

# **Carbon pricing mechanism and waste - technical session**

## **ALGA National Waste Forum**

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# Introduction

- High level overview - carbon pricing mechanism
  - covered emissions
  - liability thresholds
  - eligible emissions units
  - timelines
- Solid waste basics
- The solid waste calculator and scenario
- Management of waste emissions liability

# Carbon pricing mechanism – two stages

## **Stage 1: Fixed price period**

- Three years
- Liable entities purchase units up to emissions levels
- Units cannot be traded or banked

## **Stage 2: Flexible price period**

- From 1 July 2015
- Auctions to commence first half of 2014
- Pollution caps set by Government through Regulations

# Covered emissions

Scope 1 emissions (released directly as a result of facility activities)

- Includes:
  - CO<sub>2</sub>
  - Methane
  - Nitrous oxide
  - Perfluorocarbons from aluminium production
- Excludes:
  - agricultural emissions
  - fuels subject to customs or excise
  - fugitive emissions from decommissioned underground coal mines
  - synthetic greenhouse gases
  - combustion of biomass, biofuel and biogas
  - legacy emissions from the operation of a landfill

## Liability threshold

- An entity has a liability if:
  - it has operational control of a facility with covered emissions of 25,000 tonnes; or
  - it operates a large gas consuming facility
- For a landfill facility:
  - covered + legacy emissions of 25,000 tonnes or more of CO<sub>2</sub>-e per annum
  - only liable for new emissions – those emissions from waste deposited after 1 July 2012

# Prescribed distance

- Provision has been made in the *Clean Energy Act 2011* to capture smaller landfills that are within a 'prescribed distance' of a designated large landfill facility
- A small landfill facility generates  $\geq 10,000$  tonnes CO<sub>2</sub>-e per annum
- A large landfill facility generates  $\geq 25,000$  tonnes CO<sub>2</sub>-e per annum
- Measure designed to prevent waste diversion
- Currently the prescribed distance is set to zero
- The Climate Change Authority will review the prescribed distance in the future

## Eligible emission units

- An eligible emissions unit is one of the following:
  - a carbon unit
  - an eligible Australian Carbon Credit Unit (ACCU), or
  - an eligible international emissions unit.
- Each unit represents one tonne of CO<sub>2</sub>-e
- Surrendered electronically from an account in the Australian National Registry of Emissions Units

## Satisfying a liability

Liable entities must:

- report under the National Greenhouse and Energy Reporting Act (NGER Scheme) on the extent of their emissions, and
- satisfy their liability for each tonne of CO<sub>2</sub>-e they emit, either by surrendering emissions units or paying a unit shortfall charge.

