



**Australian Government**

**Department of the Environment and Energy**

# **Australia's National Inventory System for GHG Inventory Reporting**

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# Australian Greenhouse Emissions Information System (AGEIS) (2004 - )

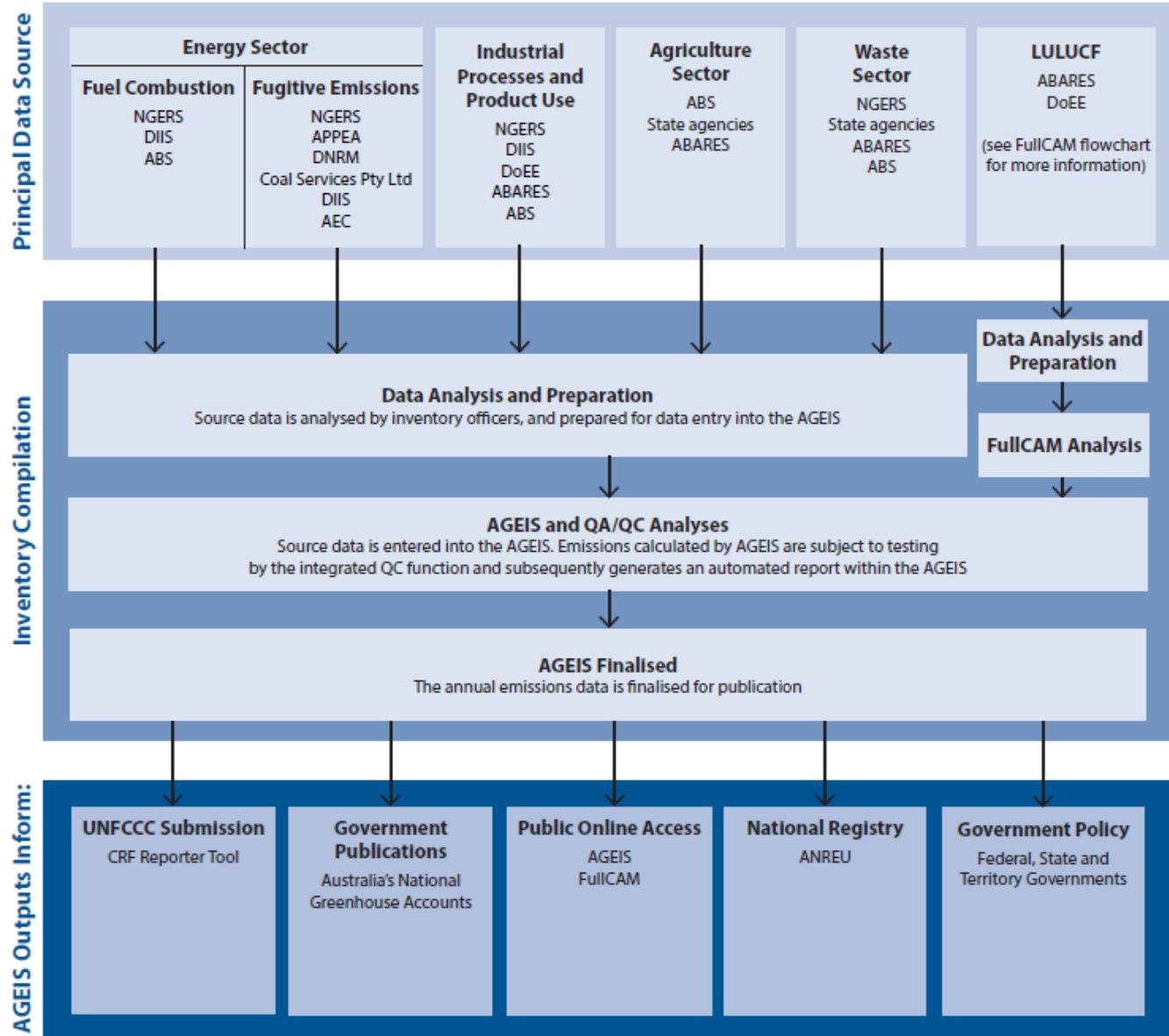
## IT data management system

- ✓ AGEIS designed to meet requirements for the National Inventory System
- ✓ Integral part of inventory preparation and publishing processes
- ✓ Fully integrates QAQC procedures
- ✓ Centralises emission estimation, inventory compilation, reporting and archiving

