the review, Australia highlighted that Australia's emission projection models mostly estimate emissions in terms of CO_2 eq and do not produce separate estimates for each gas. To meet the NC reporting requirements Australia undertook a detailed allocation of emissions from all subsectors to each GHG. This allocation was based on Australia's emission projections for 2016 and was the basis of Australia's initial NC7 submission in December 2017. Australia explained that it is working on a way to include a gas-by-gas approach into the calculation of projections in order to provide more information on the

[8] http://www.environment.gov.au/system/files/resources/eb62f30f-3e0f-4bfa-bb7a-c87818160fcf/files/2017-projections-methodology.pdf.

drivers behind each gas and might apply this approach while preparing projections of the next submissions.

71. To prepare its projections, Australia relied on the underlying key assumptions that were presented in CTF table 5. Compared with the BR2, assumptions for population growth and exchange rates (AUD/USD) remained the same, but for the BR3 real GDP was used instead of "GDP growth", and labour cost was omitted. In addition, the following factors were taken into account: electricity generation (in TWh delivered), oil price (2016 AUD/barrel), the production of thermal and coking coal (run of mine, Mt), liquefied natural gas (Mt), iron ore, aluminium (kt), iron and steel (Mt), residential use of gas (PJ), commercial use of gas (PJ), beef cattle (million heads), dairy cattle (million heads) and solid waste disposal (kt). The ERT noted that transparency of the reported information increased considerably by Australia extending the list of factors used. The use of more factors also positively influences the accuracy of projections.

72. The assumptions were updated on the basis of the most recent economic developments known at the time of the preparation of the projections.

73. Australia provided information in CTF table 5 on assumptions and key variables. Information on methodologies, models and other approaches used in the preparation of the projection scenarios was provided in the narrative of NC7, to which BR3 is annexed, where table 5.3 provides a summary of sectoral models, including the types and purposes of these models. Additional information was published shortly before review week in the above-mentioned 2017 methodology report, which provides extensive information on the calculations used for each sector, the main assumptions and the PaMs that will affect emissions.

(c) Results of projections

74. The projected emission levels under different scenarios as well as the emissions budget are presented in table 6 and figure 2 below.

Table 6
Summary of greenhouse gas emission projections for Australia

	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 (base year 2000)[d]	NA[f]	–5.0	NA
Emissions budget 2013–2020 (under the Convention)	4 500 000		
Inventory data 1990[e]	582 754.00	4.9	NA
Inventory data 2000[e]	554 407.00	NA	4.9
Inventory data 2015[e]	537 850.00	–10.0	–7.2
EM projections for 2020[f]	554 133.00	–7.2	–4.6
WEM projections for 2030[f]	573 947.00	–3.9	–0.9

Note: The projections are for GHG emissions with LULUCF, because LULUCF is included in the target.

[a] "Base year" in this column refers to the base year used for the targets under the Kyoto Protocol, while for the target under the Convention it refers to the base year (2000) used for that target.

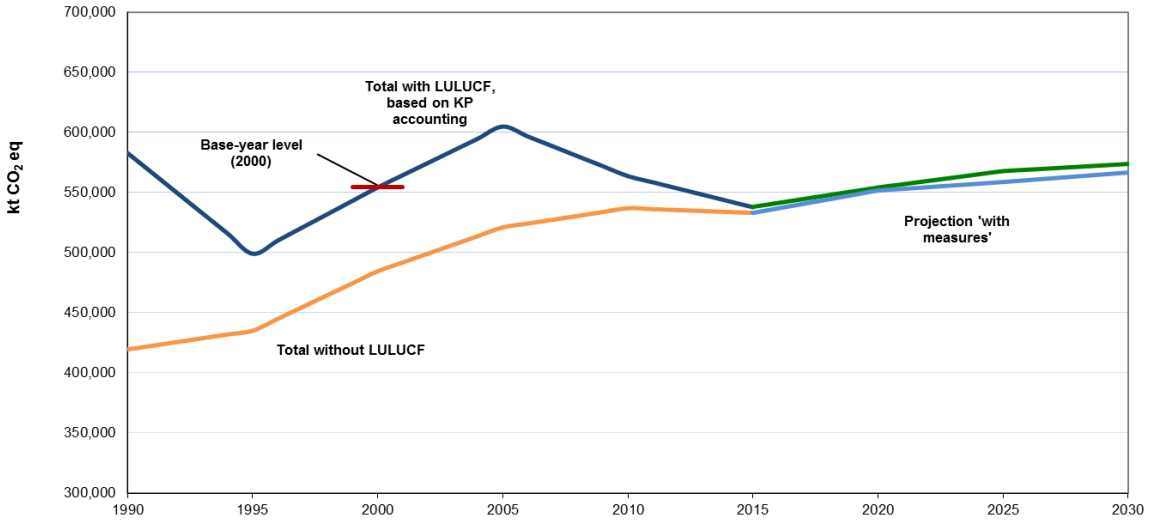
[b] The Kyoto Protocol base-year level of emissions is provided in the initial review report, contained in document FCCC/IRR/2016/AUS. The review report on the initial report is available at http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/second_commitment_period_2013-2020/items/9499.php.

