

TRACKING 2 DEGREES REPORT

Quarterly report, Q3/FY2019

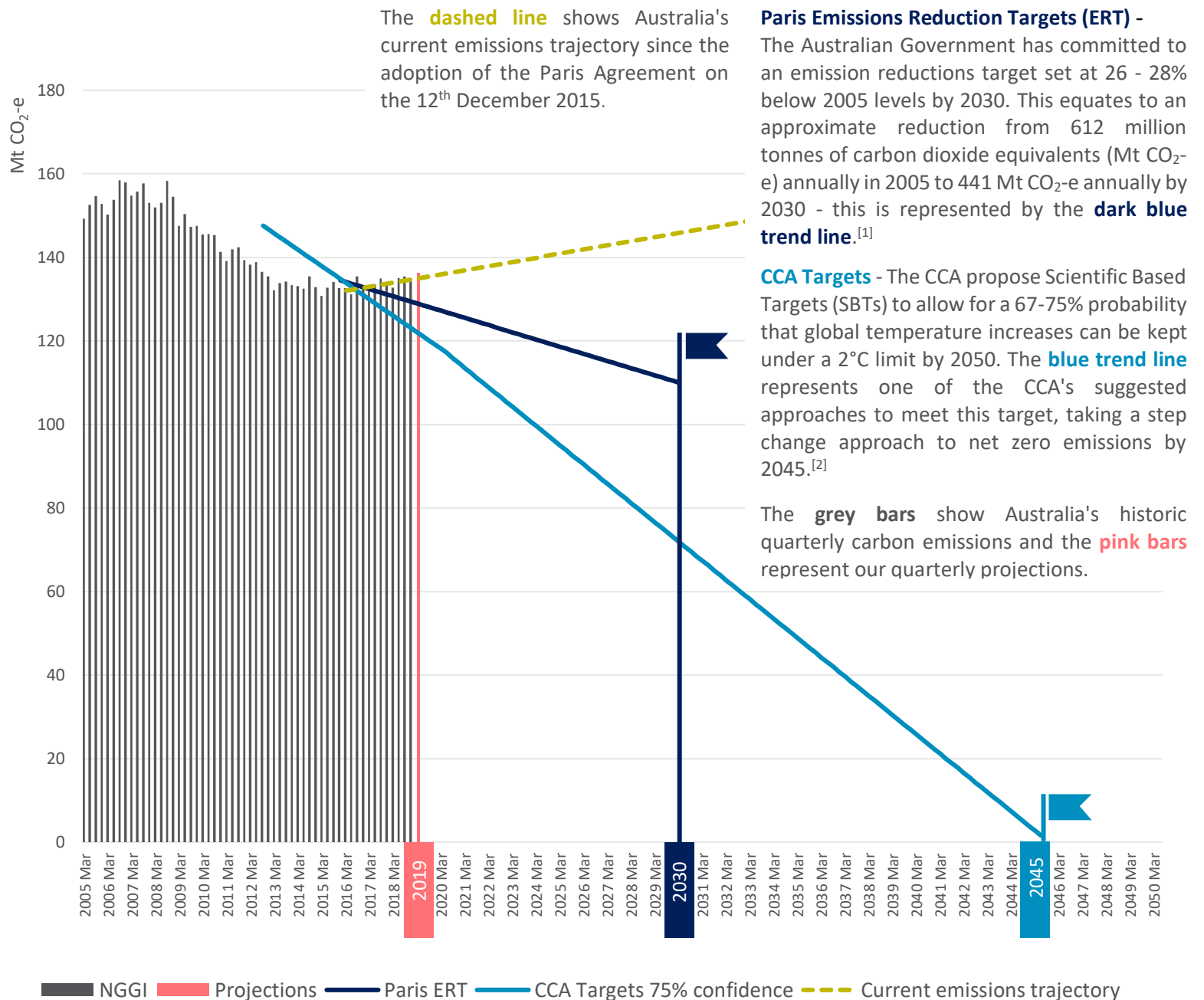
Under the Paris Agreement, the Australian Government has legally committed to reducing our emissions by 26-28% below 2005 levels by 2030. However, to ensure global warming remains under 2 degrees, independent body the Climate Change Authority (CCA) has proposed Australia set a national Science Based Target (SBT). This is a target calculated from Australia's share of emissions for a 2°C global outcome. Ndeivr Environmental has used this target to model a quarterly emissions budget for Australia.

