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Positioning the dairy industry for a carbon constrained world

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Overview of presentation

- Global policy setting
- Australian policy setting
- Future policy settings
- Current issues
- Risks and opportunities

The big picture

- The climate is changing, and human activities are responsible
- Climate related impacts are being felt today
- There is an emerging alignment of global climate policy following the Paris Agreement
- An energy transformation is underway



Record temperatures

- 2016 hottest year on record globally
- Record breaking temperatures “the new norm”

| Town | Temperature |
|----------------|-------------|
| Williamtown | 45.5C |
| Dubbo | 46.1C |
| West Wyalong | 46.3C |
| Bathurst | 41.5C |
| Scone | 46.5C |
| Port Macquarie | 46.5C |
| Moree | 47.3C |
| Gunnedah | 45.6C |

*Record temperatures observed over weekend 11-12
February 2017*



*Businesses are feeling the heat
(source: ABC News)*

Extreme weather events in Australia



Black Saturday bushfires, Victoria 2009



Storm surge, Sydney 2015



Brisbane floods, 2011



South Australian storms and state blackout, 2016

Even more recently....

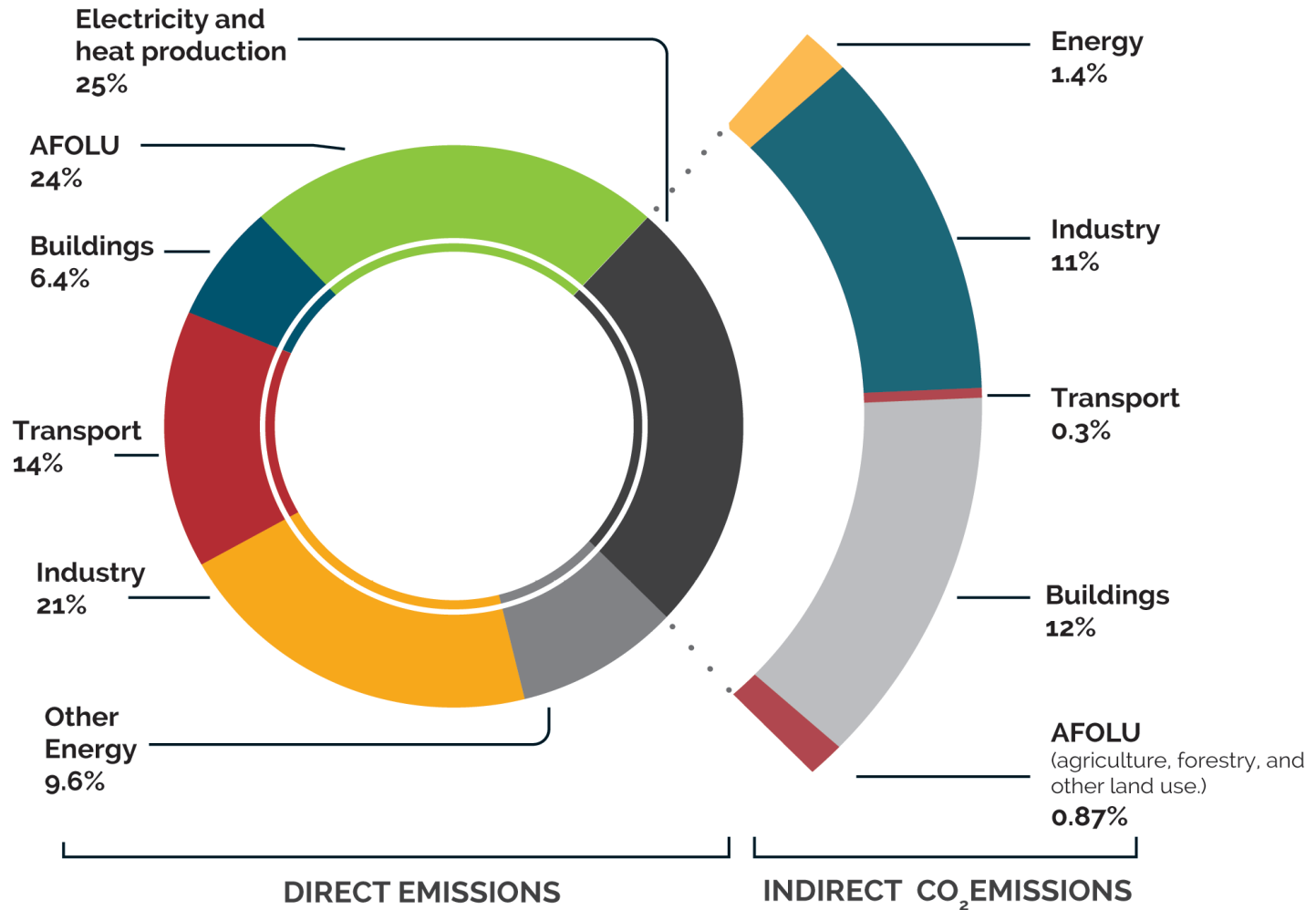


Cyclone Debbie



Bleaching of Great Barrier Reef

Global emissions profile

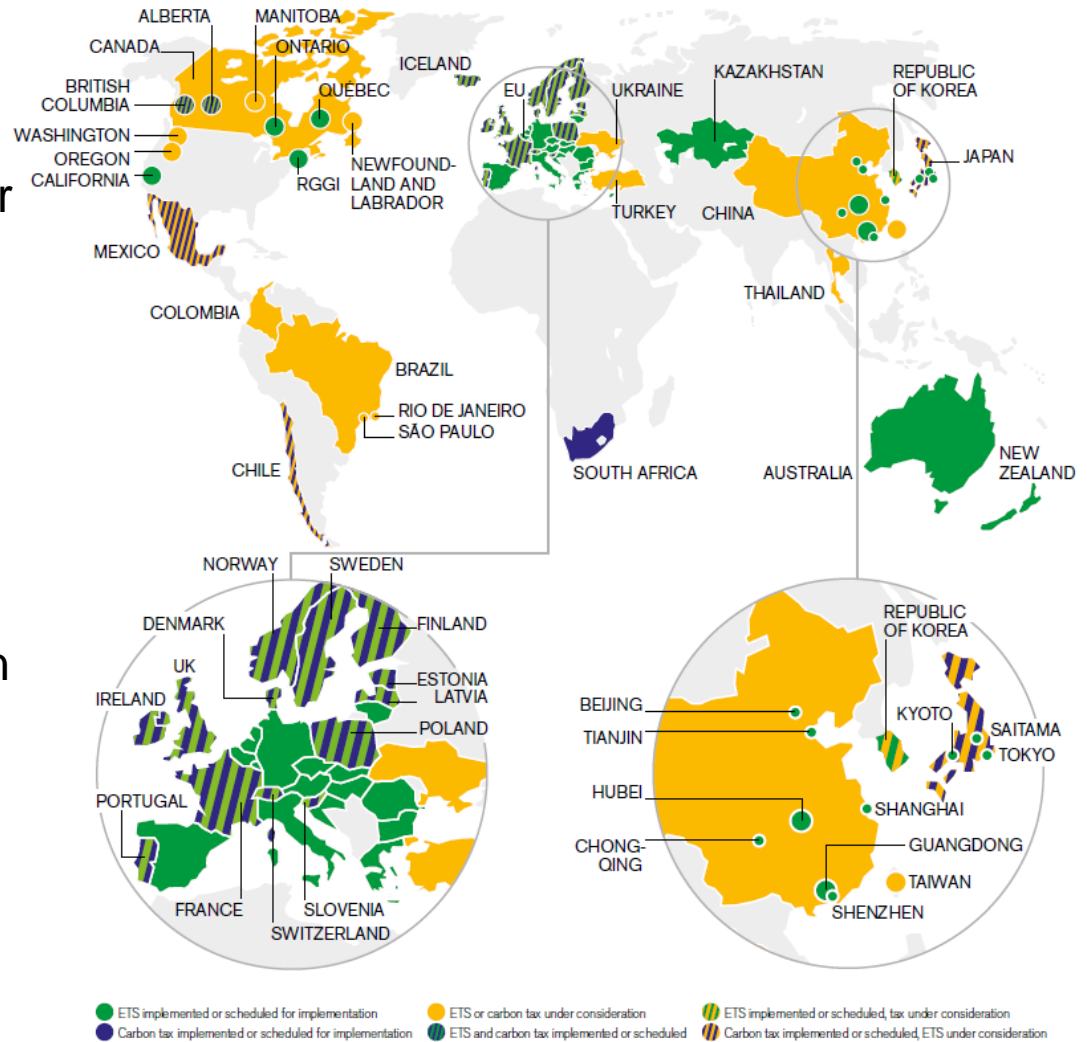


The Paris Agreement



Climate policy trends

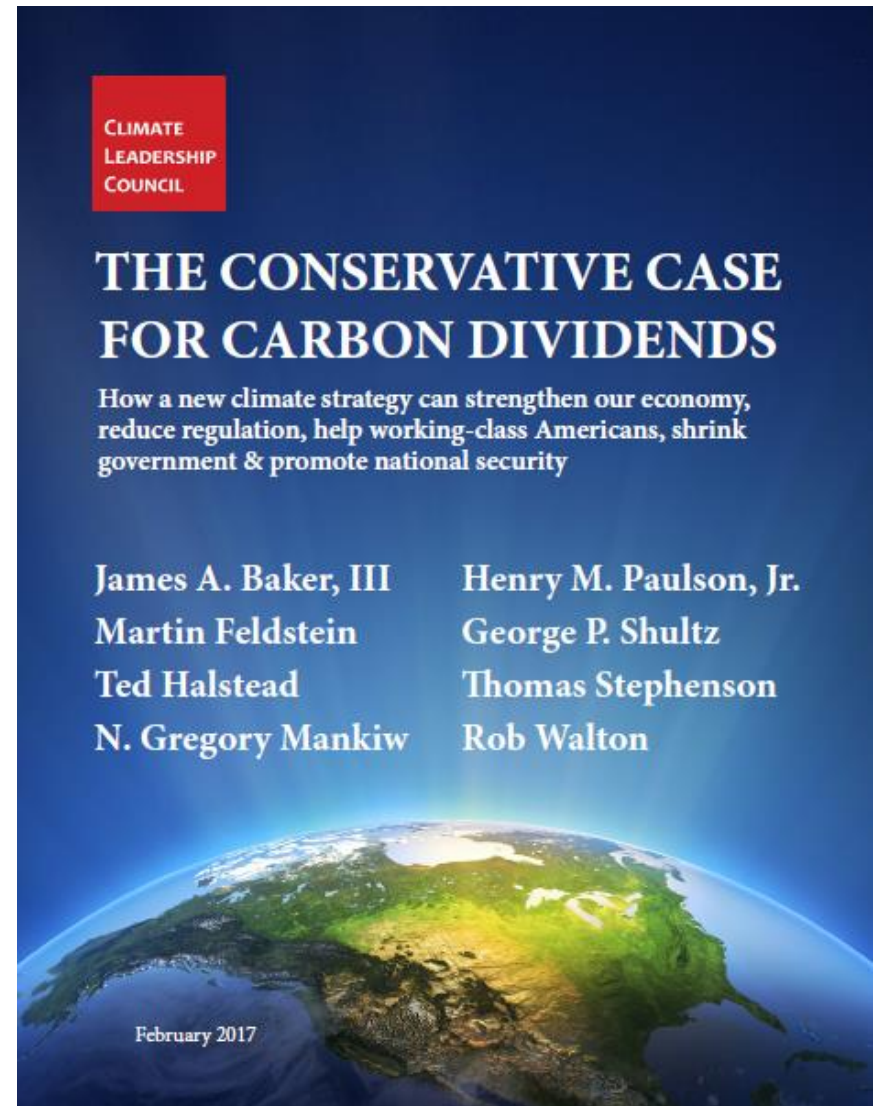
- Internationally, countries are establishing policies to meet their commitments under the Paris Agreement
- About 100 countries have considered some form of carbon pricing initiative as part of their commitment
- China set to begin largest carbon market in the world in 2017
- “Bottom up” approach to linkage