# Data collection and Archiving

## Acronym Key

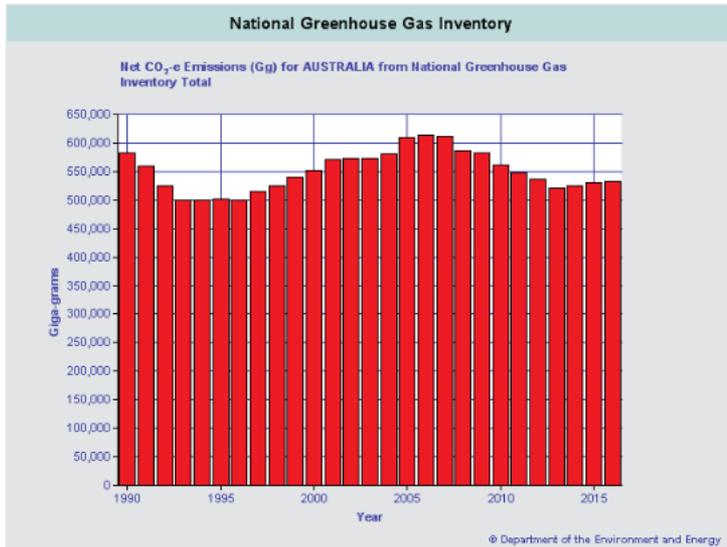
<b>ABARES</b>	Australian Bureau of Agricultural Resource Economics and Sciences
<b>ABS</b>	Australian Bureau of Statistics
<b>AEC</b>	Australian Energy Council
<b>AGEIS</b>	Australian Greenhouse Emissions Information System
<b>ANREU</b>	Australian National Registry of Emissions Units
<b>APPEA</b>	Australian Petroleum Production and Exploration Association
<b>BoM</b>	Bureau of Meteorology
<b>CER</b>	Clean Energy Regulator
<b>CRC</b>	Cooperative Research Centres
<b>CRF</b>	Common Reporting Format
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation
<b>DoEE</b>	Department of the Environment and Energy
<b>DIIS</b>	Department of Industry, Innovation and Science
<b>DNRM</b>	Department of Natural Resources and Mining (Queensland)
<b>FullCAM</b>	Full Carbon Accounting Model
<b>NGERS</b>	National Greenhouse and Energy Reporting Scheme
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control



# Australian Greenhouse Emissions Information System



Australian Government  
Department of the Environment and Energy



## Chart and Table Options

Chart Options

Start Y-Axis from zero?

Bar  Line

Table Options

Vertical  Horizontal  Printable

## Gigagrams

Copy to CSV File

- Data management
- Emissions estimation
- QC functions
- Auditability
- Report production
- CRF Reporter Tool population
- Data archiving
- Public accessibility

<http://www.environment.gov.au/climate-change/climate-science-data/greenhouse-gas-measurement/ageis>

# National Greenhouse and Energy Reporting (NGER) Scheme (2007-)

**Mandatory**

**reporting system for companies**

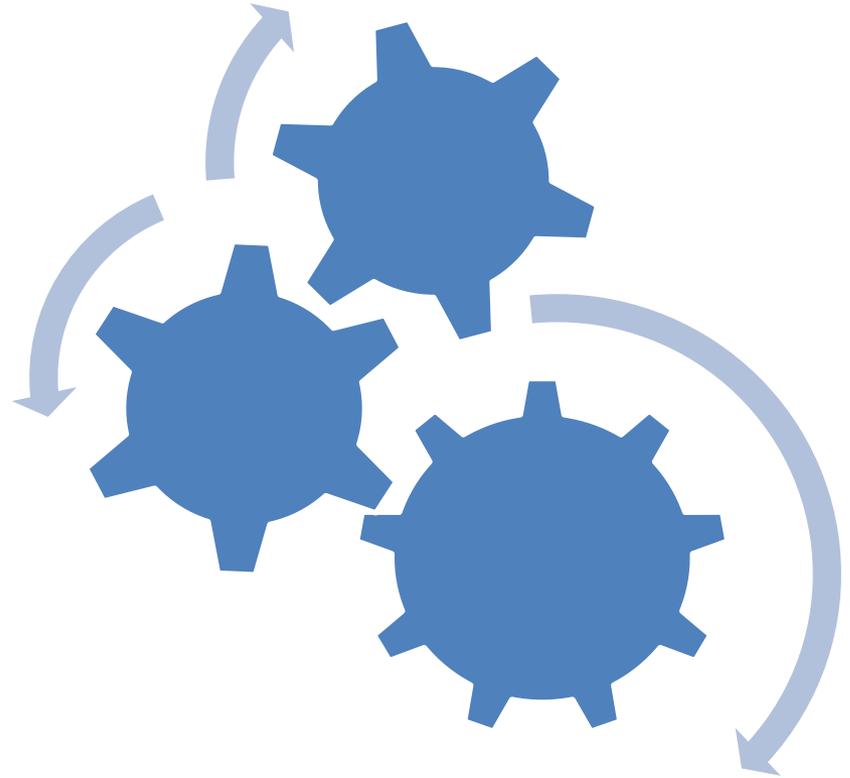
- ✓ Supports our international reporting obligations
- ✓ Underpins our domestic mitigation policy
- ✓ Informs policy development and the public
- ✓ Assists government programs and activities

