
Climate Action Darwin
presentation to
Scientific Inquiry into Hydraulic
Fracturing in the Northern Territory

9.20pm Friday 10th March 2017

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Who is Climate Action Darwin?

A diverse group of local community members concerned about the lack of action on climate change mitigation and adaptation, 200+ members

Formed by a group of concerned locals in 2009.

Grew from National Days of Climate Action in Darwin (500+ attended 2015 People's Climate March)

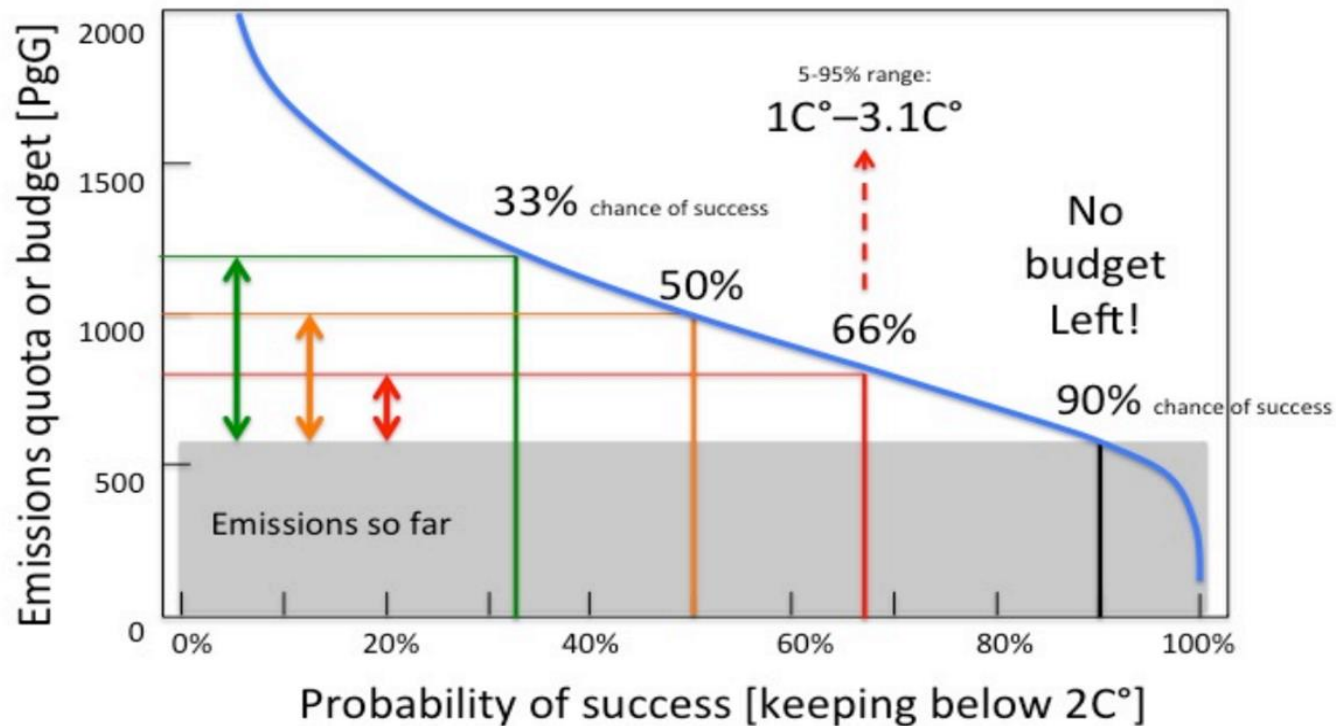
Amongst our members are parents, business owners, teachers, students, scientists, policy experts, musicians and members of church groups.

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2C° carbon budget and probability of success