Map of existing, emerging and potential regional, national and subnational carbon pricing initiatives (World Bank 2016)

The “Trump” factor

- Obama’s Clean Power Plan, August 2015
- Trump’s Executive Order on “Promoting Energy Independence and Economic Growth”, March 2017
- Withdrawal from Paris Agreement?



Australia's historical emissions

Domestic emissions by share, 2014

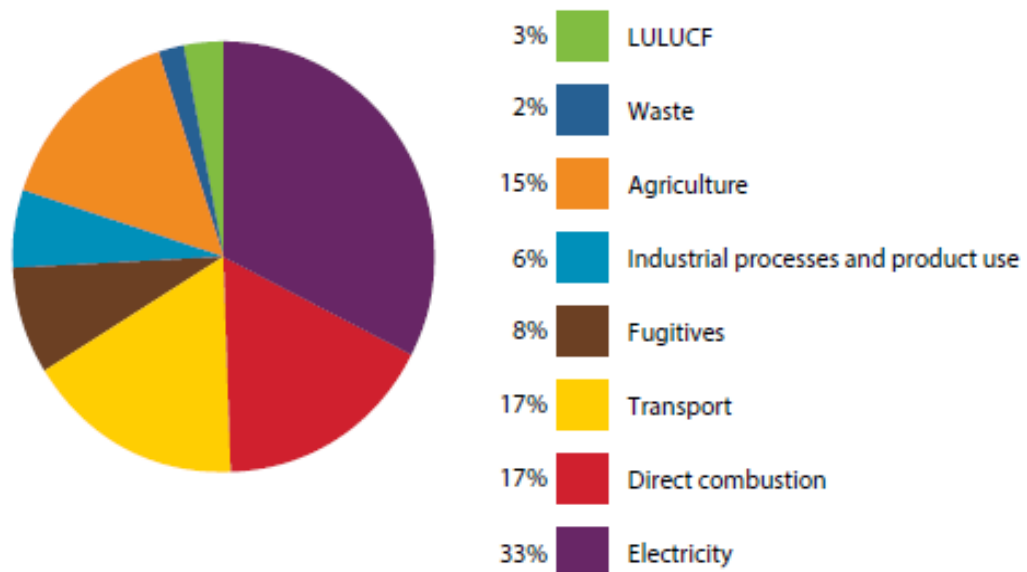
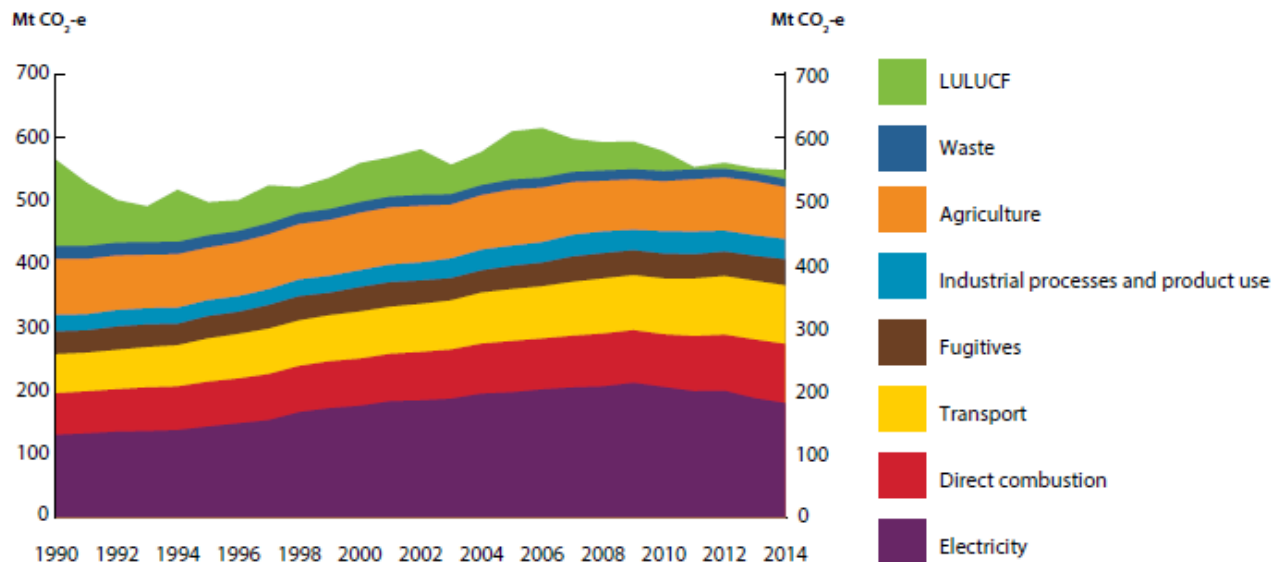
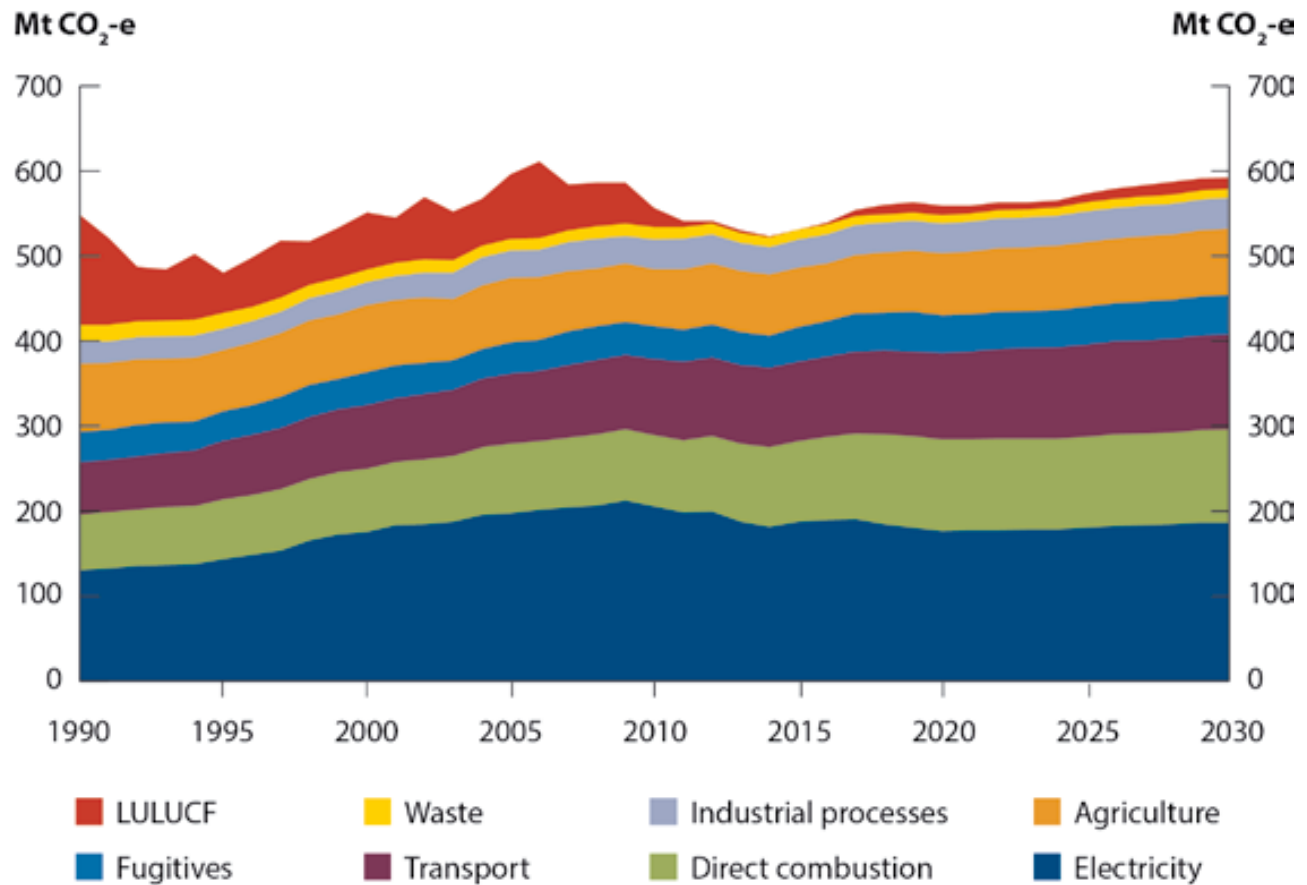