**Reporting with approaches based in national inventory methods**

**Prior to NGERS, reliance on voluntary collections utilising existing datasets such as taxation and commercial systems.**

# NGERs: Key Efficiencies Achieved

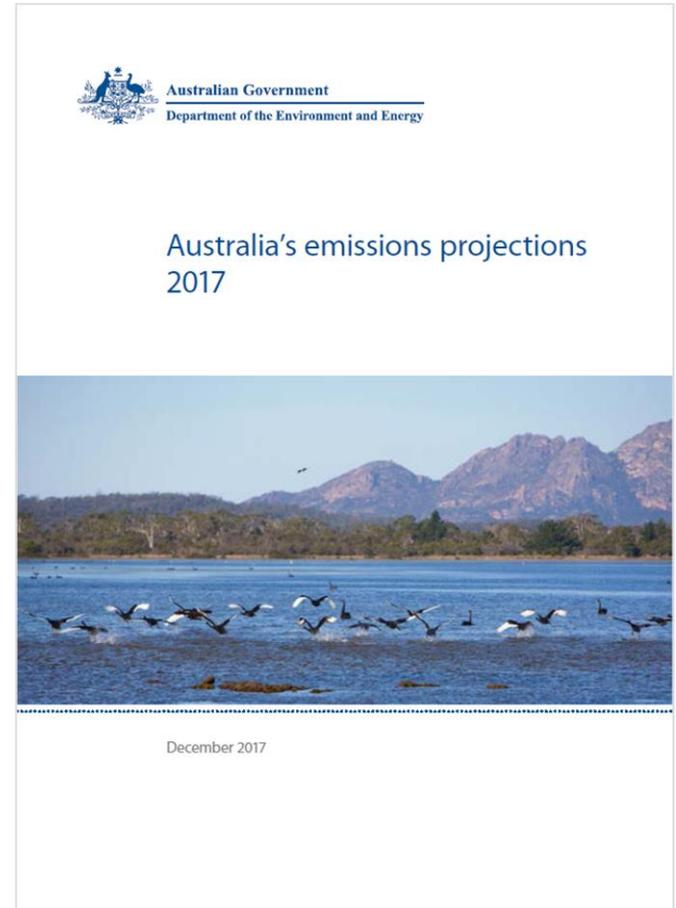
- ✓ Streamlined collection process
- ✓ Guaranteed data
- ✓ Facility level data
- ✓ Improved data quality
- ✓ Improved coverage



**Replaced many voluntary data sharing arrangements**

# What are Australia's Emissions Projections?

- Emissions projections are estimates of Australia's future greenhouse gas emissions.
- They provide an indicative assessment of how Australia is tracking against its emissions reduction targets.
- Australia reports its national level emissions projections to the UNFCCC in line with guidelines for Annex I countries reporting emissions projections in national communications.
- Australia's projections are prepared at a sectoral level consistent with the international guidelines adopted by the UNFCCC



# Projections methodology based on Inventory

## Inputs

- Current policies and measures
- Economic and population forecasts
- Activity drivers
- Technology advancement

## Key data sources

- National Greenhouse Gas Inventory
- Commonwealth Agencies (Treasury, Department of Industry, Innovation and Science and others)
- World Energy Outlook

Testing  
assumptions

## Emissions Modelling

- Combination of top-down and bottom-up modelling
- Prepared by external consultants and Department's analysts

Quality  
Assurance  
process

Final Projections results

# Australian emission reduction targets



**PARIS2015**  
UN CLIMATE CHANGE CONFERENCE  
**COP21·CMP11**

Australia reports emissions from 1990 to 2030

- National Inventory Reporting = 1990 to 2017
- Emissions Projections = 2018 to 2030

This is used to track Australia's progress against its emissions reduction targets.