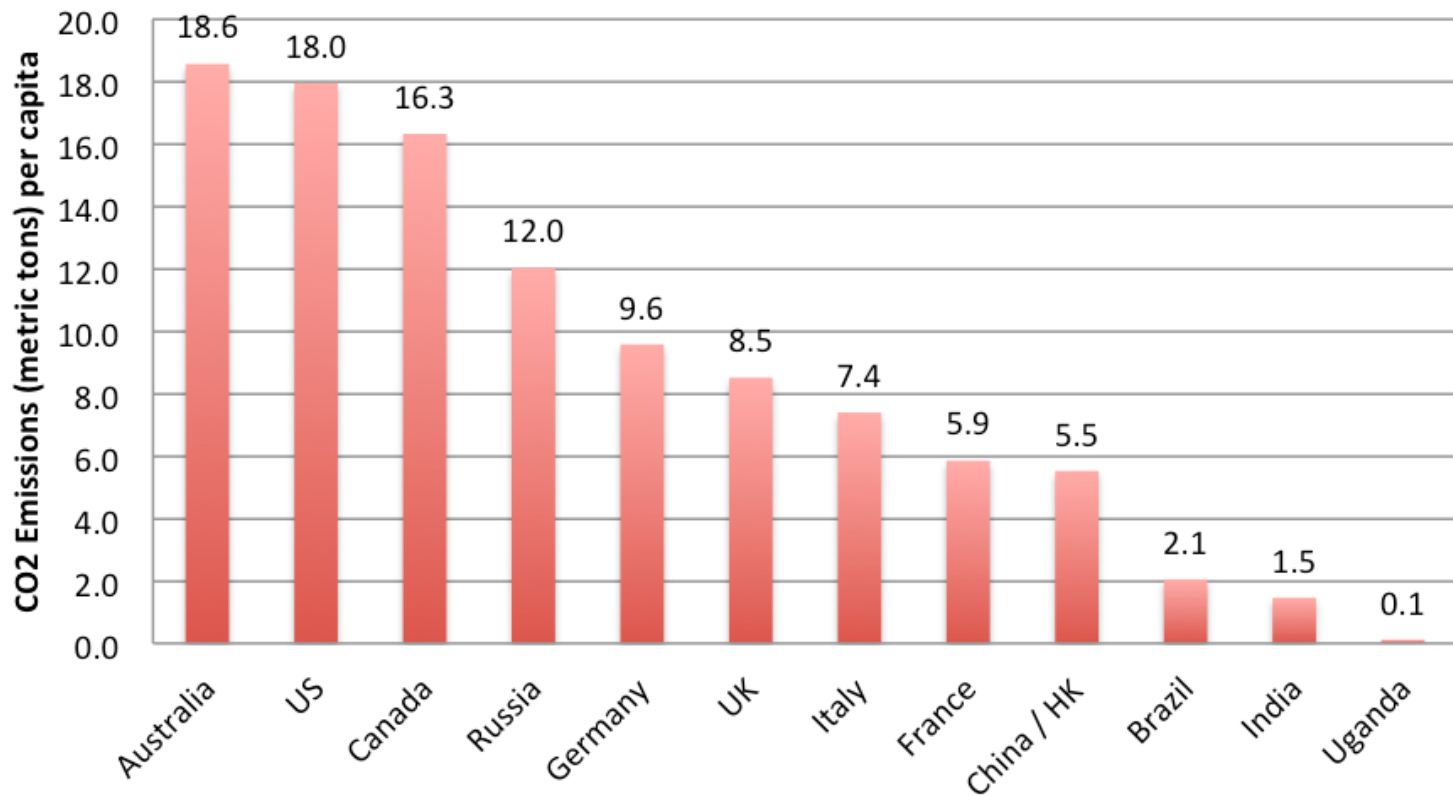
Source: Raupach (2013, unpublished), based on Raupach, M. R., I.N. Harman and J.G. Canadell (2011) "Global climate goals for temperature, concentrations, emissions and cumulative emissions",

Australia's commitment

Under the Paris Agreement, Australia agreed to implement an economy-wide target to **reduce greenhouse gas emissions by 26 to 28 per cent below 2005 levels by 2030** with a long-term goal to **keep the increase in global average temperature to well below 2°C above pre-industrial levels.**