This report tracks Australia's performance against our Paris target and the CCA's carbon budget based on the latest available data, trends and industry movements [for the months of January, February and March \(Q3/FY2019\)](#). Our results are presented in tonnes of carbon dioxide equivalents (t CO₂-e). 1 t CO₂-e is roughly equal to the emissions of a standard 5-seat passenger vehicle driving around 5,400 km.

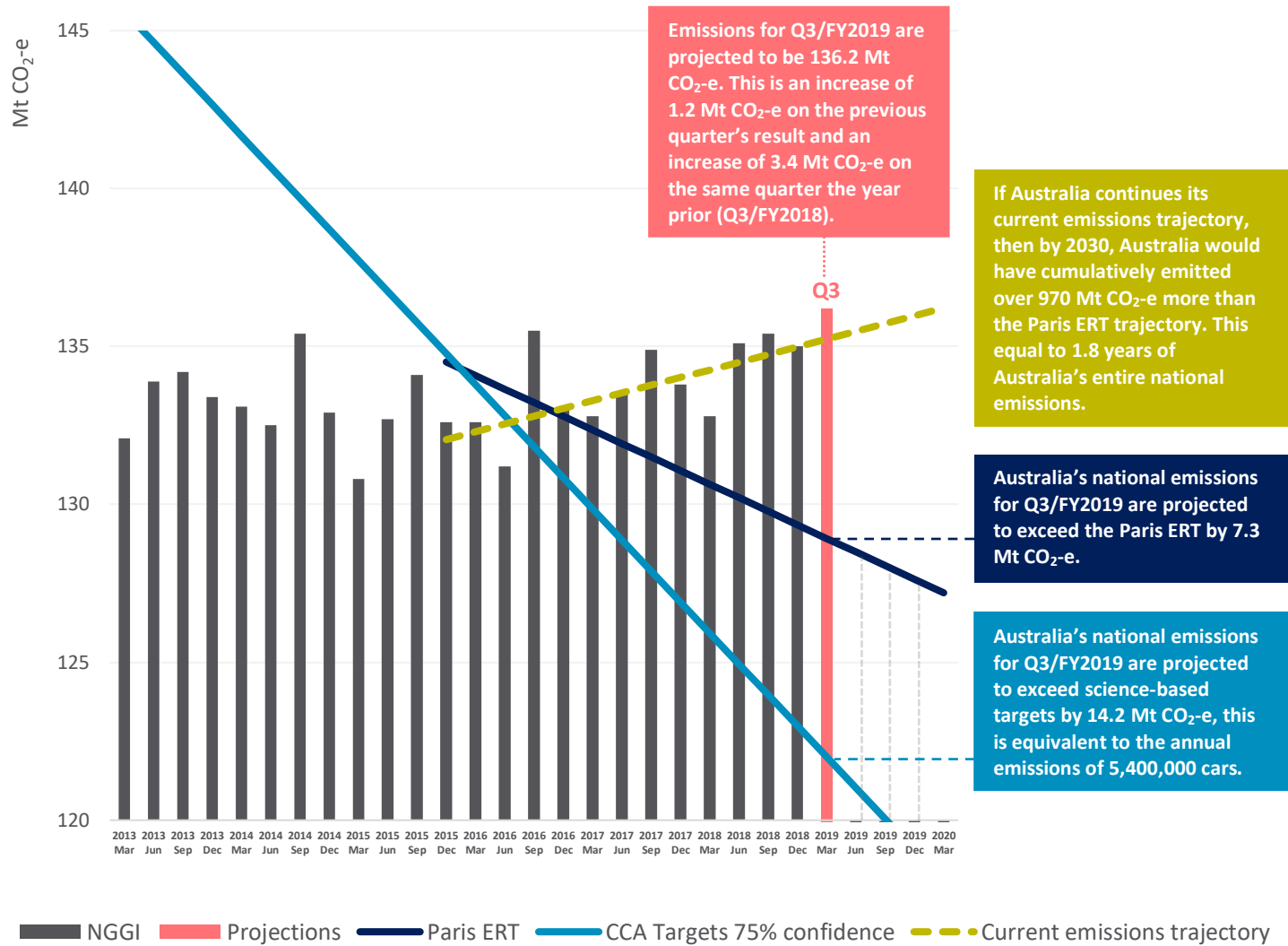
Headline Results

- Emissions for Q3/FY2019 are projected to be 136.2 Mt CO₂-e. This is an increase of 1.2 Mt CO₂-e on the previous quarter's result and an increase of 3.4 Mt CO₂-e on the same quarter the year prior (Q3/FY2018).
- If Australia continues its current emissions trajectory, then by 2030, Australia would have cumulatively emitted over 970 Mt CO₂-e more than the Paris ERT trajectory. This equal to 1.8 years of Australia's entire national emissions.
- Emissions from electricity generation have increased 8.2% on the previous quarter after three consecutive quarters of decline. Total renewable electricity generation in the NEM fell by 0.7 Tera Watt hours (TWh) while total fossil fuel electricity generation increased by 3.5 TWh.
- Fugitive emissions for Q3/FY2019 are the highest on record and are increasing in line with the rapid growth in Australia's LNG production for the export market.
- Unadjusted land use emissions (LULUCF) were reported as 438.7 Mt CO₂-e between Sep-2001 and Sep-2018 in the previous NGGI report¹ and have now been adjusted up to 669.8 Mt CO₂-e for the same period in the most recent NGGI report.

Australia's Quarterly Emissions Projections to a 2 Degree Target



¹ NGGI Refers to the Department of the Environment and Energy's (DoEE) Quarterly National Greenhouse Gas Inventory (NGGI) Report.