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

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

[e] From CTF table 6(a).v4.0 based on the Kyoto Protocol accounting rules. Total GHG emissions for 1990–2015 include LULUCF. Projections have been scaled to the 2015 national GHG inventory.
[f] As Australia uses a linear target, this number is not applicable.

Figure 2
Greenhouse gas emission projections reported by Australia



Sources: (1) data for the years 1990–2015: Australia's BR3; total GHG emissions including and excluding LULUCF; (2) data for the years 2016–2020/2030: Australia's BR3; total GHG emissions including and excluding LULUCF.

75. Australia's total GHG emissions with LULUCF are projected to be 554,133 and 573,947 kt CO_2 eq in 2020 and 2030, respectively, under the WEM scenario. Australia presented its progress against the target using an emissions budget approach, which is why the target is not depicted as 5 per cent below the base-year level the diagram above. In order to calculate the progress towards the 2020 target, a trajectory is calculated by taking a linear decrease from 2010 to 2020, beginning from the level of the target under the first commitment period of the Kyoto Protocol, and finishing at 5 per cent below the 2000 level by 2020. Australia's progress is assessed as the difference in cumulative emissions between projected emissions and the target trajectory over the second commitment period of the Kyoto Protocol, 2013–2020.

76. The 2020 projections as presented by the Party suggest that Australia can be expected to achieve its 2020 target under the Convention, taking into account elements of Kyoto Protocol accounting (see para. 16 above). For reference, projected emissions without LULUCF would be 14 per cent (2020) and 17 per cent (2030) above emissions from 2000.

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

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

	GHG emissions and removals (kt CO_2 eq)				*Change (%)*			
Sector	*1990*	*2000*	*2020*	*2030*	*1990–2020*	*2000–2020*	*1990–2030*	*2000-2030*
Energy (not including transport)	232 531.00	289,888.00	331 454.00	329 366.00	42.5	14.3	41.6	13.6
Transport	61 395.00	74,139.00	101 485.00	111 887.00	65.3	36.9	82.2	50.9
Industry/industrial processes	26 081.00	26,768.00	34 307.00	32 482.00	31.5	28.2	24.5	21.3
Agriculture	80 179.00	78,625.00	74 756.00	82 407.00	–6.8	–4.9	2.8	4.8
LULUCF	162 910.00	69,565.00	2 590.00	7 596.00	–98.4	–96.3	–95.3	–89.1
Waste	19 658.00	15,421.00	9 541.00	10 208.00	–51.5	–38.1	–48.1	–33.8

	GHG emissions and removals (kt CO_2 eq)				*Change (%)*			
Sector	*1990*	*2000*	*2020*	*2030*	*1990–2020*	*2000–2020*	*1990–2030*	*2000-2030*
Total GHG emissions with LULUCF	**582 754.00**	**554 407.00**	**554 133.00**	**573 947.00**	**–4.9**	**0.0**	**–1.5**	**3.5**
Total GHG emissions without LULUCF	**419 843.00**	**484 842.00**	**551 543.00**	**566 350.00**	**31.4**	**13.8**	**34.9**	**16.8**

Source: Australia's BR3 CTF table 6, version 4.0.

78. According to the projections reported for 2020 under the WEM scenario (1990–2020), the most significant emission reductions are expected to occur in the LULUCF sector, but also waste and agriculture, amounting to projected reductions of 160,320 kt CO_2 eq (–98 per cent), 10,117 kt CO_2 eq (–51 per cent) and 5,423 kt CO_2 eq (– 7 per cent) between 1990 and 2020, respectively. The reduction in emissions from the LULUCF sector is due to an increase in the carbon sequestration from forests and plantations which offset a short-term rise in land clearance to support additional grazing land. Emissions from the LULUCF sector are projected to increase between 2015 and 2020 owing to further land clearing and increasing net emissions from other land categories. Emissions from the agriculture sector are projected to increase again between 2015 and 2030 owing to rising food demand and an assumed return to average seasonal conditions (in recent times, low rainfalls reduced agricultural activity). Pattern of emissions from the waste sector are expected to remain the same between 2020 and 2030. Projected emission reductions in the waste sector are due to an increase in recycling and CH_4 capture, and projects to avoid CH_4 by reducing the amount of waste in landfills.

79. The pattern of projected emissions reported for 2030 under the WEM scenario slightly changes, based on projections for the PaMs currently adopted. This leads to an increase of emissions between 2000 to 2030, meaning that total emissions in 2030 will be increase by 19,540 kt CO_2 eq (4 per cent) with LULUCF, or by 81,508 kt CO_2 eq (17 per cent) without LULUCF above the base-year level. During the review week, Australia noted that there are currently a number of further PaMs under negotiation that have not yet been included into the calculation of projections until 2030.