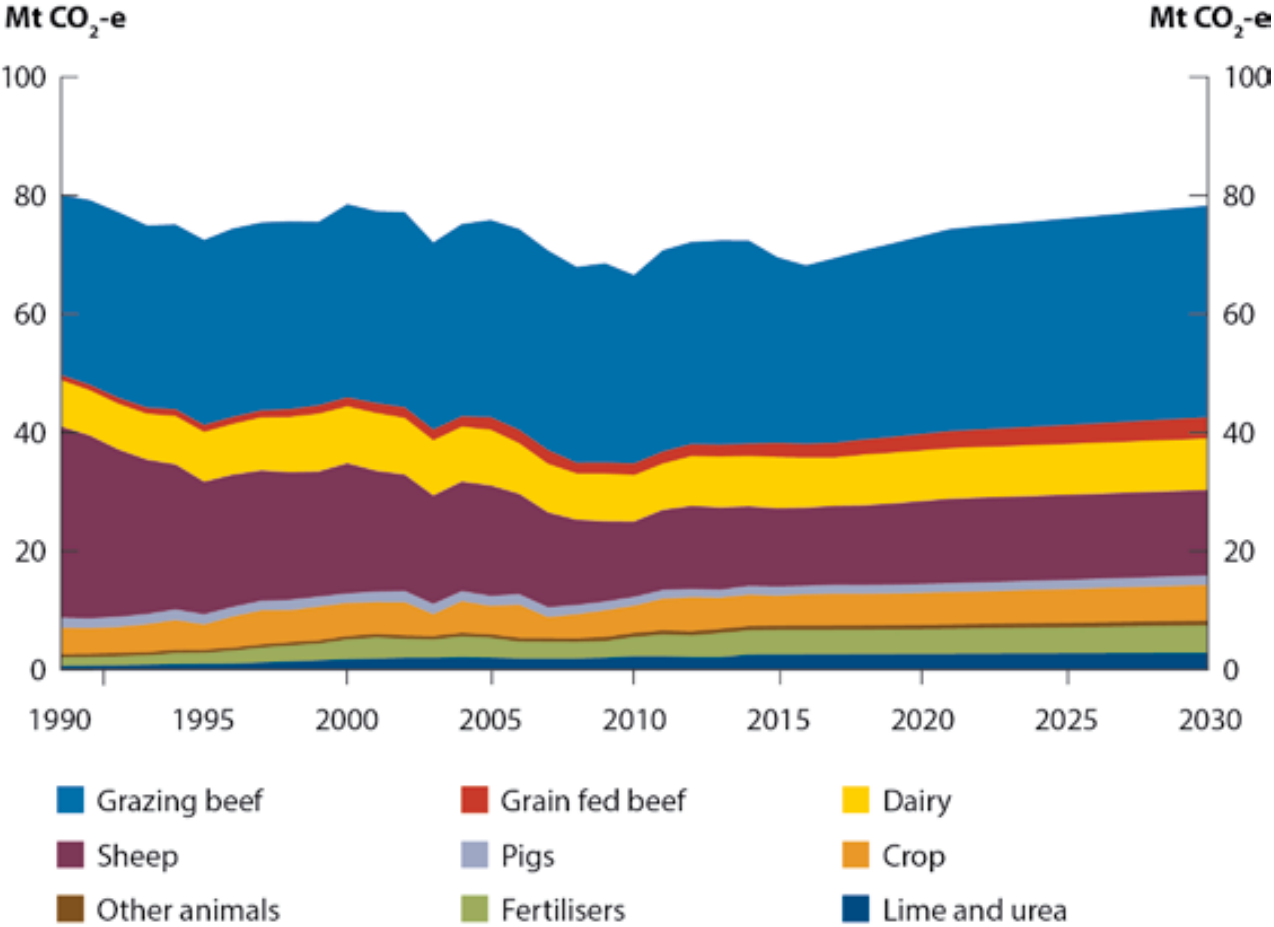
Figure 3 Domestic emissions, 1990 to 2014⁸