Detailed Findings

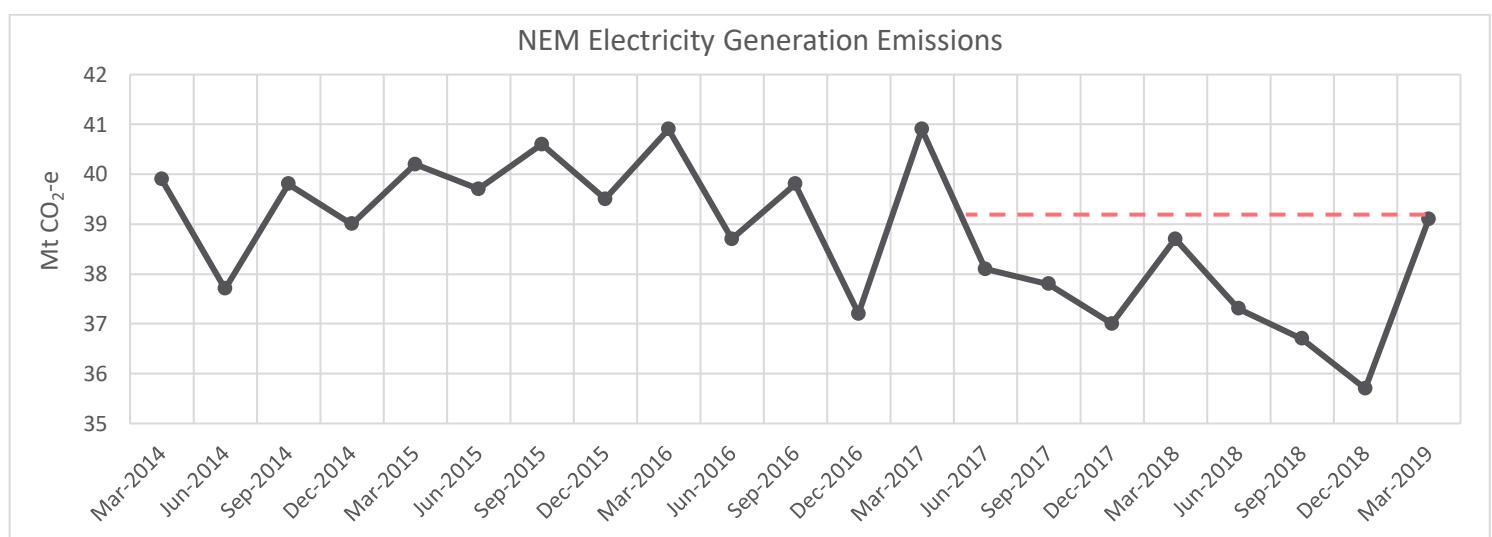
1. Quarterly Emission Results

Emissions for Q3/FY2019 are projected to be 136.2 Mt CO₂-e. This is an increase of 1.2 Mt CO₂-e on the previous quarter's result and an increase of 3.4 Mt CO₂-e on the same quarter the year prior (Q3/FY2018). Australia's emissions typically remain stable or fall between Q2 and Q3 as there is a slight decline in economic activity. This has not been the case for the current quarter, as emissions from electricity have driven an unexpected increase in the quarterly emissions result and pushed emissions higher than the previous quarter.

If Australia continues its current emissions trajectory, then by 2030, Australia would have cumulatively emitted over 970 Mt CO₂-e more than the Paris ERT trajectory.

2. Electricity Sector Emissions Increases

Emissions from electricity generation increased 8.2% on the previous quarter from 42.9 Mt CO₂-e to 46.4 Mt CO₂-e. When focusing on electricity generation emissions from the NEM states only (excludes NT and WA), emissions reached their highest levels since March 2017 (Q3/FY2017). Compared to the previous quarter, total electricity generation in the NEM jumped from 41.7 TWh to 44.4 TWh. Electricity generation from fossil