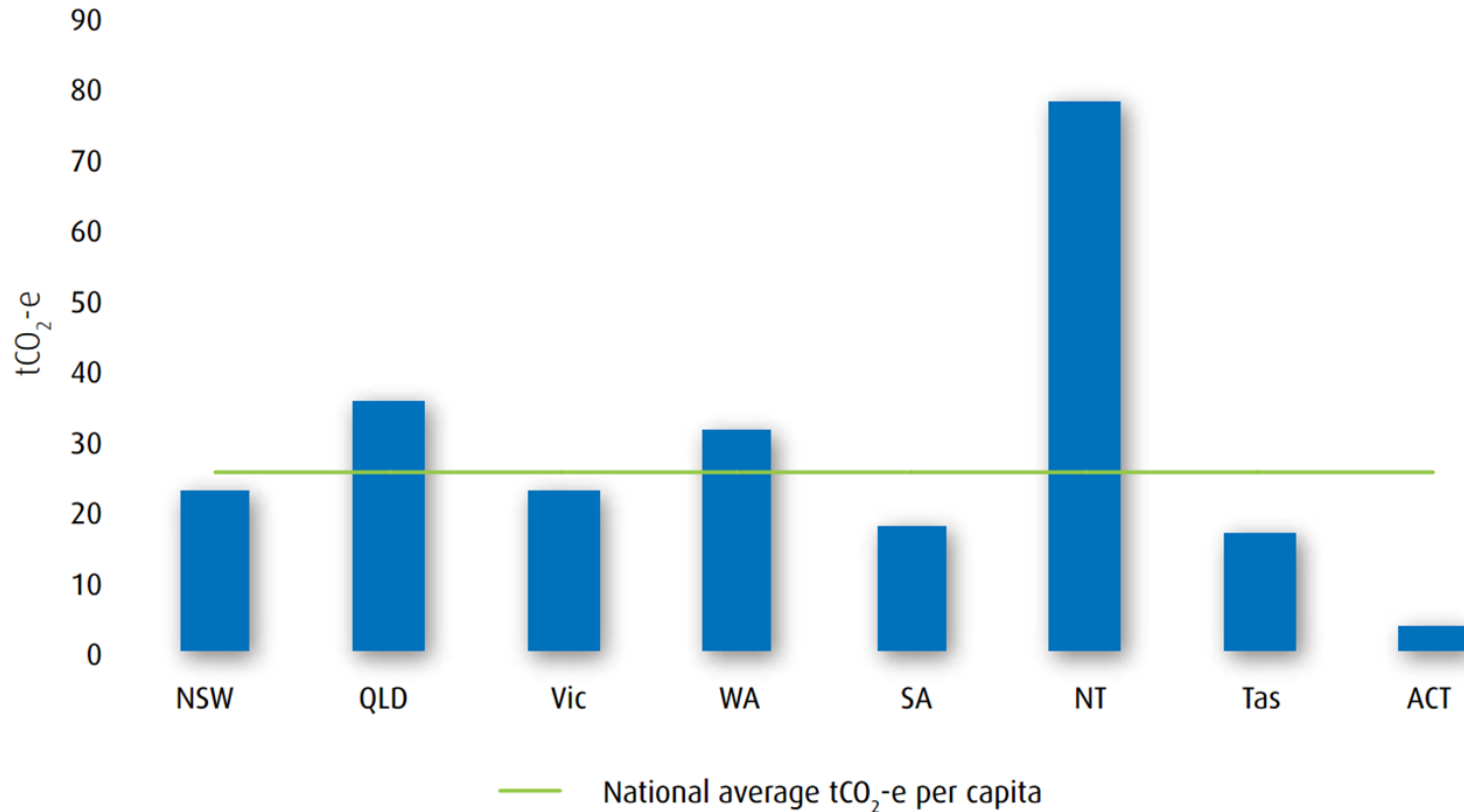
The world's largest collaboration of scientists at the Intergovernmental Panel on Climate Change agree that a **rapid reduction in the burning of fossil fuels** is required to keep global warming below a 2 degree rise.

CO2 Emissions per Capita



www.economicshelp.org | Source: World Bank EN.ATM.CO2E.PC

Tonnes of CO₂-e per capita by State and Territory



Source: adapted from Australian Government (2011) *Australia's National Greenhouse Gas Accounts - State and Territory Greenhouse Gas Inventories 2009*, and Australian Bureau of Statistics *Australian Demographic statistics*.