Australia's projected emissions

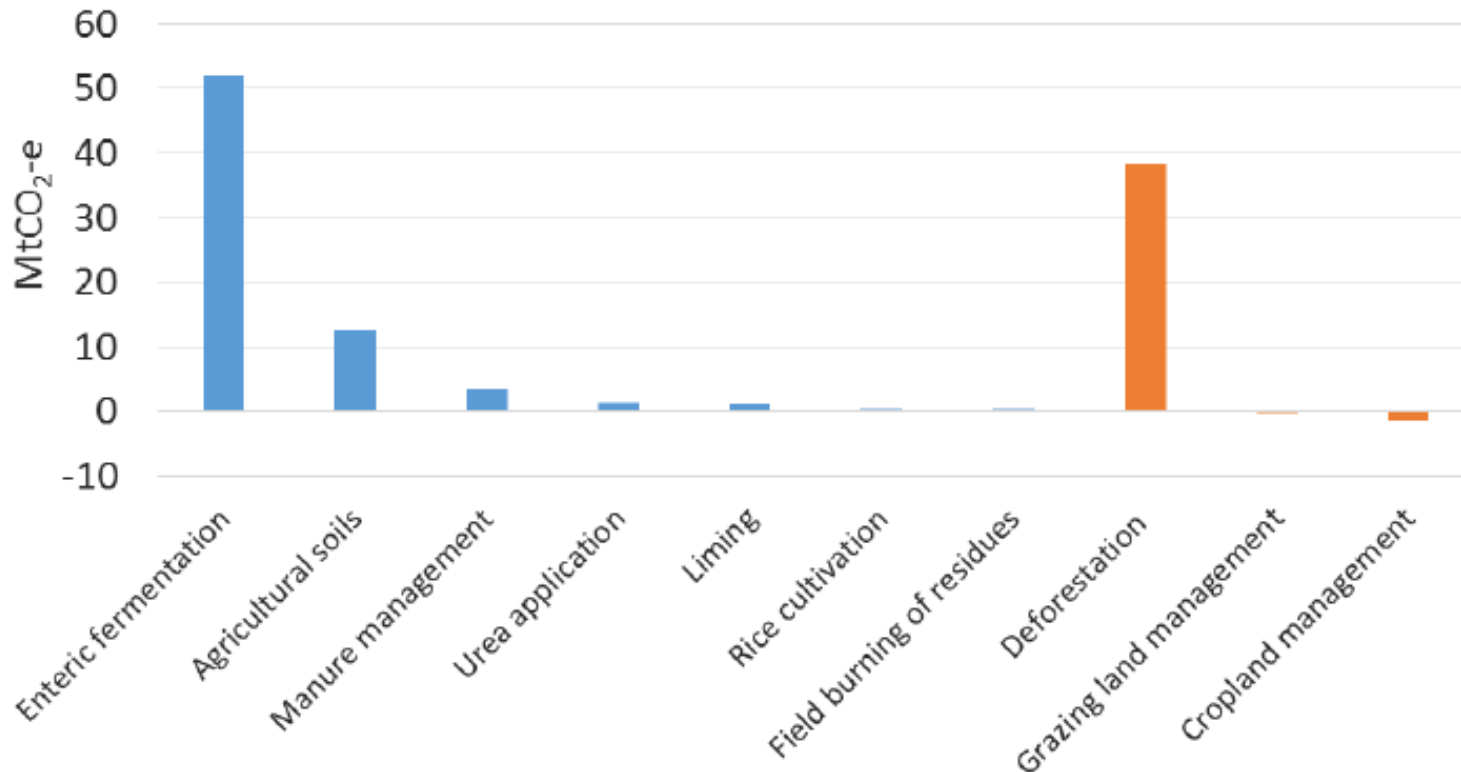


Agricultural emissions



Breakdown of agricultural emissions profile

FIGURE 1. AVERAGE ANNUAL NET AGRICULTURAL-RELATED EMISSIONS IN AUSTRALIA, 2010-2014

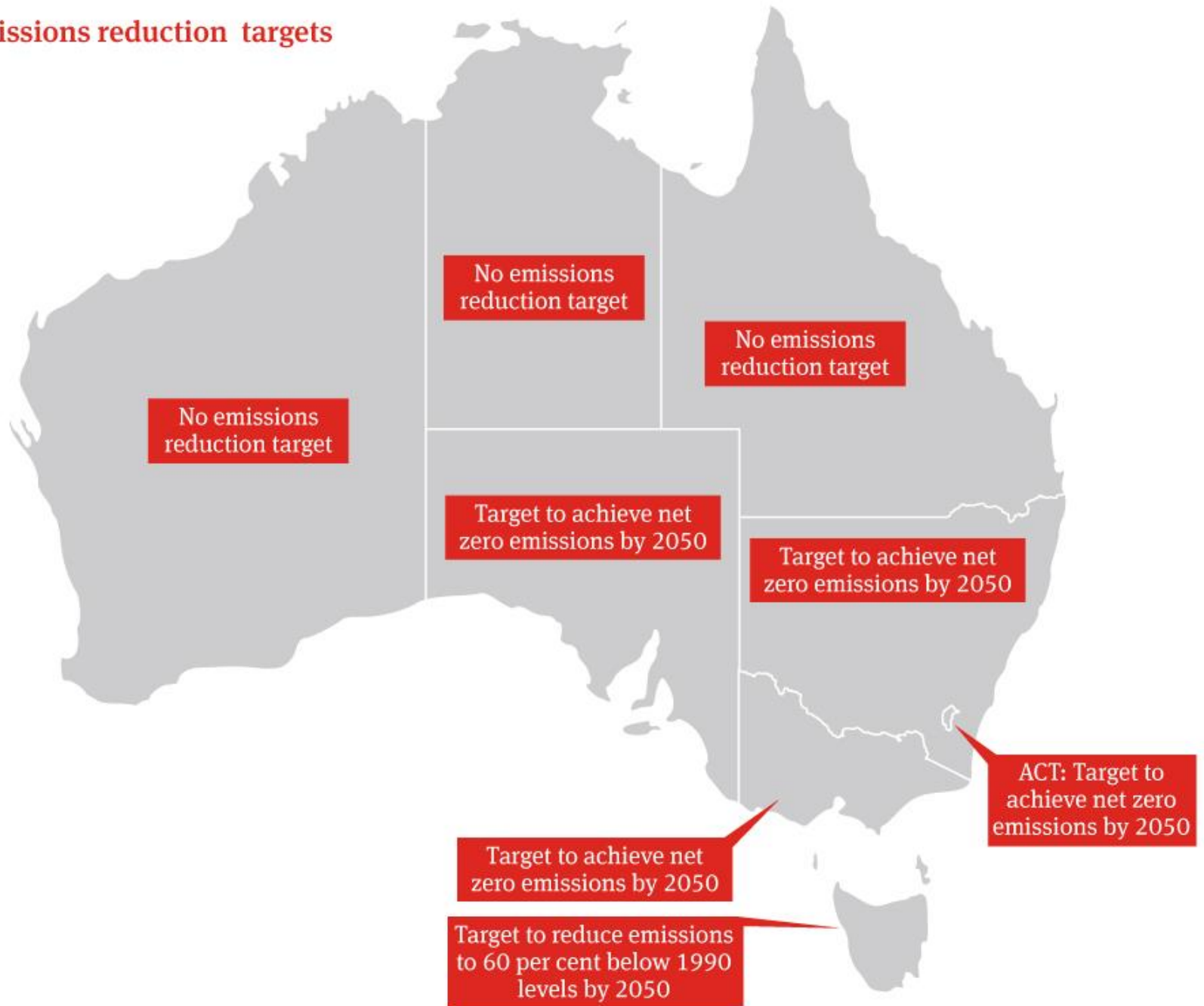


Australia's current policy setting

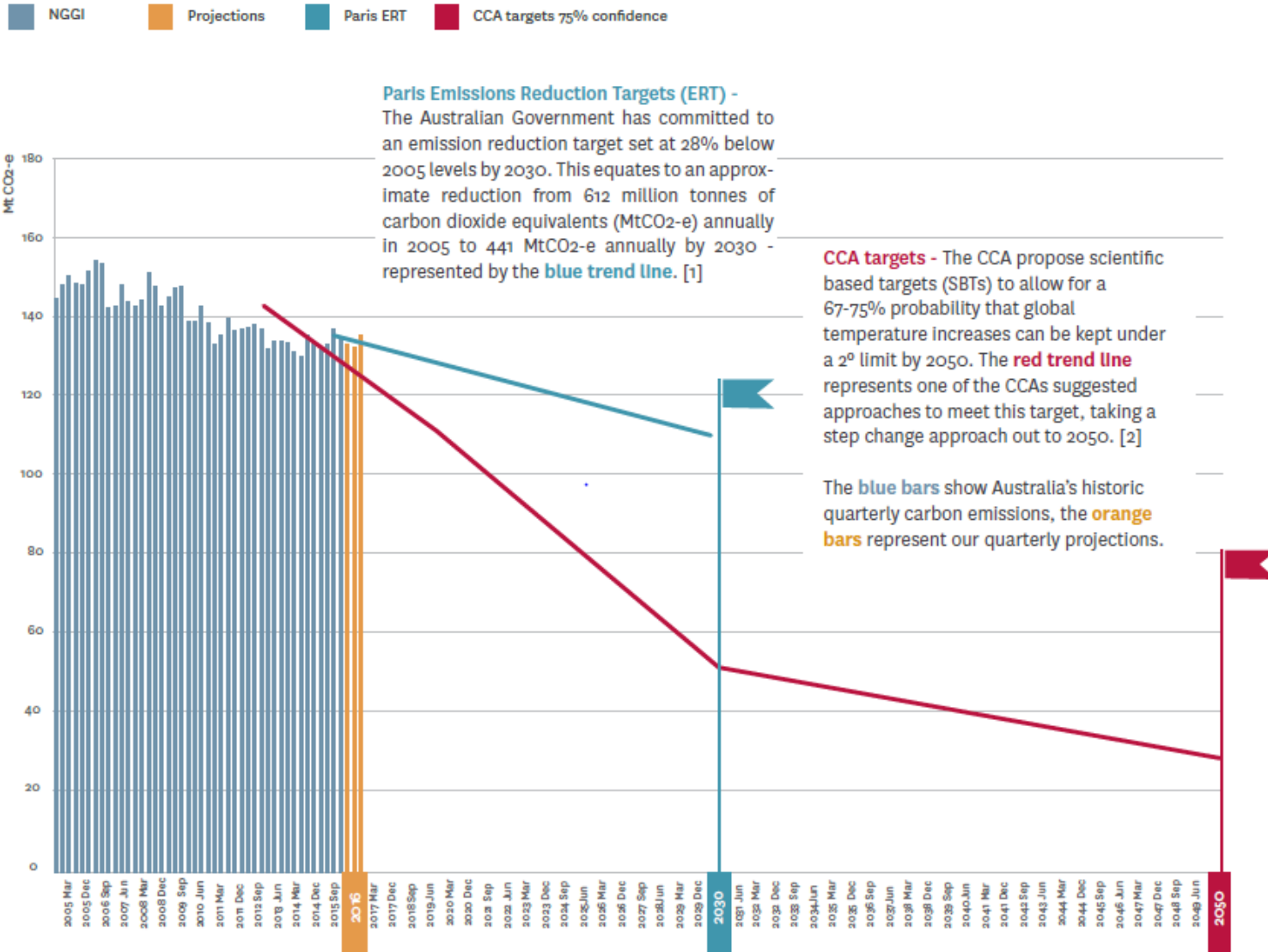
- Targets:
 - 5% reduction based on 2000 levels by 2020