fuel sources such as coal and gas increased by 3.5 TWh on the previous quarter while electricity generation from large scale renewable energy sources such as wind and hydro fell by 0.75 TWh.



Large scale electricity generation (i.e. excludes small scale solar generation) on a state by state basis for the NEM states this quarter was as follows:

- » NSW generated 15.5 TWh with 4.4% coming from renewable sources such as wind and hydro power, this is down from 4.8% renewable generation in the previous quarter.
- » QLD generated 14.3 TWh with 2.4% coming from renewable sources such as hydro power, this is up from 1.1% renewable generation in the previous quarter.
- » VIC generated 10.1 TWh with 11.0% coming from renewable sources such as wind and hydro power, this is a down from 11.8% renewable generation in the previous quarter.
- » SA generated 2.7 TWh with 31% coming from renewable sources such as wind power, this is down from 40% renewable generation in the previous quarter.
- » TAS generated 1.8 TWh with 88.6% coming from renewable sources such as wind and hydro, this is down from 98.4% renewable generation in the previous quarter.

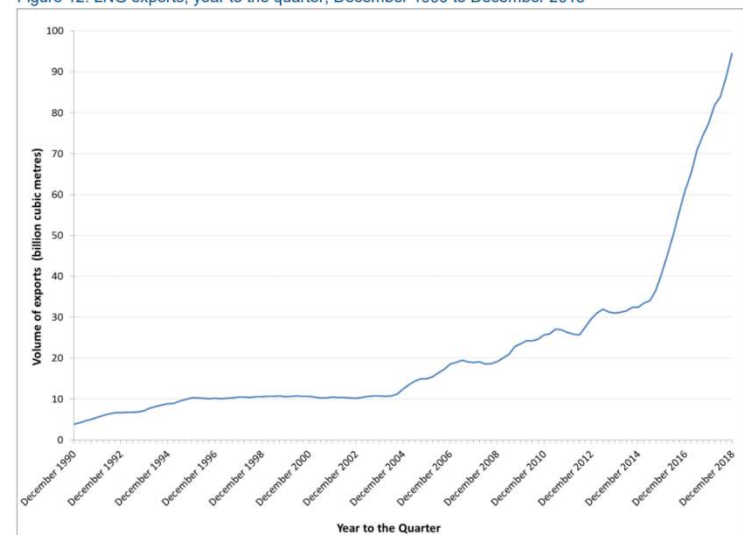
3. LNG Production Growth Increasing Fugitive and Stationary Emissions

