

Tasmania's greenhouse gas emissions

FACT SHEET

What are greenhouse gases?

Greenhouse gases trap heat in the atmosphere and make the Earth warmer. Those with the most significant impact on global warming are water vapour, carbon dioxide, methane and nitrous oxide. Other common greenhouse gases include ozone and chlorofluorocarbons.

What are carbon sinks?

A carbon or emissions sink is a carbon storage reservoir, like a forest, which removes more carbon than it emits.



Tall Eucalyptus regnans trees in the Beech Creek/Counsel River forests

Measuring emissions

Greenhouse gas emissions are measured in carbon dioxide equivalents (CO₂-e). Due to each greenhouse gas, such as methane or nitrous oxide, varying in terms of its contribution to climate change, these are combined into a single, consistent value of carbon dioxide equivalent or CO₂-e.

Global warming potentials are used as a relative measure of how much heat a greenhouse gas traps in the atmosphere. They compare the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide.

Greenhouse gas accounts

Each year the Tasmanian Climate Change Office releases a report on Tasmania's latest greenhouse gas accounts, which demonstrates the State's progress towards its emissions reduction target, and monitors emissions by sector.

You can read or download the [Tasmanian Greenhouse Gas Accounts Report 2015-16](#)¹, which details Tasmania's latest greenhouse gas accounts. Due to the complexity of the data and calculations, there is a two-year lag in reporting.

The report is compiled using data from the Australian Government's [State and Territory Greenhouse Gas Inventories 2016](#)² and annual National Inventory Report. The Australian Government Department of the Environment and Energy prepared the Inventories to meet Australia's annual reporting commitments under Article 12 of the United Nations Framework Convention on Climate Change and Article 7 of the Kyoto Protocol.



The National Inventory Report details Australia's total annual greenhouse gas emissions across various sectors and the methodologies for their determination. Under the second commitment period of the Kyoto Protocol, the national inventory must report net greenhouse gas emissions from the energy, industrial processes and product use, agriculture, and waste sectors.

The inventory must also include emissions from the mandatory land use, land-use change and forestry (LULUCF) activities of afforestation/reforestation, deforestation and forest management. The National Inventory also includes the voluntary LULUCF activities of cropland management and grazing land management. This is the fourth year of reporting emissions from the LULUCF sector in both the national and Tasmanian greenhouse gas inventory.

More information is available from the [Australian Government's environment website](#)ⁱⁱⁱ.

Meeting our emissions reduction target

Under the [Climate Change \(State Action\) Act 2008](#)^{iv}, Tasmania has a legislated target of reducing greenhouse gas emissions to 60 per cent below 1990 levels by 2050.

In 1989-90, Tasmania's baseline greenhouse gas emissions were 18.9 mega-tonnes of carbon dioxide equivalent (Mt CO₂-e). The State's total greenhouse gas emissions for 2015-16 were -0.01 Mt CO₂-e, which is a 100 per cent reduction since 1990. This means that Tasmania achieved zero net emissions for the first time in 2016.

Tasmania is the first jurisdiction in Australia to achieve zero net emissions. This is of international significance and demonstrates the important role of states and regions in meeting the Paris Agreement to limit global warming to well below 2 degrees Celsius.

The majority of Tasmania's greenhouse gas emissions reduction can be attributed to a decline in the State's forestry industry and the resulting decrease in emissions from activities in the LULUCF sector.

Other factors such as improvements in vehicle fuel efficiency and stationary energy efficiency have also had an effect on Tasmania's emissions.

Despite the benefits of the carbon sink held in Tasmania's extensive forests, total Tasmanian emissions, excluding LULUCF, are slightly below baseline levels at 0.24 per cent. The 2015-16 reporting year is the second in which Tasmania has achieved reductions on 1990 levels without reliance on its natural carbon storage advantages.

The reduction in Tasmania's greenhouse gas emissions is considered especially significant as, during the same period of time, the Tasmanian population has grown by 12 per cent and Tasmanian Gross State Product has grown by 72 per cent. This shows that Tasmania has decoupled the historic link between economic activity and emissions growth.