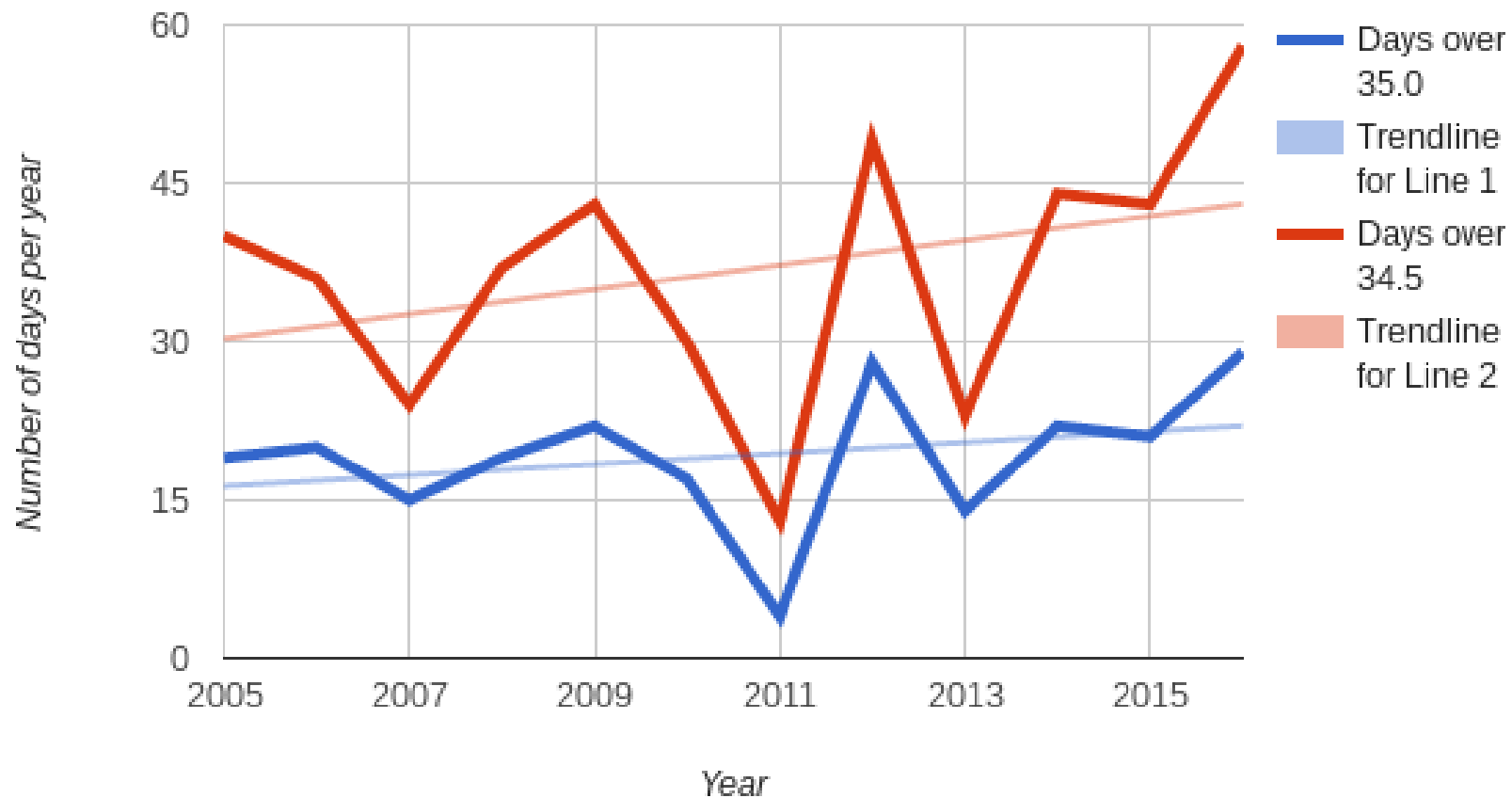
Northern Territory's Emissions

Climate change is happening now

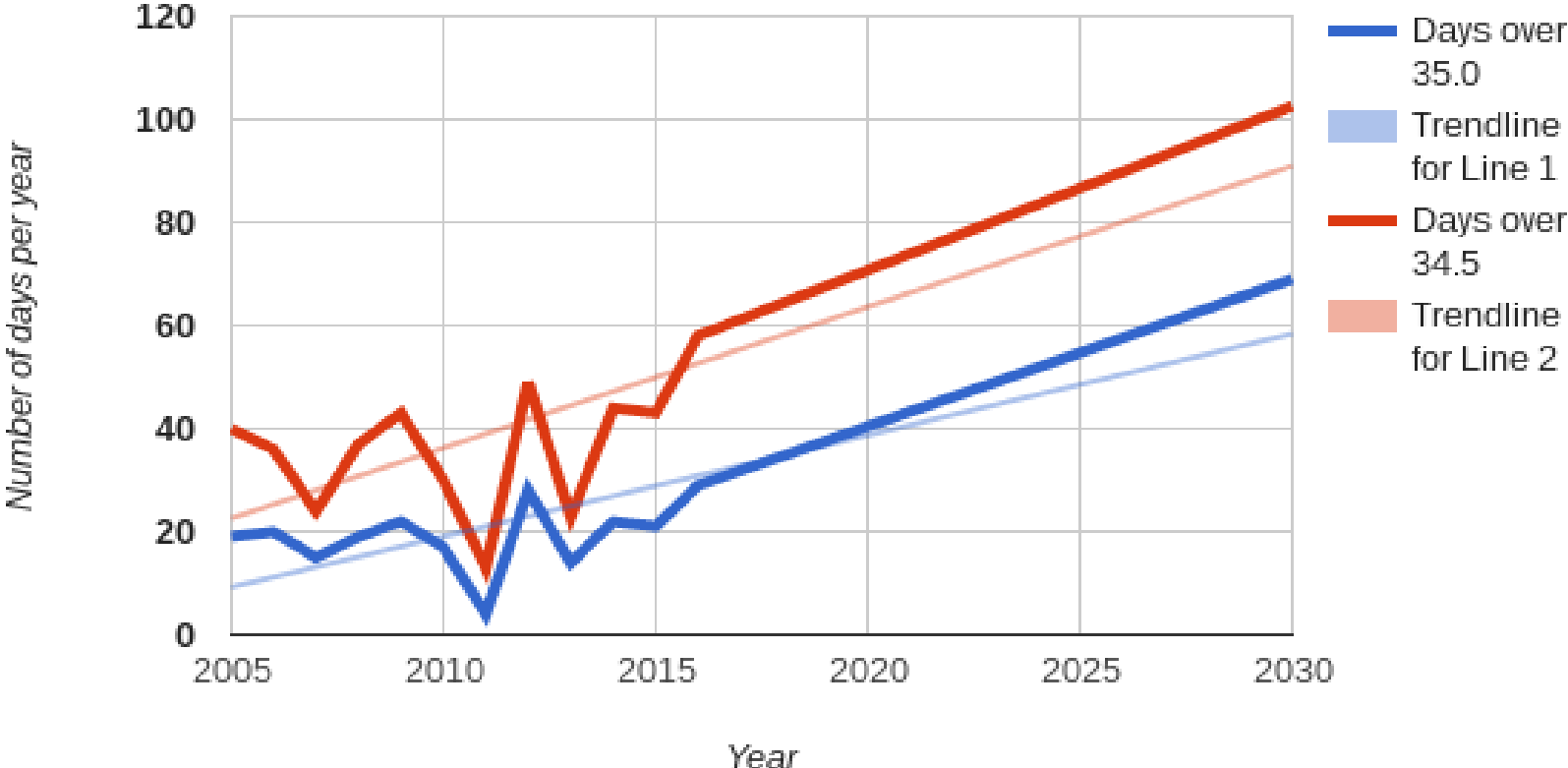
- The NT is already a major contributor to global greenhouse gas emissions through the burning of fossil fuels, hot savannah fires and land clearing.
- Global temperatures have risen 1 degree on average since 1911.
- The sea level is rising in the Top End, at a very fast rate of 7-8mm each year, driven by warmer ocean temperatures.
- Massive mangrove deaths have occurred as a result.

