

Setting goals to reduce our carbon emissions – a carbon budget approach for CERES

Authorised by the CERES Board, February 2017

The intention of this document is to set out the process CERES used to set goals for the progressive reduction of carbon emissions produced as a result of CERES operations.

The document sets out the stages of the **carbon budget** approach.

What is a carbon budget?

A carbon budget is the maximum amount of carbon dioxide and other major greenhouse gases that can be released into the atmosphere for a chance of staying below a certain temperature rise.

The Paris Agreement from the COP21 meeting in December 2015 was a global consensus that serious action must and will be taken to keep global temperature increase this century to significantly less than 2°C above the pre-industrial level. Given the scale of the changes needed to achieve this goal, staying within a 2°C increase is now the aim. This increase does not imply a ‘safe climate’ but it is a realistic goal given the time frame necessary to reduce emissions while avoiding severe social impacts as economies adapt.

Working out CERES’ carbon budget

1. How much carbon dioxide for the world?

It is broadly accepted that the world has a remaining budget of approximately 890 billion tonnes of carbon dioxide equivalent (CO₂-e) greenhouse gases that can be emitted between 2016 and 2050 for a 67 percent chance of staying below a 2°C increase.ⁱ

While the details are subject to a range of important assumptions, this is typically taken to mean that humanity needs to reduce global emissions to net zero by about 2050.ⁱⁱ

2. How much carbon dioxide for CERES?

CERES is committed to global social equity, and on this basis takes the position that the remaining global carbon budget should be allocated at the very least on a globally equal per capita basis.

At the time of writing, the current global population is approximately 7.4 billion. Australia's population is currently 24.2 million.ⁱⁱⁱ

Based on a globally equal per capita distribution of the total remaining global carbon budget, Australia's current share is approximately 3 billion tonnes CO₂-e. This allocation assumes that the Australian population will grow at the same rate as the global population over the period until the global carbon budget is exhausted, so that the Australian population as a proportion of the global population is constant. The Australian population is in fact currently increasing significantly faster than the global population, as a result of federal government immigration policy. This means that the proportion of the global carbon budget allocated to Australia, and to CERES in turn, is conservatively low. This is consistent with CERES' intent that its carbon budget policy be consistent with principles of global social equity.

CERES' share of this national carbon budget is claimed here on a consumption basis, ie scaled against national GDP. The scaling factor for determining CERES' share of the national carbon budget is expenditure on goods and services for all our activities (excluding wages, and including inventory changes). For the purpose of claiming its share of the national carbon budget estimated above, it is assumed that CERES' expenditure for internal consumption as a proportion of national GDP remains constant over the budget period.

Australia's GDP for 2015-16 was \$1.6 trillion and for the 2016-17 financial year, CERES' anticipated total expenditure on goods and services for internal consumption is around \$1 billion to \$1.5 billion. Using the mid-range figure of \$1.25 billion, CERES' claim on the total remaining carbon budget is **2,350 t CO₂-e**.

3. Putting a figure on our current emissions

The task of reducing emissions in such a way that CERES stays within the **2,350 t CO₂-e** total remaining budget commences from the current position.

Emissions for 2015-16 were determined from

- i. An audit of CERES electricity and gas usage for both CERES Park and Fairfood
- ii. Information from audits in earlier years to account for other emissions, including those associated with motor vehicle use.
- iii. An allowance of 5% for emissions not directly included

A figure of approximately **545 t CO₂-e per year** for 2015-16 was arrived at for the organisation as a whole with electricity use accounting for 73% of these emissions.

4. Setting annual carbon budget targets

The annual carbon budget targets for CERES, for the period until the total remaining carbon budget is exhausted, have been determined on the following basis:

- i. Total remaining carbon budget is **2,350 t CO₂-e**
- ii. The 2015-16 emission estimate of **545 t CO₂-e** is taken as the starting point for 2016-17.
- iii. Linear reduction in annual emissions is assumed.

On this basis, emissions must fall to zero for the year 2024-25. The corresponding annual emission reduction rate is **72 t CO₂-e** per year.

The annual emission budgets for the period 2016-17 to 2023-24 are shown in *Figure 1*.