- Australia has committed to reduce emissions to 26 –28 per cent below 2005 levels by 2030
- Builds on 2020 emissions reduction target of 5 per cent below 2000 levels

# Why undertake emissions projections?

- ✓ The projections demonstrate Australia's progress towards meeting its emissions reduction targets, illustrating where emissions arise in the economy and the drivers behind long-term trends.
- ✓ The projections form a key input into policy development and policy evaluation for the Australian government and stakeholders, quantifying the likely effectiveness of emissions reduction policies and offering insights into which activities could offer future emissions reductions.
- ✓ Reporting Australia's emissions projections also fulfils one of Australia's reporting requirements under the UNFCCC.

# F-gas reporting - Complete Coverage

- HCFC-22 produced in minor quantities at one plant between 1990 and 1995
- SF<sub>6</sub> estimated for electricity transmission networks and miscellaneous uses
- Small amounts of SF<sub>6</sub> used in Magnesium foundries between 1996 and 2000

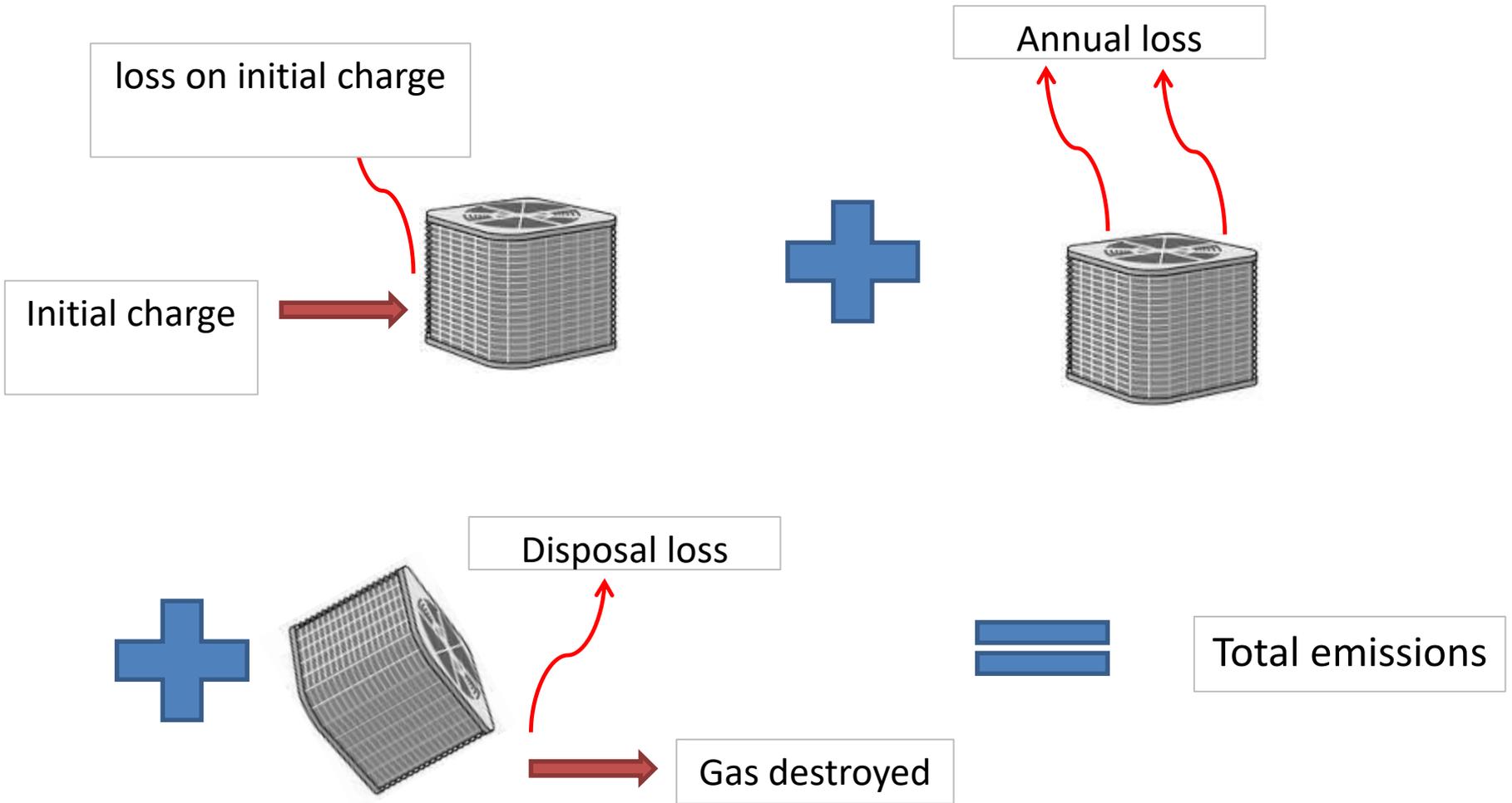
## Activity data - Types

- No F gas production in Australia since 1995
- All F gas is imported as:
  - a. Bulk gas
  - b. Pre-charged equipment