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- Small mammal populations are disappearing due to

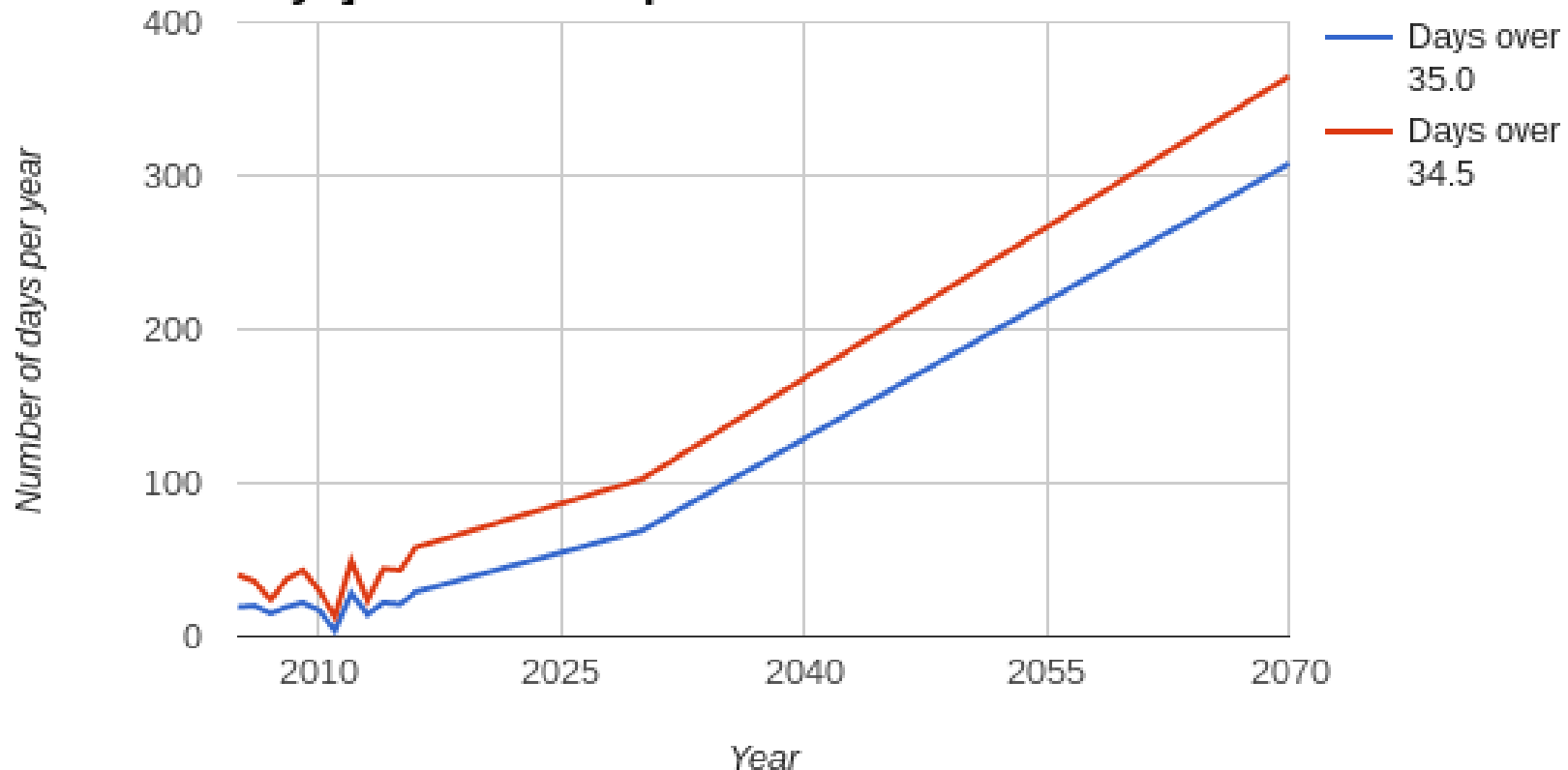
Number of days over 35.0 degrees (dark blue) and days over 34.5 (dark red) at Darwin Airport for 2005 to 2016