80. Australia presented the WEM scenarios by gas for 2020 and 2030, as summarized in table 8.

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

	GHG emissions and removals (kt CO_2 eq)				*Change (%)*			
Gas	1990	2000	2020	2030	1990–2020	2000–2020	1990–2030	2000–2030
CO_2	424 507.00	404 571.00	400 776.00	410 971.00	–5.6	–0.9	–3.2	1.6
CH_4	131 337.00	122 799.00	117 923.00	126 253.00	–10.2	–4.0	–3.9	2.8
N_2O	20 667.00	23 946.00	22 927.00	24 881.00	10.9	–4.3	20.4	3.9
HFCs	1 425.00	1 613.00	12 186.00	11 538.00	755.2	655.5	709.7	615.3
PFCs	4 607.00	1 287.00	182.00	172.00	–96.0	–85.9	–96.3	–86.6
SF_6	211.00	191.00	139.00	132.00	–34.1	–27.2	–37.4	–30.9
NF_3	NO	NO	NO	NO	NA	NA	NA	NA
Total GHG emissions with LULUCF	**582 754.00**	**554 407.00**	**554 133.00**	**573 947.00**	**–4.9**	**0.0**	**–1.5**	**–3.5**
Total GHG emissions without LULUCF	**419 843.00**	**484 842.00**	**551 543.00**	**566 350.00**	**31.4**	**13.8**	**34.9**	**16.8**

Source: Australia's BR3 CTF table 6, v 4.0. Numbers for CO_2, CH_4 and N_2O include emissions from LULUCF.

81. Emissions by gas follow the same logic as described above: emissions of CO_2, CH_4 and N_2O decrease due to the decline in emission from the LULUCF sector as well as waste and agriculture, which offsets the increase of emissions from the energy sector. Emissions of HFCs are expected to decrease from 2018 onwards, owing to the implementation of the Kigali Amendment[9] and reductions of HFCs imports into Australia. In addition, because HFCs are still in stock in equipment currently in use, the decrease in emissions through the measures on imports will be seen in emissions after 2020.

82. For 2020 the most significant reductions are projected for CO_2 and CH_4 emissions: 23,731 kt CO_2 eq (–6 per cent) and 13,414 kt CO_2 eq (–10 per cent) between 1990 and 2020, respectively. Emissions from PFCs have decreased substantially between 2000 and 2010, owing to improvements in process control in aluminium production. For 2030 there are no significant reductions projected for PFC emissions.

83. Australia also provided information on the models used for each sector, the type and the sector used, and whether it was computed by other departments or consultants. The methodology report (see para. 68 above) provides information on the assumptions used and the PaMs taken into account for the calculation of projections of each sector.

84. The biggest changes in the assumptions between the BR2 and the BR3 concern those sectors with the largest revisions in emissions and were made in order to account for the main drivers for changes in the electricity, agriculture and LULUCF sectors.

85. Emissions from electricity generation have been revised down since the BR2, largely owing to changes in assumptions and the effects of policy: lower electricity demand forecasts compared with the BR2 because of the impacts of policy-driven energy efficiency, higher than previously projected generation from rooftop solar photovoltaics as well as closures of coal power stations and of electricity-intensive industrial facilities.

86. Agriculture emission projections are lower in the BR3 owing to assumptions, specifically: weaker growth rates for livestock, particularly grazing beef cattle and sheep after revising expectations of recovery from the drought between 2001 and 2009. Emissions from this sector have also reduced since the BR2 because emissions from savannah burning have been moved from agriculture to the LULUCF sector.

87. Emissions from the LULUCF sector were revised downward primarily owing to inventory reporting improvements and changes to LULUCF accounting rules. Under the first commitment period of the Kyoto Protocol Australia only reported emissions and removals from activities under Article 3, paragraph 3, of the Kyoto Protocol, namely deforestation and afforestation/reforestation. Whereas under the second commitment period Australia began reporting emissions from forest management, cropland management, grazing land management and revegetation. Significant modelling improvements were undertaken to support this change; in particular, broadening the scope of forests included in the accounting (by including emissions from forest management) has reduced overall net LULUCF emissions.

88. The ERT noted that Australia updates its projections on an annual basis in a report published on the governmental website hence increasing transparency.

(d) Assessment of adherence to the reporting guidelines

89. The ERT assessed the information reported in the BR3 of Australia and identified issues relating to completeness and 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 Australia

[9] Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, 2016, available at https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-2-f&chapter=27&clang=_en.