# Activity data - sources

- Ozone Protection and Synthetic Greenhouse Gas Management Act 2003
  - ❖ License system for all gas imports managed by Department of the Environment and Energy
- Gas destruction from Refrigerant Reclaim Australia
- SF<sub>6</sub> stock data from NGERS

# Methods – HFC emissions



# Methods – Equipment types

- Refrigeration
  - a. Transport refrigeration
  - b. Commercial refrigeration
  - c. Domestic refrigeration
- Stationary air-conditioning
  - a. Chillers
  - b. Refrigerated portable systems
  - c. Split systems
  - d. Packaged systems
- Mobile air-conditioning
  - a. Light vehicles
  - b. Heavy vehicles
- Foam
- Aerosols/solvents
- Fire equipment
- Metered dose inhalers

## Methods – HFC emissions

- Combination of stock model and top-down estimation
  - a. Stocks of domestic AC and refrigeration and mobile AC
  - b. Replenishment of gas considered
- IPCC 2006 leakage rates applied to gas bank

## Activity data - Backcasting

- HFC import data are available from 2005 onwards
- 1990-2004 estimated by end-use based on information about transition from CFCs in Burnbank 2002

# Methods - HFCs

End Use Category	Emission method	Gas allocation method	Leakage rates
<b>Refrigeration</b>			
Transport refrigeration	Gas vintage	Method 3	CS (Expert Group)
Commercial refrigeration	Gas vintage	Method 3	CS (Expert Group)
Domestic refrigeration and freezers	Stock model	Method 2	IPCC Default
<b>Stationary air-conditioning</b>			
Chillers	Gas vintage	Method 3	CS (Expert Group)
Refrigerated portable	Stock model	Method 2	IPCC Default
Split systems	Stock model	Method 2	IPCC Default
Packaged systems	Stock model	Method 2	IPCC Default
<b>Mobile air-conditioning</b>			
Cars	Stock model	Method 1	IPCC Default
Trucks	Gas vintage	Method 3	IPCC Default
<b>Foam</b>	Gas vintage	Method 3	IPCC Default
<b>Aerosols/solvents</b>	Gas vintage	Method 3	IPCC Default
<b>Fire equipment</b>	Gas vintage	Method 3	IPCC Default
<b>Metered dose inhalers</b>	Gas vintage	Method 3	IPCC Default

# Methods – HFC leakage rates

End Use Category	Average equipment life (a,b)	Loss on initial charge (a)	Annual loss (a)	Replenishment (c)
	Years	%	%	
<b>Commercial refrigeration</b>				
Stand-alone commercial applications	12.5	1.75	7.0 (d)	Full replenishment every 2 years
Medium and large commercial applications	11	1.75	12.0 (d)	Full replenishment every 2 years
Industrial commercial applications	22.5	1.75	17.5 (d)	Full replenishment every 2 years
Domestic refrigeration	15	0.6	0.3	No replenishment
Transport refrigeration	7.5	5.1	20.0 (d)	Full replenishment every 2 years
Light vehicle air conditioning	12	0.4	15.0	Full replenishment at 6 years
Heavy vehicle air conditioning	12.5	0.4	10.0 (d)	Full replenishment every 2 years
<b>Domestic stationary air conditioning</b>				
Refrigerated portable air conditioners	15	0.6	5.5	No replenishment
Split system air conditioners	15	0.6	5.5	No replenishment
Packaged air conditioners	15	0.6	5.5	No replenishment
Commercial air conditioners	22.5	5.1	6.0 (d)	Full replenishment every 2 years
Foams (closed cell)	20	10.0	4.5	No replenishment
Aerosols	2	0.0	50.0	No replenishment
Fire	10	0.4	5.0	Full replenishment every 2 years
Metered Dose Inhalers	2	0.0	50.0	No replenishment

Source: (a) IPCC 2006.

(b) Burnbank 2002.

(c) DE

(d) Expert Group 2013.

## Methods – SF<sub>6</sub>

- IPCC Tier 2a method
- CS annual Emission Factor based on gas stocks and leakage reported under NGERS
- Annual loss Emission Factor includes losses at disposal

# Thank you for listening. Any questions?

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Picture taken from: <https://www.kids-world-travel-guide.com/australia-facts.html>