Fugitive emissions for Q3/FY2019 are the highest on record and have increased rapidly for four consecutive quarters. The latest release of the quarterly NGGI report highlights that increased annual emissions in the stationary and fugitive emission sectors are primarily driven by the 22% increase in LNG exports between 2017 and 2018.

The Office of the Chief Economist’s Resources and Energy Quarterly June 2019 states that:

“Australia’s LNG export volumes are forecast to increase from an estimated 75 million tonnes in 2018–19 to 81 million tonnes in 2020–21, as the last two projects in Australia’s recent wave of LNG investment ramp up output.”

Figure 12: LNG exports, year to the quarter, December 1990 to December 2018



Source: Department of Industry, Innovation and Science (2019), Resources and Energy Quarterly

Therefore, fugitive and stationary emissions are expected to increase through to 2021 in line with the increase in LNG production for the export market. With rising fugitive and stationary emissions, the national inventory is reliant on emission decreases in the electricity sector to reach emission reduction targets. However, with a sudden increase in emissions from electricity for the current quarter, emission decreases may need to be achieved in other economic sectors.

4. Land Use Sector Emissions See Massive Adjustment to Historical Values

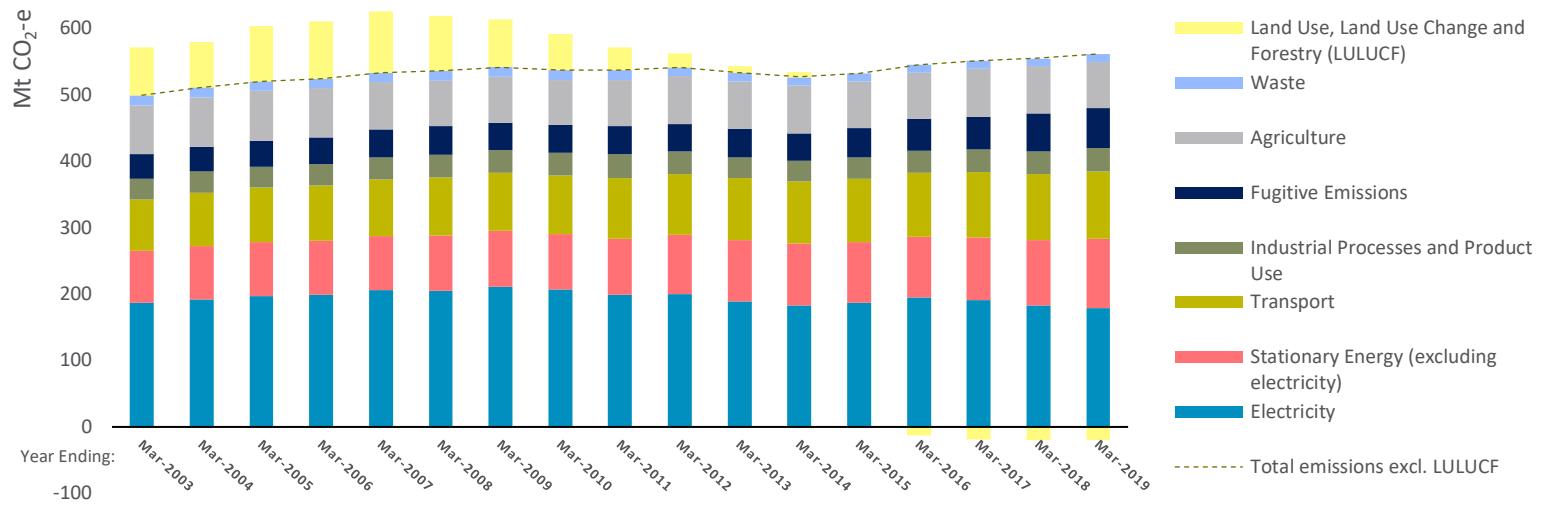
The Department of the Environment and Energy regularly makes periodic recalculations to historical data sets as new data or methodologies become available. Emission estimations from the land sector (LULUCF) are often subject to significant recalculations which can reduce the reliability in the reported values. Unadjusted land use emissions were reported as 438.7 Mt CO₂-e between Sep-2001 and Sep-2018 in the previous release of the quarterly NGGI report. However, in the most recent NGGI report, unadjusted historical land use emissions for the same time period have increased to 669.8 Mt CO₂-e. This is a 53% increase, or an additional 226.2 Mt CO₂-e in reported emissions for land use through one round of recalculations.