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement[a] specified in paragraph 28 Issue type: completeness Assessment: encouragement	The ERT noted that Australia did not report a WOM or a WAM scenario. Australia stated in its NC7 that this was due to the fact that most PaMs are interlinked, which makes it difficult to assess the abatement capacity of any individual policy or measure. During the review week, Australia confirmed that WOM was not calculated due to the challenges faced to model a WOM scenario to determine the impact of measures, because the assumptions used may not have a high degree of confidence or consensus. Australia also stated that WAM scenario was not calculated as the PaMs currently under discussion might change during the process until adoption. The ERT noted that PaMs currently under discussion might contribute to a possible WAM scenario, which could then be used in negotiations for the adoption of PaMs. The ERT encourages Australia to report WOM and WAM projections in the next submission.
	Reporting requirement[a] specified in paragraph 34	The projections are presented on a sectoral basis, generally using the same sectoral categories as those used in the reporting on mitigation actions. However, in the chapter on projections, the energy sector is divided into electricity and stationary combustion.
	Issue type: transparency	During the review, Australia provided information on sectoral disaggregation of electricity and stationary combustion sectors.
	Assessment: encouragement	In order to increase transparency, the ERT encourages Australia to elaborate on the sectoral disaggregation of projections in the next submission would be helpful.
2	Reporting requirement[a] specified in paragraph 30 Issue type: completeness Assessment: encouragement	The ERT noted that no sensitivity analysis was provided in the NC7. During the review, in response to the question raised by the ERT, Australia stated that this was due to time constraints, and that it is aiming to include a sensitivity analysis in the next NC submission. The ERT encourages Australia to include a sensitivity analysis in the next submission.
3	Reporting requirement[a] specified in paragraph 35	Australia did not report emission projections for indirect GHGs such as carbon monoxide, nitrogen oxides, non-methane volatile organic compounds or sulfur oxides.
	Issue: completeness	During the review Australia acknowledged the issue and informed the ERT of its intention to work to improve its models in order to provide emission projections for direct GHGs.
	Assessment: encouragement	The ERT encourages Australia to provide projections for indirect GHG emissions.
4	Reporting requirement[a] specified in paragraph 46 Issue type: completeness	Australia did not discuss in its BR3 the sensitivity of the projections to underlying assumptions. During the review, Australia explained that this was due to time constraints, and that efforts are being undertaken to include this in the next submission.
	Assessment: encouragement	The ERT encourages Australia to discuss the sensitivity of the projections to underlying assumptions qualitatively and, where possible, quantitatively in its next BR submission.

Note: 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.

[a] Paragraph number listed under reporting requirement refers to the relevant paragraph of the UNFCCC reporting guidelines on NCs.

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

1. Approach and methodologies used to track support provided to non-Annex I Parties

(a) Technical assessment of the reported information

90. In the BR3 Australia reported information on the provision of financial, technological and capacity-building support required under the Convention.

91. Australia provided details on what "new and additional" support it has provided and clarified how this support is "new and additional". Australia's definition is that the Party sources its climate finance from new and additional aid budget appropriations from the Australian Parliament's annual budget process, therefore all annual aid appropriations related to climate support are considered new and additional.

92. Australia reported the financial support that it has provided to developing country partners, 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 a domestic approach and database system based on OECD DAC guidelines.

93. The BR3 includes information on: the national approach to tracking the provision of support; international standard coefficients used to determine the climate change component of core contributions through multilateral channels; and the domestic methodology used for the accounting of financial support through bilateral, regional and global programmes. The approach used is consistent with previous practice as reported in the BR2.

94. Australia described the methodology and underlying assumptions used for collecting and reporting information on financial support, including underlying assumptions, guidelines and eligibility criteria. The methodology used for preparing information on international climate support is based on OECD DAC guidelines and Rio Markers.

(b) Assessment of adherence to the reporting guidelines

95. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting 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.

2. Financial resources

(a) Technical assessment of the reported information

96. Australia reported information on the provision of financial support required under the Convention. According to the "Joint Ministerial Foreword" of the NC7, the submitted NC7/BR3 are also for reporting under the Kyoto Protocol, and the Party further confirmed that during the review that this part of the NC7 is also for reporting under the Kyoto Protocol, including on financial support provided, committed and pledged, allocation channels and annual contributions.

97. Australia indicated what "new and additional" financial resources it has provided and clarified how it has determined such resources as being "new and additional" (see para. 91 above).

98. Australia described how its resources address the adaptation and mitigation needs of non-Annex I Parties generally by referring to the policy "Australian aid: promoting prosperity, reducing poverty, enhancing stability", and especially through the Aid Investment Plans as clarified during the review. It also described how those resources assist to developing country partners to mitigate and adapt to the adverse effects of climate change, facilitate economic and social response measures, and contribute to technology development and transfer and capacity-building related to mitigation and adaptation.

99. With regard to the most recent financial contributions aimed at enhancing the implementation of the Convention by developing countries, Australia reported that its climate finance has been allocated on the basis of priority areas identified with partner countries, such as working closely with Pacific island countries to build resilience to the impacts of climate change with sustained and increased funding to sectors affected by climate change, such as fisheries, and disaster preparedness. Australia also reported that it prioritizes countries most vulnerable to climate change, with over two thirds of bilateral, regional and global programmes expected to benefit small island developing States and the least developed countries. Table 10 includes some of the information reported by Australia on its provision of financial support.