Number of days over 35.0 degrees (dark blue) and days over 34.5 (dark red) at Darwin Airport for 2005 to 2030



Number of days over 35.0 degrees (dark blue) and days over 34.5 (dark red) [limited to 365 days] at Darwin Airport for 2005 to 2070

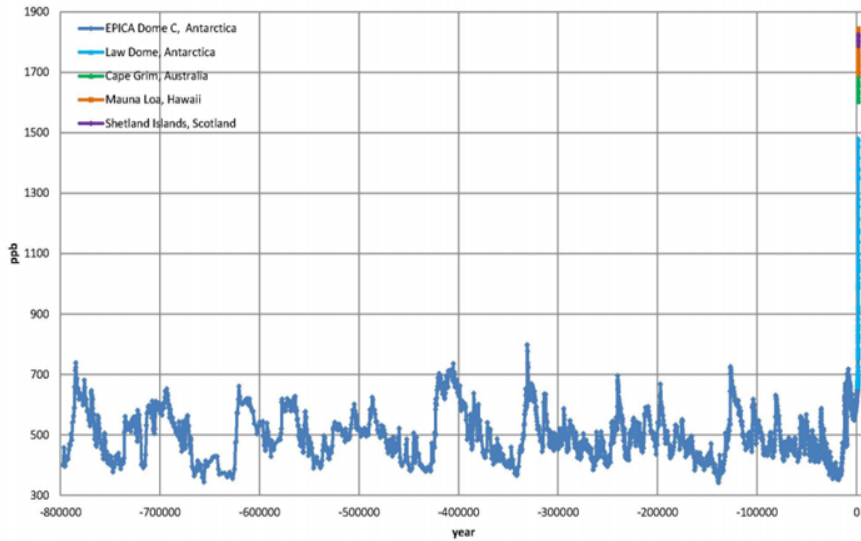


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Shale gas fracking contributes much more greenhouse pollution

- Methane is an extremely strong greenhouse gas
 - It is 86 times more powerful than CO₂ when its atmospheric warming impacts are considered over 20 years, and 34 times more powerful over 100 years
 - Fugitive methane emissions in shale gas fields have not yet been thoroughly measured in Australia
 - recent studies in the USA show that methane's climate impact is greater than coal.
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Methane concentration (ppb)
800,000 BC - 2014