 - 26-28% reduction based on 2005 levels by 2030
- Emissions Reduction Fund
- Safeguard Mechanism
- Renewable Energy Target
- 2017 review
- Role of States



Emissions reduction targets



Carbon budgets and Australia's emissions trajectory



Increasing legal risks

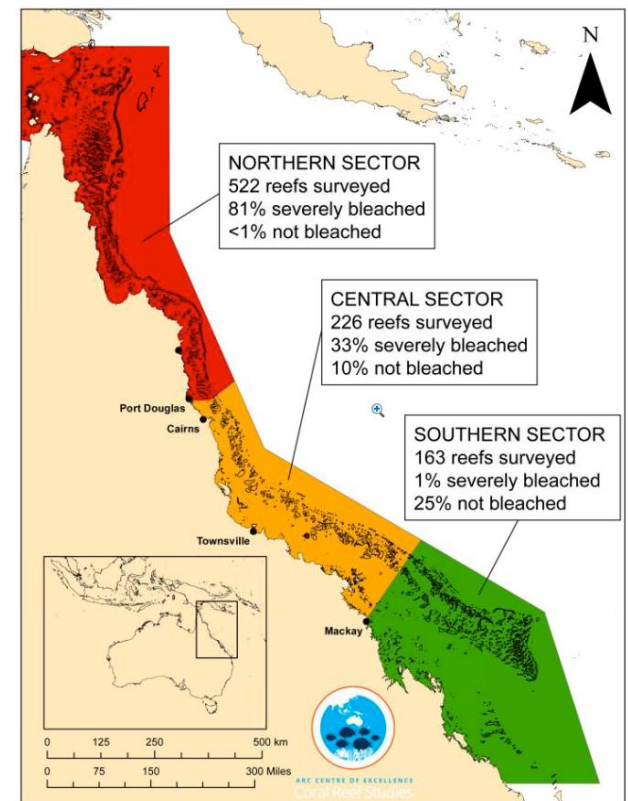
- Directors duties
- Disclosure
- Litigation
- Shareholder activism
- Divestment movement
- Stranded assets
- Social licence to operate