Table 10
Summary of information on provision of financial support by Australia in 2015–2016
(Millions of United States dollars)

	Year of disbursement	
Allocation channel of public financial support	*2015*	*2016*
Official development assistance[a]	3 489.34	3 277.52
Climate-specific contributions through multilateral channels, including:	146.58	106.98
Global Environment Facility	9.70	9.78
GCF	63.27	46.42
Financial institutions, including regional development banks	52.97	47.21
United Nations bodies	4.18	3.58
Climate-specific contributions through bilateral, regional and other channels	90.11	100.21

Sources: (1) Query Wizard for International Development Statistics, available at http://stats.oecd.org/qwids/; (2) BR3 CTF tables.

100. Australia's climate support is tracked through the AidWorks system of the Department of Foreign Affairs and Trade. During the review, Australia explained to the ERT how this project-based AidWorks system works. There are four main modalities to public climate finance support: (1) core contributions to climate change related multilateral funds; (2) core contributions to climate change related multilateral development banks and United Nations institutions; (3) bilateral support where the investment is targeted at climate change mitigation or adaptation; and (4) other official flows related to climate change. These are tracked and Australia reported that it also makes efforts to work with international partners to improve methods for tracking leveraged private sector investment. However, Australia also indicated during the review that it is not yet in a position to confidently report quantitatively on this.

101. Australia reported on its climate-specific public financial support, totalling USD 236.69 million in 2015 and USD 207.19 million in 2016. With regard to the future financial pledges aimed at enhancing the implementation of the Convention by developing countries, at the Conference of Parties (COP 21) in Paris, Australia pledged AUD 1 billion over five years to build climate resilience and reduce emissions, including a commitment of AUD 200 million to the GCF (2014–2018) and AUD 300 million to address climate change in Pacific island countries. During the reporting period, Australia placed a particular focus on Indo-Pacific developing country Parties, for which it allocated USD 125.88 million, which constitutes 66 per cent of total bilateral and regional support from Australia. The ERT noted that Australia reported in CTF table 7(b) its bilateral support allocated to developing country partners in 2015 and 2016. Information on financial support from the public sector provided through multilateral and bilateral channels and the allocation of that support by priority is presented in table 11.

Table 11
Summary of information on channels of financial support used in 2015–2016 by Australia
(Millions of United States dollars)

Allocation channel of public financial support	*Year of disbursement*				*Share (%)*	
	2015	*2016*	*Difference*	*Change (%)*	*2015*	*2016*
Support through bilateral and multilateral channels allocated for:						
Mitigation						
Adaptation						
Cross-cutting	236.69	207.19	–29.50	–12.46	100.0	100.0
Other						
Total	**236.69**	**207.19**	**–29.50**	**–14.24**	**100.0**	**100.0**
Detailed information by type of channel						
Multilateral channels						
Mitigation						
Adaptation						
Cross-cutting	146.58	106.98	–39.60	–27.01	100.0	100.0
Other						
Total	**146.58**	**106.98**	**–39.60**	**–27.01**	**100.0**	**100.0**
Bilateral channels						
Mitigation	8.30	10.03	1.73	20.84	9.2	10.0
Adaptation	55.73	60.64	4.91	8.81	61.9	60.5
Cross-cutting	26.08	29.54	3.46	13.27	28.9	29.5
Other						
Total	**90.11**	**100.21**	**10.01**	**11.21**	**100.0**	**100.0**
Multilateral compared with bilateral channels						
Multilateral	146.58	106.98	–39.60	–27.01		
Bilateral	90.11	100.21	10.01	11.21		
Total	**236.69**	**207.19**	**–29.50**	**–14.24**	**100.0**	**100.0**

Source: Australia's BR3, tables 7, 7(a) and 7(b).

102. The BR3 includes detailed information on the financial support provided though multilateral, bilateral and regional channels in 2015 and 2016. More specifically, Australia contributed through multilateral channels, as reported in the BR3 and in CTF table 7(a), USD 146.58 and 106.98 million for 2015 and 2016, respectively. The contributions were made to specialized multilateral climate change funds, such as Global Environment Facility, GCF and Global Green Growth Institute. The major multilateral channel for Australia to provide financial support is the GCF, with USD 63.27 and 46.42 million, which amounts to 43.16 per cent and 43.39 per cent in 2015 and 2016, respectively.

103. The BR3 and CTF table 7(b) also include detailed information on the total financial support provided through bilateral (USD 57.90 and 72.06 million) and regional (USD 32.21 and 28.15 million) channels in 2015 and 2016, respectively. The major Australian bilateral and regional support is provided to the Pacific region and Pacific small island developing States, with USD 57.45 and 68.43 million, which amounts to 63.76 per cent and 68.28 per cent in 2015 and 2016, respectively.