Methane concentration (ppb)
1750 - 2014

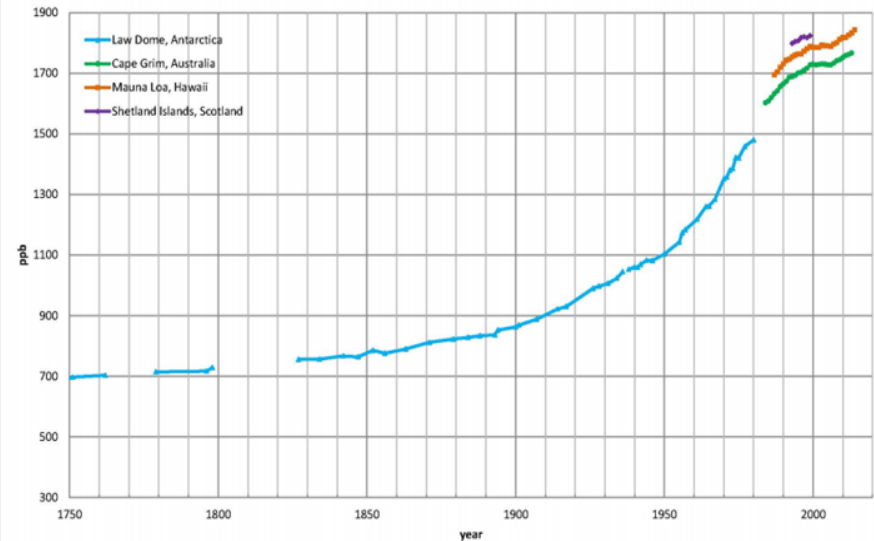
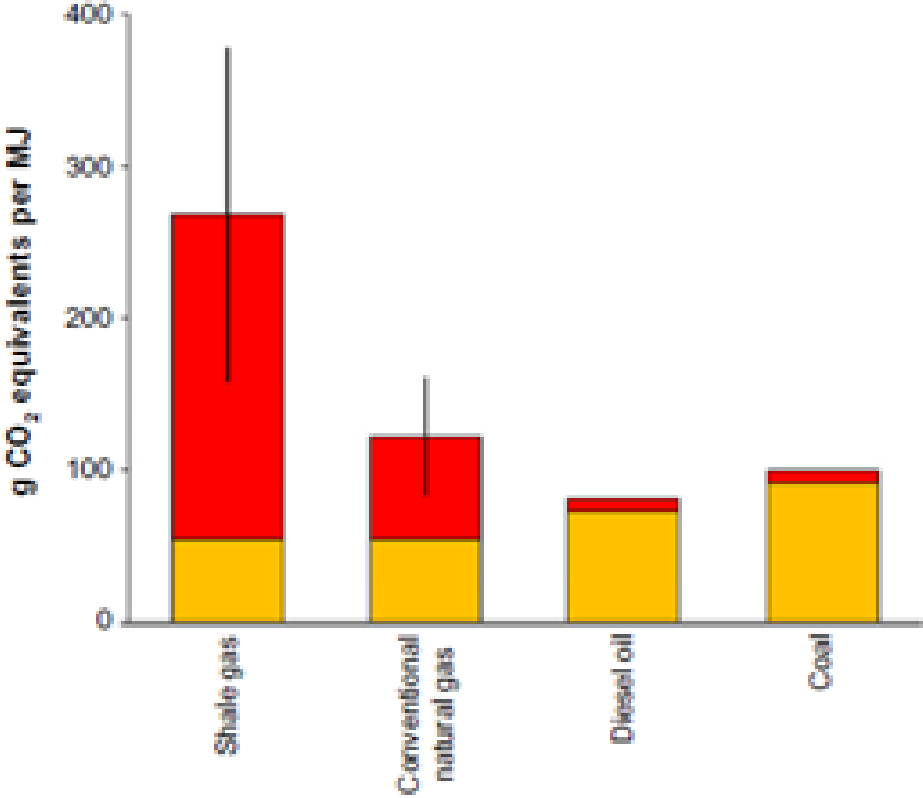


Figure 2: Atmospheric methane concentration shown in parts per billion (ppb), from hundreds of thousands of years ago, through to 2014. Left: Timeframe 800,000BC to 2014, showing concentrations have not been higher than 800ppb until very recent. Right: Timeframe 1750 to 2014, showing concentrations have almost tripled since 1750, and the rate of increase has accelerated again since 2006. Data source: EPA (2016). Data are from historical ice core studies (Loulergue, Schilt et al. (2008), Etheridge, Steele et al. (2002)) and recent air monitoring sites (NOAA (2014), NOAA (2015), Steele, Krummel et al. (2002)).

Howarth (Cornell University, Oct 2015)

“Significant quantities of methane are emitted into the atmosphere from shale gas development: an **estimated 12% of total production considered over the full life cycle** from well to delivery to consumers, based on recent satellite data. **Methane is an incredibly powerful greenhouse gas** that is 100-fold greater in absorbing heat than carbon dioxide, while both gases are in the atmosphere and 86-fold greater when averaged over a 20-year period following emission. When methane emissions are included, **the greenhouse gas footprint of shale gas is significantly larger than that of conventional natural gas, coal, and oil.**”