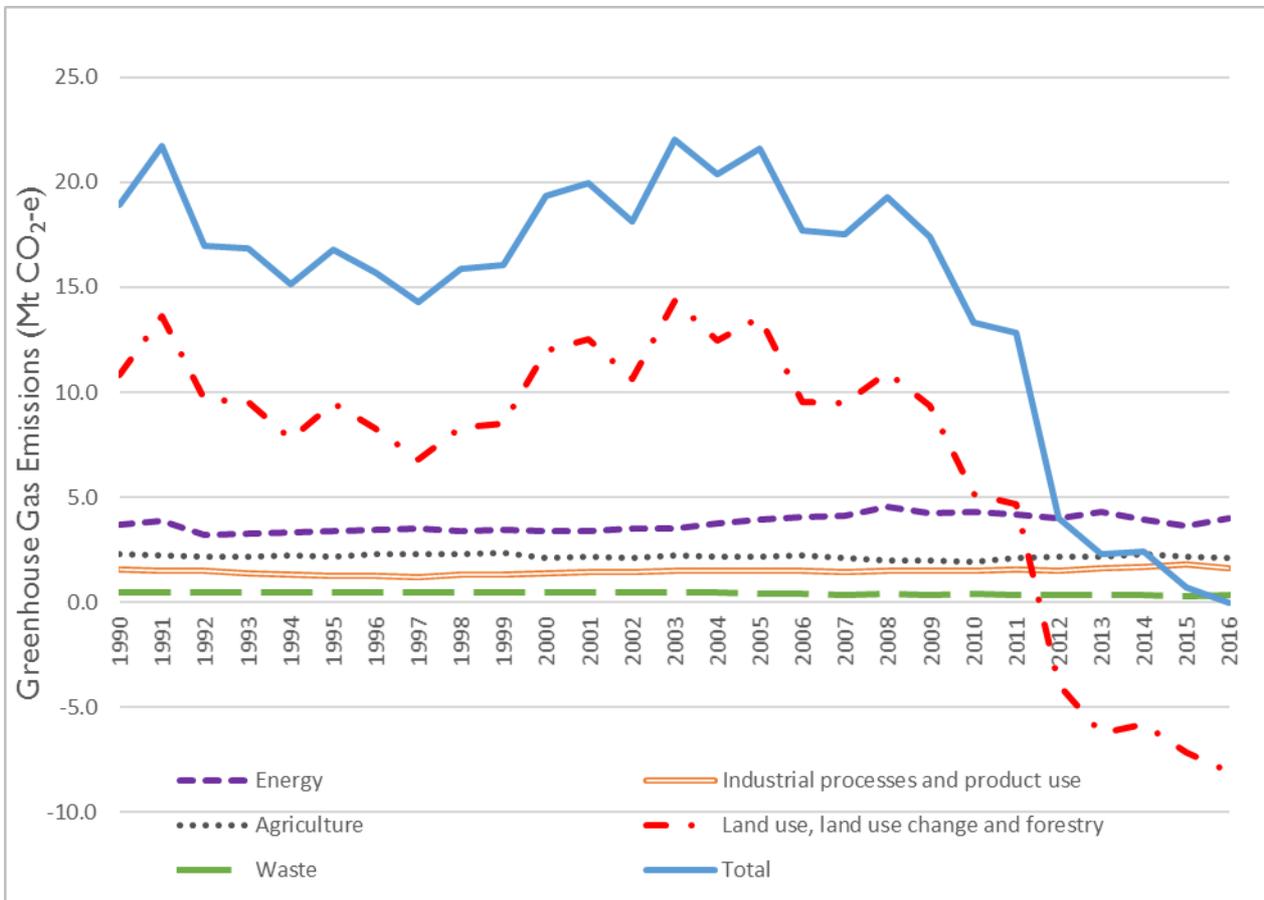
Calculating our emissions

In 2013, a number of changes were made to the international rules that guide how greenhouse gas emissions are determined, including changes to the global warming potentials of some gases. In addition, the calculation methodologies and the technologies used to estimate coverage are reviewed, and in some cases revised, for each national inventory.