Transitional and physical risks

| Risk type | Area | Risks |
|--------------|-------------------------|---|
| Transitional | Policy and legal | <ul style="list-style-type: none"> • Increased pricing of GHG emissions • Enhanced emissions-reporting obligations • Mandates on and regulation of existing products and services • Exposure to litigation |
| | Technology | <ul style="list-style-type: none"> • Substitution of existing products and services with lower emissions options • Unsuccessful investment in new technologies • Upfront costs to transition to lower emissions technology |
| | Markets | <ul style="list-style-type: none"> • Changing customer behaviour • Uncertainty in market signals • Increased cost of raw materials |
| | Reputation | <ul style="list-style-type: none"> • Shift in consumer preferences • Stigmatization of sector • Increased stakeholder concern or negative stakeholder feedback |
| Physical | Acute | <ul style="list-style-type: none"> • Increased severity of extreme weather events such as cyclones and floods |
| | Chronic | <ul style="list-style-type: none"> • Changes in precipitation patterns and extreme weather variability • Rising mean temperatures • Rising sea levels |

Adaptation

- Coasts
- Cities and built environment
- Agriculture, forests and fisheries
- Natural ecosystems and biodiversity
- **Water and food security**
- Health impacts
- Disaster management
- National security
- Tourism impacts



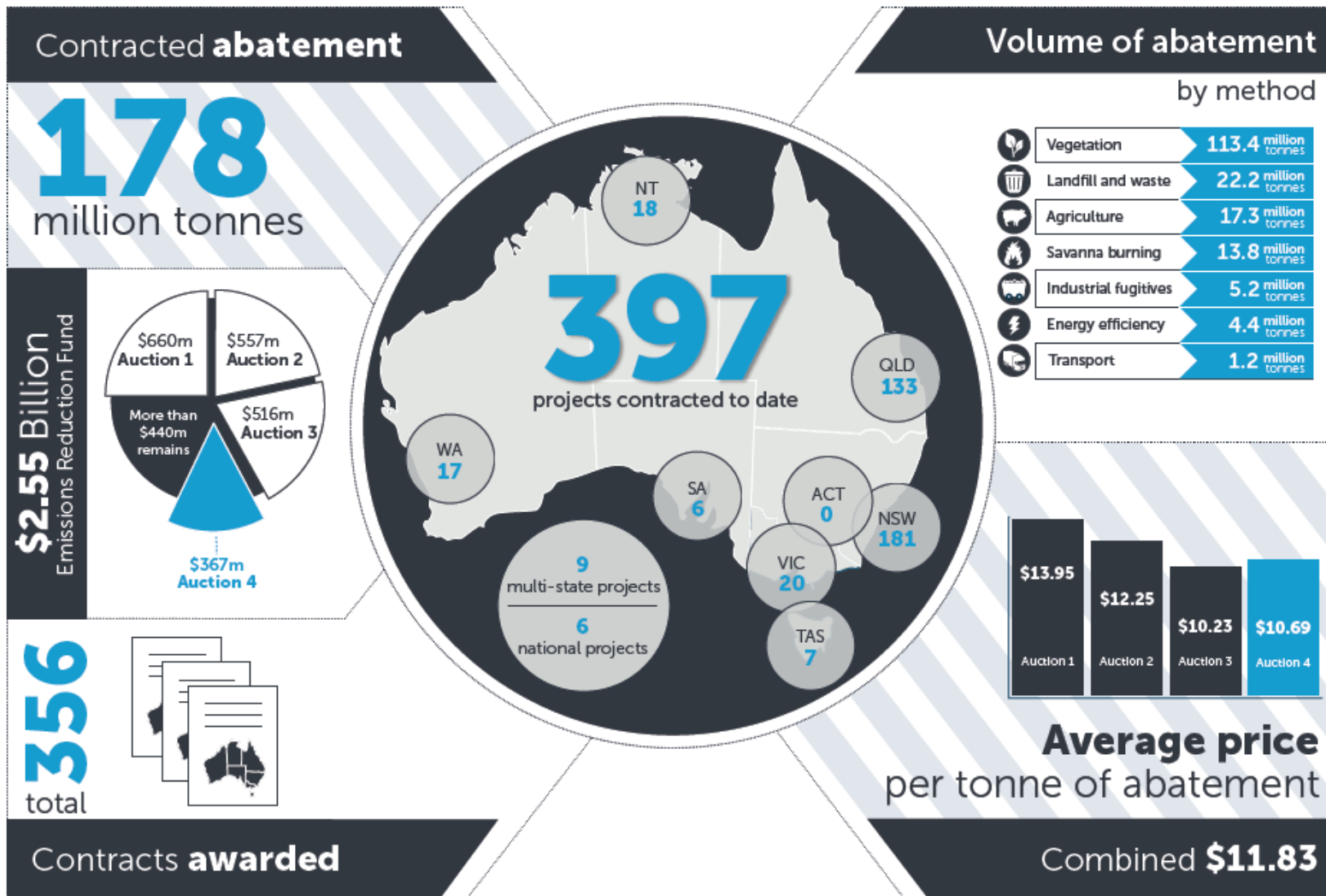
Opportunities

- On-site renewable energy generation
- Energy efficiency
- Electric vehicles
- Carbon Farming Initiative/Emissions Reduction Fund
 - Destruction of methane generated from dairy manure in covered anaerobic ponds
 - Reducing greenhouse gas emissions in milking cows through feeding dietary additives
- Soil carbon; vegetation management; plantings
- Participation in future carbon market (under Safeguard Mechanism) or international carbon market (via Paris Agreement mechanisms)

Combined results for all auctions Emissions Reduction Fund

Released 24 November 2016

ES/16
The Clean Energy Regulator is the agency responsible for administering the Emissions Reduction Fund as set out in the legislation in the following link
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