Greenhouse gas footprints of shale gas, conventional natural gas, oil, and coal



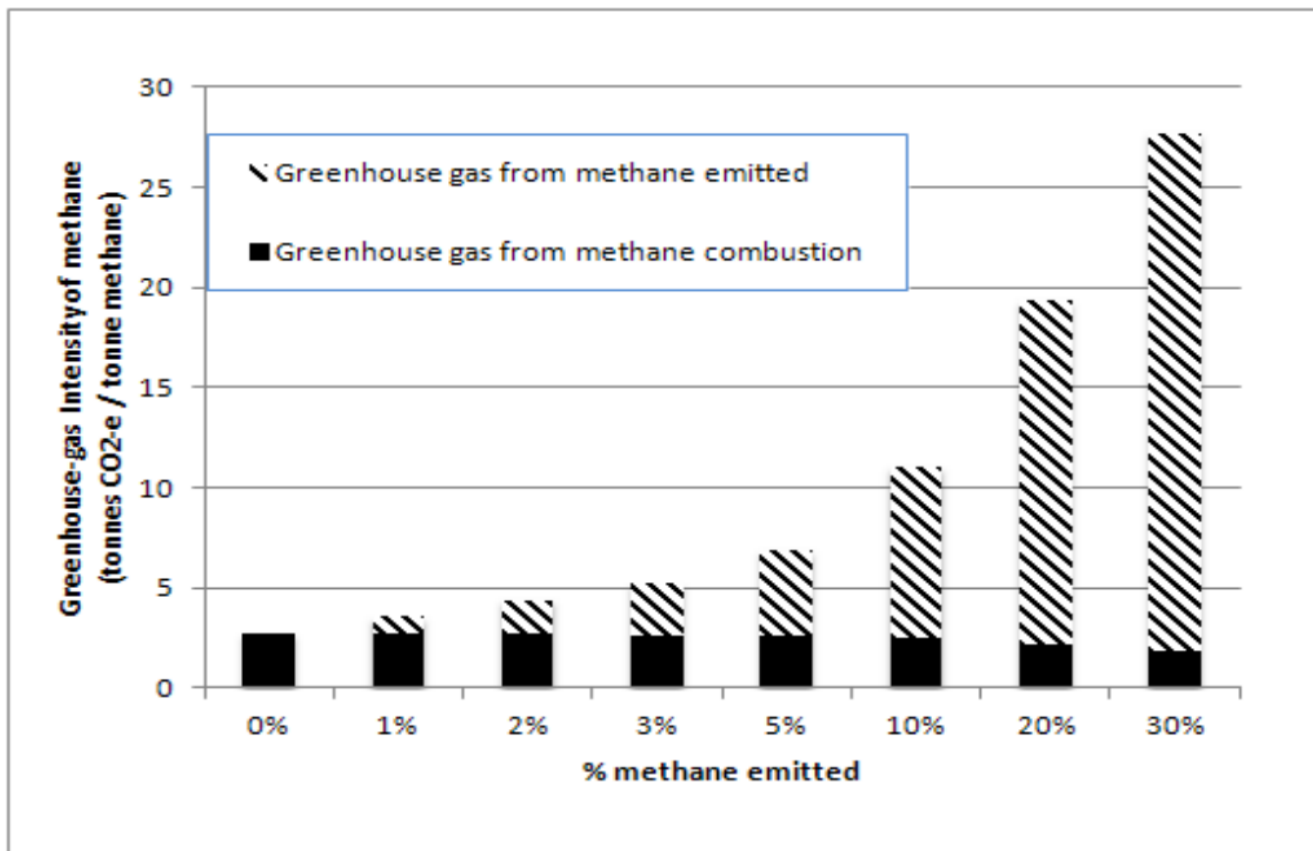


Figure 4: The climate impact of gas as an energy source greatly depends on what fraction is emitted to the atmosphere, versus what fraction is burned as fuel. Here we assume a global warming potential of 86 (appropriate to the 20-year timescale), with the y-axis showing the tonnes of CO₂-e emitted for each one tonne of methane gas produced.

The argument for increasing NT's shale gas industry is based upon false economics

- No independent economic analysis has been presented to show that there is an economic or social case for increasing NT's shale gas industry.
- There is no domestic demand for shale gas.
- False economies driven by the over-contracting of cheap gas to export industries is now driving demand in eastern states, however the economic benefit of supplying shale gas is likely to be negative. (The

Australia Institute, 2016)

Pipe dream is a falsehood

- a) Recent downgrades suggest demand for the project is overstated.
- b) The project raises questions over ownership, given the proponent Jemena is effectively owned by the Chinese and Singaporean governments
- c) The project would most likely be a loss-making enterprise
- d) The project is informed by official energy market forecasts that are overestimated
- e) The project is being built into a global glut of LNG
- f) A breakdown is occurring in how contracts are traditionally priced
- g) NT production is very high cost

For the NEGI to be built, substantial new fossil fuel subsidies from the Northern Territory government (through the PWC) and the federal government (through the Northern Australia Infrastructure Facility) will be required.

Pipe dream is a falsehood (cont.)

The NEGI has been conceived to compensate for a poor decision by the PWC to contract to buy too much gas. The commission overestimated demand, a common failing of government agencies, and is attempting now to on sell that gas. The NEGI is likely to fail, however, as it is a bad decision being promoted to cover up another bad decision.

Neither the NEGI nor the larger East Coast onshore gas export market has sufficient customers for their high-priced product.

**Source: 'Pipe Dream: A Financial Analysis of the Northern Gas Pipeline',
Institute for Energy Economics and Financial Analysis, May 2016,**

Northern Territory's commitment

- Renewable Energy Target of 50% renewables by 2030 (currently 3%)
- Need to shift our infrastructure, political efforts and ingenuity away from polluting shale gas toward making the most of clean, free renewable energy sources.
- NT is a global solar hotspot; the opportunities are endless
- Large-scale solar plants located at Uterne Alice Springs, Darwin Airport and Casuarina Square are a model for the future and export opportunities could be explored.



Solar empowers remote communities

- Increases energy independence
 - Increases living standards and connections to country (eg. Munungurra community)
 - Provides local remote jobs with long-term benefits rather than boom/bust of extractive industries
 - Reduced cost of diesel haulage or gas infrastructure.
 - Cheaper and cleaner
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We have a choice as to what future we want



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