104. The BR3 provides information on the types of bilateral support provided, namely for mitigation or adaptation or cross-cutting. There are some differences between the information

reported in the BR3 (tables 7, 7(a) and 7(b)) as submitted together with the NC7, and in online CTF tables 7, 7(a) and 7(b) of the BR3 as submitted in an Excel spreadsheet version. During the review, Australia highlighted the technical difficulties it met when filling-in the Excel cells of CTF tables for those cross-cutting supports where the Party has the information on the share of mitigation and/or adaptation and/or cross-cutting component, but the system does not allow the Party to put data in appropriate cells. However, to improve transparency, Australia, based on a project-level accounting approach, provided information in the textual reporting and in the tables included in the report to provide the appropriate level of disaggregation.

105. In terms of the focus of public financial support, as reported in CTF table 7 for both 2015 and 2016, all public financial support is allocated for cross-cutting projects. In addition, in 2015, 61.9 per cent of the total public financial support was allocated through multilateral channels and 38.1 per cent through bilateral, regional and other channels. In 2016, 51.6 per cent of the total public financial support was allocated through multilateral channels and 48.4 per cent through bilateral, regional and other channels. In the BR3 reporting as well as in the CTF tables, Australia reported that over half of bilateral, regional and global support programmes contributed to adaptation, and in 2015, 61.8 per cent, 9.2 per cent and 28.9 per cent was allocated to adaptation, mitigation and cross-cutting projects respectively, while in 2016, the shares were 60.5 per cent, 10.0 per cent and 29.5 per cent, respectively. Australia clarified during the review that the higher proportion of finance support on adaptation was the response to the needs of recipient countries, especially Pacific small island developing States. Australia also clarified the approach it used to determine proportions for mitigation and/or adaptation by showing the ERT an example of a cross-cutting project.

106. The ERT noted that in both 2015 and 2016 all financial contributions made through multilateral channels were not allocated to specific sectors but as cross-cutting, as reported in CTF table 7(a). Also, according to CTF table 7(b), in 2015 the majority of financial contributions made through bilateral and regional channels were not allocated to specific sectors but as cross-cutting, with a share of 83.9 per cent. Some funds were allocated for activities that were for agriculture, forestry and infrastructure sectors. The corresponding allocations for 2016 were directed mostly to cross-cutting sectors, with a share of 97.9 per cent, while the rest was for infrastructure sectors.

107. CTF tables 7(a) and 7(b) include information on the types of financial instruments used in the provision of assistance to developing countries, which include grants and concessional loans. The ERT noted that the grants provided in 2015 and 2016 accounted for most of the total public financial support, 100 per cent and 99.2 per cent, respectively.

108. In the BR3 Australia clarified that climate finance is provided in accordance with the Australian policy, "Australian aid: Promoting prosperity, reducing poverty, enhancing stability", which highlights the need to build resilience to climate-related shocks, and to working with the private sector to increase impact, particularly in the Indo-Pacific region. Australia provided information on several programmes it has supported to leverage private sector investment in developing countries for climate change projects, such as the Private Financing Advisory Network, and the Private Infrastructure Development Group.

109. Australia reported that it provides a range of assistance to developing countries to adapt to the adverse effects of any economic and social consequences of response measures. During the review the Party provided further information on the assistance it has provided to developing countries for this purpose. Australia helps to minimize the economic and social impacts of response measures on developing countries by supporting their economic diversification and transition towards less polluting forms of energy, employment and growth, including the provision of targeted and coordinated technical assistance so that countries can effectively develop and implement robust climate and development plans in a holistic manner in line with their nationally determined contributions. Australia reported information on the assistance that it has provided to developing country Parties that are particularly vulnerable to the adverse effects of climate change in order to help them to meet the costs of adaptation to those adverse effects. From 2010-11 to 2015-16, Australia committed AUD 1 billion with the aim of assisting to developing country partners to reduce their emissions, build resilience and reduce vulnerability to climate change, with a focus on the Indo-Pacific region, a region

that is highly vulnerable to the impacts of climate change. In 2015, Australia committed to spending a further AUD 1 billion on climate change assistance over five years, to 2020.

(b) Assessment of adherence to the reporting guidelines

110. The ERT assessed the information reported in the BR3 of Australia and identified issues relating to transparency and adherence to the UNFCCC reporting guidelines on BRs. The findings are described in table 12.

Table 12
Findings on financial resources from the review of the third biennial report of Australia

No.	*Reporting requirement, issue type and assessment*	*Description of the finding with recommendation or encouragement*
1	Reporting requirement specified in paragraph 19	Australia did not report for on private financial flows leveraged by bilateral climate finance.
	Issue type: transparency	During the review, Australia explained that, owing to the lack of reliable methods, the Party did not account for private sector investment leveraged by its public interventions.
	Assessment: encouragement	The ERT reiterates the encouragement made in the previous review report that in its next BR the Party should report, to the extent possible, on private financial flows leveraged by bilateral climate finance, including the methodology being developed to track and report private climate finance.

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.

3. Technology development and transfer

(a) Technical assessment of the reported information

111. Australia 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. Australia provided examples of support provided for the deployment and enhancement of the endogenous capacities and technologies of non-Annex I Parties. For example, Australia reported and clarified during the review that it supported the International Savanna Fire Management project which enables developing country participants to benefit from a combination of Australian traditional indigenous knowledge with their local understanding of landscapes and climatic conditions to inform effective and locally based fire management practices.