As a result, all emissions estimates are recalculated yearly across all sectors, from the baseline year of 1989-90 through to the current year. This means the latest accounts cannot be compared with those released in previous years.



Where do Tasmania's emissions come from?



Tasmania's greenhouse gas emissions from 1989-90 to 2015-16, by sector

Emissions from the LULUCF sector have had a major influence on Tasmania's total annual emissions, as shown in the graph above. The majority of Tasmania's emissions reductions can be attributed to the forest land sub-sector, which have decreased from a peak of 11.35 Mt CO₂-e in 2002-03, to become a carbon sink of -9.96 Mt CO₂-e in 2015-16. The forest land sub-sector includes emissions and sinks from harvesting and timber growth in Tasmania's multiple-use public forests, private native forests and plantations.

Energy ↑

The energy sector includes the combustion of fuels from energy generation, manufacturing and construction industries, and transport. In 2015-16, the energy sector produced 3.98 Mt CO₂-e and was Tasmania's largest emitter. Greenhouse gas emissions from this sector have increased by 7 per cent since 1989-90.

Transport is the energy sector's largest sub-sector emitter at 1.71 Mt CO₂-e, however transport emissions have fallen in recent years mainly due to improvements in vehicle fuel efficiency. Unlike other states and territories, Tasmania's high proportion of renewable energy means the energy industries sub-sector makes a relatively small contribution to emissions in this sector.



Industrial processes ↑

This sector includes emissions from mineral and metal processing, paper and pulp production, and food and beverage industries, as well as the use of synthetic greenhouse gases in refrigeration, air-conditioning, and electricity distribution.

In 2015-16, greenhouse gas emissions from the industrial processes and product use sector were 1.63 Mt CO₂-e, which is an increase of around 4 per cent from 1989-90.

Agriculture ↓

In 2015-16, greenhouse gas emissions from the agriculture sector were 2.09 Mt CO₂-e, which is a decrease of almost 10 per cent since 1989-90. The majority of the sector's emissions come from the digestive processes of ruminant animals such as cows, sheep and goats.



Land use, land use change and forestry ↓

The LULUCF sector includes greenhouse gas emissions and removals from:

- harvesting and timber growth in Tasmania's multiple-use public forests and plantations;

ⁱ http://www.dpac.tas.gov.au/divisions/climatechange/climate_change_in_tasmania/tasmanias_emissions

ⁱⁱ <http://www.environment.gov.au/climate-change/climate-science-data/greenhouse-gas-measurement/publications/state-and-territory-greenhouse-gas-inventories-2016>

- the cultivation of crops, pasture and grazing land management; and
- prescribed burning and wildfires in native forests.

The LULUCF sector has changed from a significant source of greenhouse gas emissions in 1989-90 to a carbon sink in 2015-16. In 1989-90, the sector was responsible for emissions of 10.83 Mt CO₂-e and in 2015-16, it was a carbon sink of -8.05 Mt CO₂-e. This reduction in emissions has been mainly due to a decline in forestry logging activity over the past decade.

Waste ↓

The waste sector is only a minor contributor to Tasmania's total greenhouse gas emissions. In 2015-16, emissions were 0.35 Mt CO₂-e, which is a reduction of 27 per cent since 1989-90.

More detailed analysis of Tasmania's emissions is available from the [Tasmanian Climate Change Office website](http://www.tasmanianclimatechangeoffice.gov.au).

Reporting requirements

According to the *Climate Change (Greenhouse Gas Emissions) Regulations 2012*, the Tasmanian Minister responsible for climate change is required to publish the State's baseline greenhouse gas emissions and the emissions reduction for 2015-16 in the Tasmanian Government Gazette within 60 days of the Australian Government publishing the *State and Territory Greenhouse Gas Inventories 2016*.

The [Tasmanian Greenhouse Gas Accounts Report 2015-16](http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/tracking-emissions) provides a more detailed analysis of Tasmania's emissions by sector.

ⁱⁱⁱ <http://www.environment.gov.au/climate-change/greenhouse-gas-measurement/tracking-emissions>
^{iv} <https://www.legislation.tas.gov.au/view/html/inforce/current/act-2008-036>