In relation to this significant land use emission recalculation, the report states:

“Recalculations to LULUCF reflect improvements made to the annual collection and processing of activity data and to emissions estimation methods for the LULUCF sector. These improvements are described in the latest annual National Inventory Report to the UNFCCC (published in May 2019).”

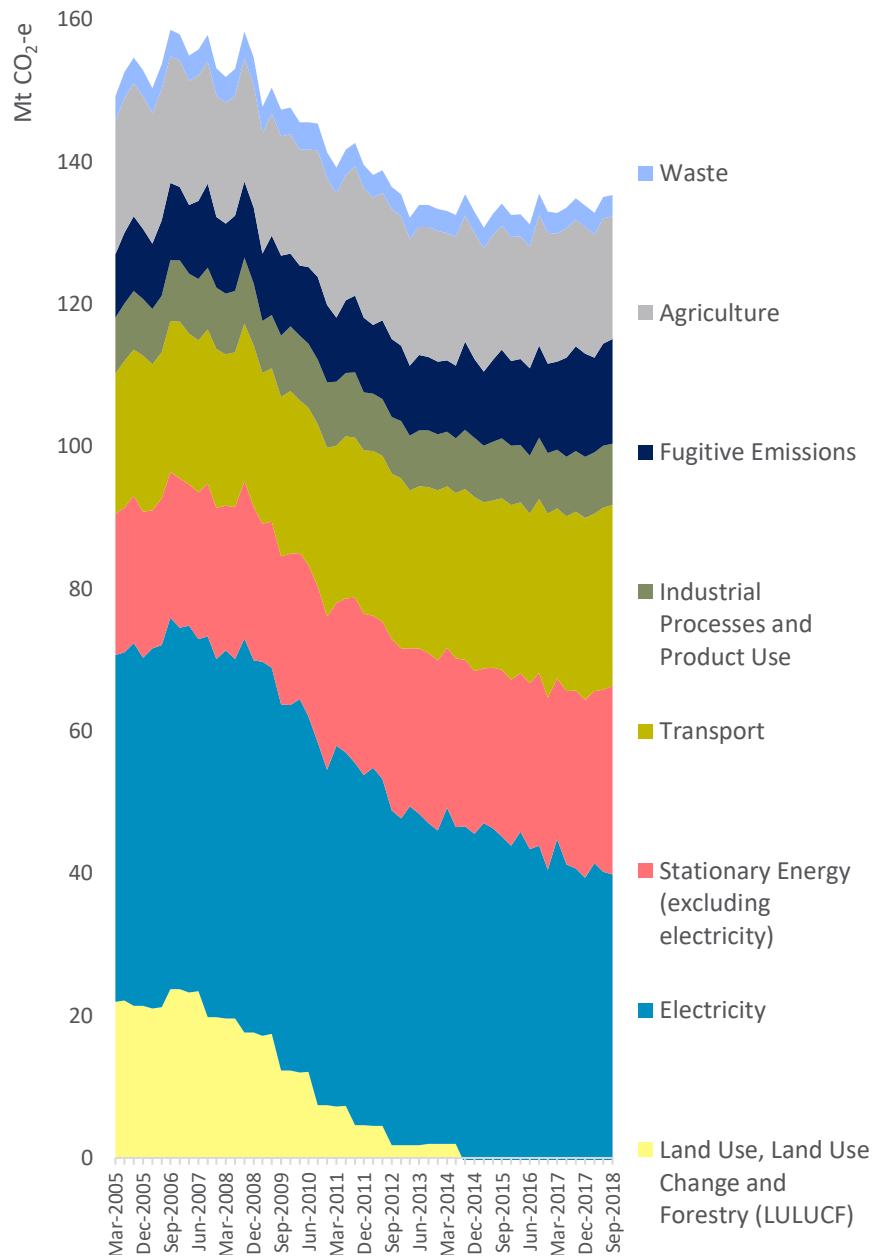
This recalculation resulting in a 226.2 Mt CO₂-e increase in emissions across the entire historical LULUCF dataset is the most significant recalculation for this inventory sector since the entire data set was recalculated down by 155.2 Mt CO₂-e in the September 2017 NGGI report.