112. 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. These include worldwide support programmes and technology development and transfer programmes with certain developing countries, with support from public funding and activities taken by both public and private sectors, mainly for the energy sector.

113. Australia is actively engagement in a range of international technology-based partnerships and programmes aimed at accelerating the development and diffusion of climate-friendly technology. For example, Australia reported and further clarified during the review week that the Party co-chaired the Building Energy Efficiency Taskgroup under the Major Economies Forum, which produced the report *Opportunities for International Collaboration* highlighting opportunities for collaboration on building codes and standards, appliance standards and labels, and building component standards. The Major Economies Forum also contributed to the International Partnership for Energy Efficiency Cooperation's work on assisting countries, including developing countries, to develop and collaborate on building energy performance metrics.

114. The ERT noted that Australia reported on its PaMs as well as success stories in relation to technology transfer, and in particular on measures taken to promote, facilitate and

finance the transfer and deployment of climate-friendly technologies. Australia reported that under the AUD 3 million Pacific Appliance Labelling and Standards Program, the Party is assisting several Pacific island countries and territories to implement standards and labelling regulations for appliances, which could reduce emissions by up to 2.2 Mt CO_2 eq, and save between USD 600 million and USD 900 million between 2011 and 2025.

(b) Assessment of adherence to the reporting guidelines

115. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting 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.

4. Capacity-building

(a) Technical assessment of the reported information

116. In the BR3 and CTF table 9 Australia 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. Australia described individual measures and activities related to capacity-building support in textual and tabular format. During the review week, Australia clarified that capacity-building was one of the important components in all the support the Party had provided to developing countries, especially through bilateral and regional channels.

117. Australia reported that it has supported climate-related capacity development activities relating to adaptation, mitigation, building measurement, reporting and verification systems and engaged effectively in climate change negotiations. Some specific programmes aiming at capacity-building include the programme strengthening women's participation at the UNFCCC, launched in 2015 in which 45 Pacific women delegates new to climate negotiations were trained, and several programmes aimed at supporting China, Indonesia, South Africa and Thailand to enhance their measurement, reporting and verification systems.

118. Australia also reported that it has responded to the existing and emerging capacity-building needs of non-Annex I Parties by supporting their domestic climate change activities and priorities. Examples include the support to strengthen blue carbon expertise and data in the Pacific region, as protection and restoration of blue carbon ecosystem can contribute to climate change mitigation and increase coastal resilience.

(b) Assessment of adherence to the reporting guidelines

119. The ERT assessed the information reported in the BR3 of Australia and recognized that the reporting 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.

III. Conclusions and recommendations

120. The ERT conducted a technical review of the information reported in the BR3 and CTF tables of Australia 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 Australia in achieving its target and the Party's provision of support to developing country Parties.

121. Australia's total GHG emissions excluding LULUCF covered by its quantified economy-wide emission reduction target were estimated to be 30.7 per cent above its 1990 level, whereas total GHG emissions including LULUCF were 9.0 per cent below its 1990 level in 2016. Emissions are mostly driven by fossil fuel combustion for electricity generation (coal), transport and fugitive emissions from fuels, as well as emissions from the IPPU sector.

The increase of emissions is offset by a reduction of emissions from the LULUCF sector, as well as from waste and agriculture, leading to an overall decrease of total emissions including LULUCF, or an overall increase of emissions for the total excluding LULUCF.

122. Under the Convention, Australia committed itself to achieving a quantified economy-wide emission reduction target of 5.0 per cent below the 2000 level by 2020, comparing total cumulative emissions from 2013–2020 to an emissions budget for the same period. In absolute terms, this means that under the Convention Australia has to reduce its cumulative net emissions from 2013–2020 to below the 4,500 Mt CO_2 eq emissions budget established for this period. The target covers CO_2, CH_4, N_2O, HFCs, PFCs, SF_6 and NF_3, expressed using global warming potential values from the AR4 and covers all sources and sectors included in the annual GHG inventory. Emissions and removals from the LULUCF sector are included in the target. Australia reported that it may use market-based mechanisms to achieve its target.

123. Australia is implementing a number of PaMs on energy and climate change. Among the key initiatives supporting Australia's climate change goals are the ERF and its Safeguard Mechanism, LRET and SRES, the NEPP and phase-down of HFC imports by 85 per cent by 2036. The mitigation actions with the most significant reported mitigation impacts are the ERF, LRET and the NEPP. Additional PaMs are implemented by the federal, state, territory and local governments, as well as by the private sector.