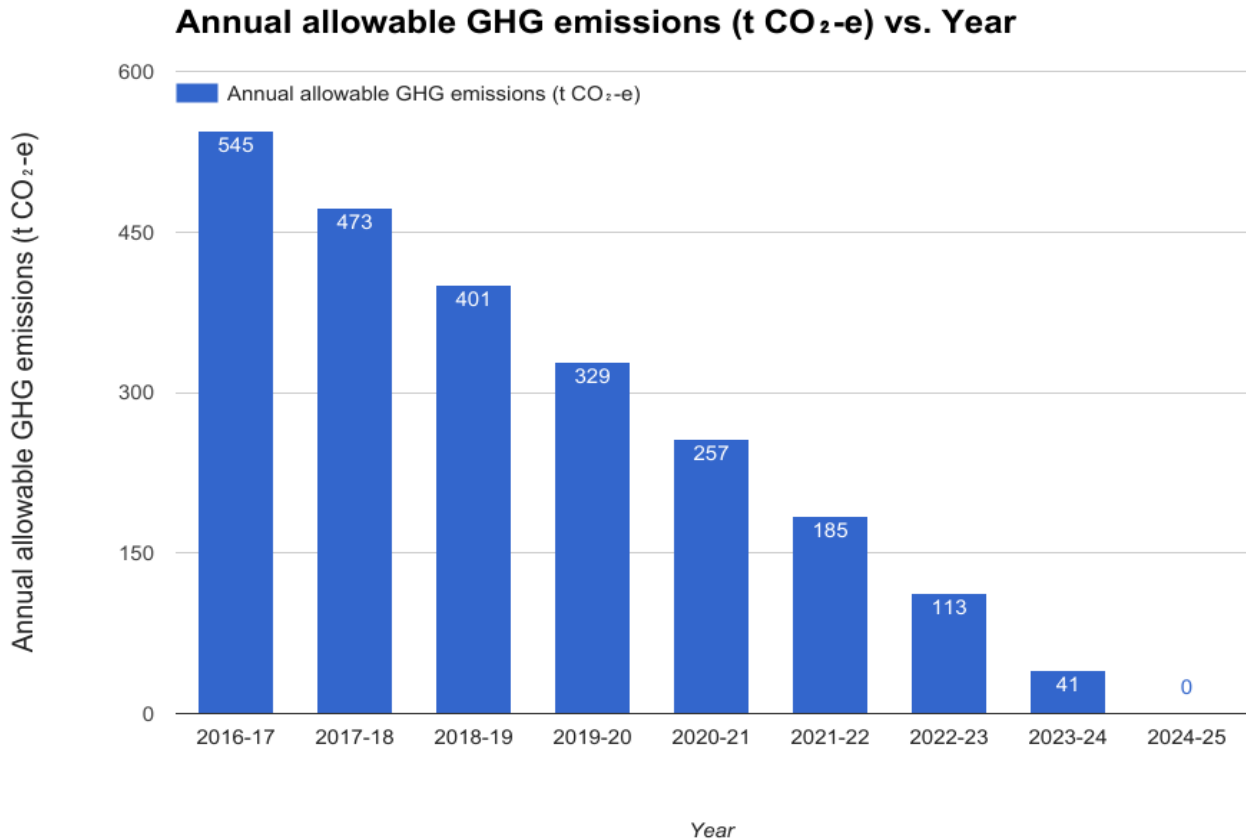


Figure 1: Annual GHG emission budgets for CERES, for total remaining budget of approximately 2,350 t CO₂-e for the period 2016-17 to 2023-24

Reporting

The CERES' Environmental Management Plan (EMP) looks at the impacts of CERES resource use, provides goals to work towards, and lists actions to reach those goals. This carbon budget is used to provide the basis for goals related to energy use emissions.

Delivery on the EMP is reported in the CERES Annual Report, with annual emissions calculated from energy utility bills and logs of fuel usage for transport.

ⁱ Meinshausen, Malte, Nicolai Meinshausen, William Hare, Sarah C. B. Raper, Katja Frieler, Reto Knutti, David J. Frame, and Myles R. Allen. 2009. "Greenhouse-gas emission targets for limiting global warming to 2oC." *Nature* no. 458 (7242):1158-1162. doi: <http://dx.doi.org/10.1038/nature08017>.

ⁱⁱ <http://www.climatechangeauthority.gov.au/reviews/targets-and-progress-review/part/chapter-3-global-emissions-budget-2-degrees-or-less>

ⁱⁱⁱ <http://www.abs.gov.au/ausstats/abs@.nsf/0/1647509ef7e25faaca2568a900154b63?OpenDocument>