Australia's Annual Emissions, Year to March*



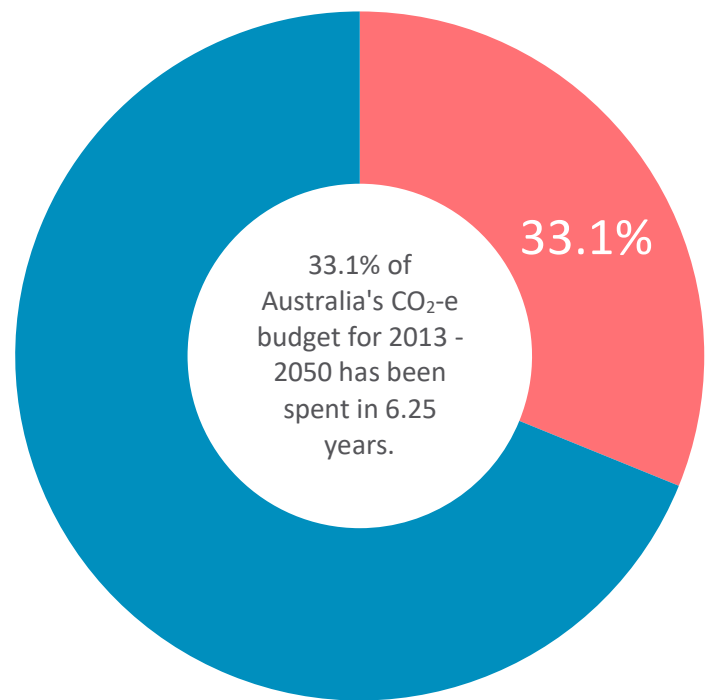
* This graph includes both published Government NGGI data and Ndevr Environmental projections for Q3/FY2019.

Australia's Quarterly Emissions by Sector*



*Negative LULUCF sector emissions cannot be seen on the above chart

2 Degree Budget Expenditure to Date



This report has been compiled by Ndeivr Environmental, using the latest information available from: AEMO, Office of the Chief Economist, Australian Petroleum Statistics and the Department of the Environment and Energy's National Greenhouse Gas Inventory (NGGI) reports. Detailed electricity generation data for the National Energy Market (NEM) are sourced from Global-Roam's NEM-Review™ tool.

GDP trends are sourced from Trading Economics, information about Australian car use is sourced from the National Transport Commission, 2018 and the Australian Bureau of Statistics. Emission factors are sourced from National Greenhouse and Energy Reporting (Measurement) Determination 2008.

Government and CCA target information is available at the following sources:

[1] - Australian Government (2015), Australia's 2030 Climate change target, Commonwealth of Australia

[2] - CCA (2014), Reducing Australia's Greenhouse Gas Emissions – Targets and Progress Review, Final Report (page 9)

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