124. For 2015 Australia reported in CTF table 4 annual total GHG emissions excluding LULUCF of 533,282.71 kt CO_2 eq, or 10.0 per cent above the 2000 level. With LULUCF, net total GHG emissions in 2015 were 537,850.00 kt CO_2 eq (as reported in CTF table 6(a)), or 3.0 per cent below the 2000 level. Australia reports that its current projections show that its cumulative net emissions from 2013–2020 will be 4,354 CO_2 eq using the country-specific accounting approach. This may be compared with the emissions budget of 4,500 Mt CO_2 eq for the same period. Australia may use units from the market-based mechanisms and the contribution of LULUCF towards achieving its target.

125. Australia's total GHG emissions with LULUCF are projected to be 554,133 and 573,947 kt CO_2 eq in 2020 and 2030, respectively, under the WEM scenario. The 2020 projections as presented by the Party suggest that Australia can be expected to achieve its 2020 target under the Convention using the emissions budget approach. For reference, linearly projected emissions without LULUCF would be 13.8 per cent (2020) and 16.8 per cent (2030) above emissions from 2000.

126. The ERT noted that Australia is making progress towards its emission reduction target by implementing mitigation actions that deliver some emission reductions, including in the LULUCF sector. Australia is planning to account for the LULUCF sector and may use market-based mechanisms in achieving its 2020 target.

127. Australia continued to provide climate financing to developing countries in line with its climate finance programmes, such as the overarching aid policy and Aid Investment Plans developed in conjunction with developing country partners. There is fluctuation in Australia's provision of climate-specific support to developing countries, although there is an increasing trend. The annual average support provided by Australia as reported in the BR3 increased by 17.3 per cent compared with the annual average as reported in the BR2, and its public financial support in 2015 and 2016 totalled USD 236.7 and 207.2 million per year, respectively. For those years reported in the BR3, Australia's support provided for adaptation action was 6.35 times higher on average than its support provided for mitigation, in addition to the support that was regarded as cross-cutting and could not be confidently accounted as being for either adaptation or mitigation. Almost all financial support went to cross-cutting projects, although some went to agriculture, forestry and infrastructure sectors. Australia participated in and supported various technology cooperation and transfer programmes, such as the Pacific Appliance Labelling and Standards Program, as well as supported enhancement of endogenous technology and capacity (e.g. through the International Savanna Fire Management project), and strengthened the Pacific women's participation at the UNFCCC through capacity-building programmes.

128. In the course of the review, the ERT formulated recommendations for Australia to improve its adherence to the UNFCCC reporting guidelines on BRs in its next BR, namely to improve the transparency of its reporting by:[10]

(a) Providing further information on PaMs being undertaken in the LULUCF, agriculture and waste sectors (see issue 1, table 4);

(b) Providing estimates of the mitigation impacts of PaMs and reflecting PaMs and their effects consistently in the CTF table 3 (see issue 2, table 4).

[10] The recommendations are given in full in the relevant chapters of this report.

Annex

Documents and information used during the review

A. Reference documents

2017 GHG inventory submission of Australia. Available at http://unfccc.int/national_reports/annex_i_ghg_inventories/national_inventories_submissions/items/10116.php.

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

BR3 of Australia. Available at http://unfccc.int/national_reports/biennial_reports_and_iar/biennial_reports_data_interface/items/10132.php.

BR3 CTF tables of Australia. Available at http://unfccc.int/national_reports/biennial_reports_and_iar/biennial_reports_data_interface/items/10132.php.

FCCC/SBSTA/2014/INF. Compilation of economy-wide emission reduction targets to be implemented by Parties included in Annex I to the Convention, available at: <https://unfccc.int/topics/mitigation/workstreams/pre-2020-ambition/compilation-of-economy-wide-emission-reduction-targets-to-be-implemented-by-parties-included-in-annex-i-to-the-convention.

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

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

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

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Report on the individual review of the annual submission of Australia submitted in 2016. FCCC/ARR/2016/AUS. Available at http://unfccc.int/resource/docs/2017/arr/aus.pdf.

Report of the technical review of the second biennial report of Australia. FCCC/TRR.2/AUS. Available at http://unfccc.int/resource/docs/2016/trr/aus.pdf.

Report on the technical review of the sixth national communication of Australia. FCCC/IDR.6/AUS. Available at http://unfccc.int/resource/docs/2015/idr/aus06.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. Lyn Turner and Ms. Kate Sangster, Department of the Environment and Energy, including additional material. The following documents[1] were provided by Australia:

OECD. Preliminary status of MDBs and other International Organisations' reporting to the OECD/DAC, for 2016 flows. http://www.oecd.org/dac/financing-sustainable-development/development-finance-topics/Imputed%20multilateral%20shares.xlsx.

2017 Review of Climate Change Policies, December 2017, Department of Environment and Energy.

Methodology for the 2017 projections, available at https://www.environment.gov.au/system/files/resources/eb62f30f-3e0f-4bfa-bb7a-c87818160fcf/files/2017-projections-methodology.pdf.

2017 Review of Climate Change Policies, December 2017, available at http://www.environment.gov.au/system/files/resources/18690271-59ac-43c8-aee1-92d930141f54/files/2017-review-of-climate-change-policies.pdf.

[1] Reproduced as received from the Party.