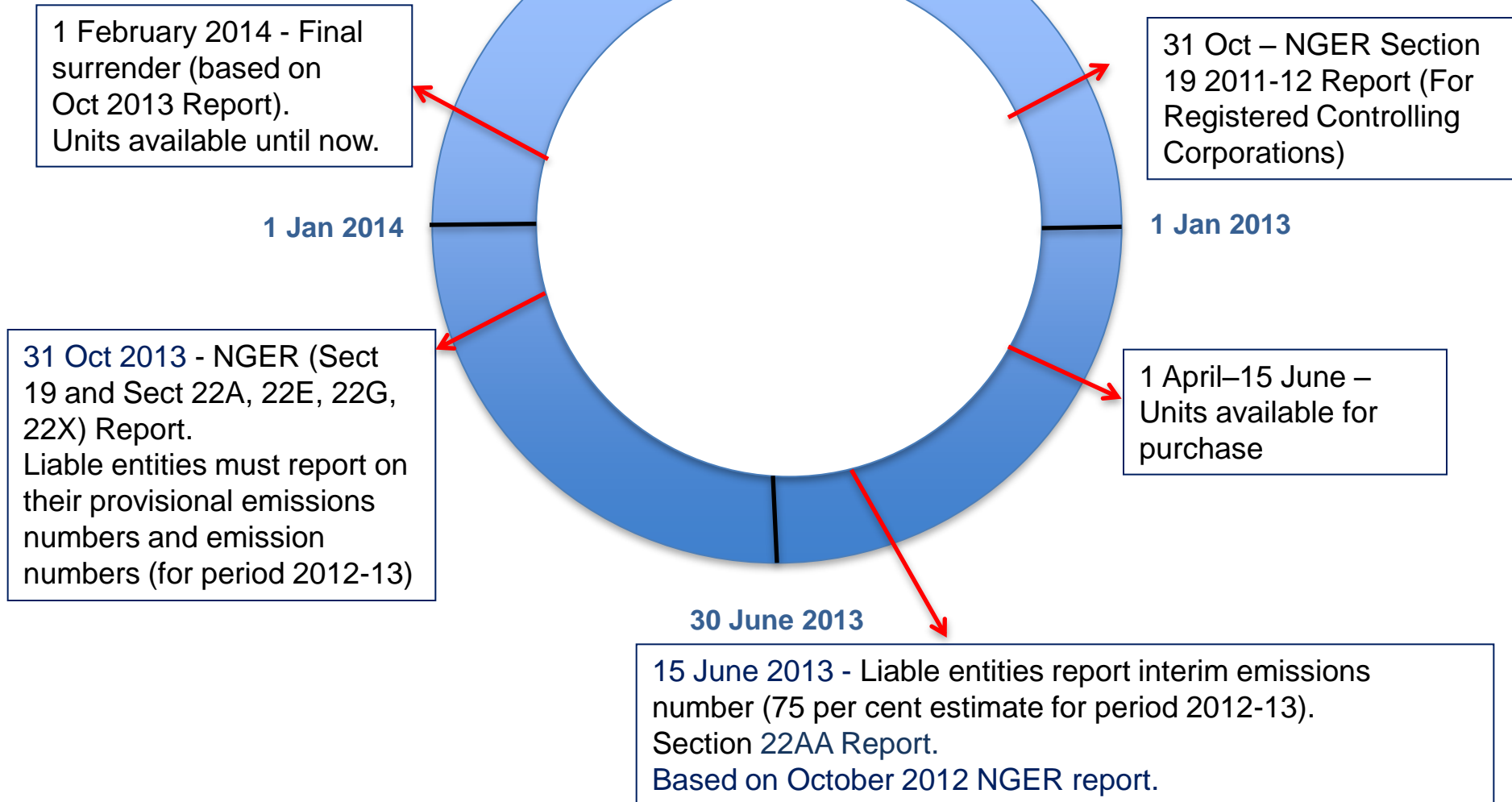


# Registration and Carbon Units

- Register under the *National Greenhouse and Energy Reporting Act 2007*
- Establish an account under the *Australian National Registry of Emission Units Act 2011*
- Acquire and surrender carbon units under the *Clean Energy Act 2011*

# Reporting Timeline

First **fixed charge year** means *eligible financial year* beginning 1 July 2012



## Interim emissions number

A liable entity will have an interim emissions number for a facility except where:

- a report under the NGER Scheme for the previous financial year was not required;
- the facility had covered emissions of less than 35,000 tonnes in the previous financial year; or
- the facility is reasonably expected to have covered emissions of less than 35,000 tonnes in the current financial year.

# Surrendering emission units

- Two choices:
  - acquire and surrender emissions
  - or
  - pay unit shortfall.
- To avoid a unit shortfall charge for a financial year, emissions units must be surrendered by:
  - 15 June in the financial year for the liability for an interim emissions number (if any); and
  - 1 February in the year following the relevant financial year for a full liability or the balance of a liability.

# Unit shortfall charge

- Incurred if liability not fully satisfied by due date
- Unit shortfall charge
  - = total liability - amount surrendered x specified amount
- Fixed price period
  - 130 per cent of the fixed price payable for carbon units of the vintage of the carbon units not surrendered
- Flexible price period
  - either an amount specified in regulations, or 200 per cent of the 'benchmark average auction charge' for the previous financial year
- Failure to pay the unit shortfall charge will incur a late payment penalty

# Audits under the Clean Energy Regulator

- Annual National Greenhouse and Energy Reporting (NGER) Audit Program
- NGER Compliance Audits
- Applications for:
  - Carbon Farming Initiative
  - Jobs and Competitive Program
  - Partial Exemption Certificates (Renewable Energy Target)
  - Coal Fired Generators Assistance

# Landfill types

## Primary sectors:

- Municipal solid waste
- Commercial and industrial waste
- Construction and demolition waste



# Waste types

- Food
- Paper and paper board
- Garden and park
- Wood and wood waste
- Textiles
- Sludge
- Nappies
- Rubber and leather
- Inert waste (including concrete, metal, plastic and glass)

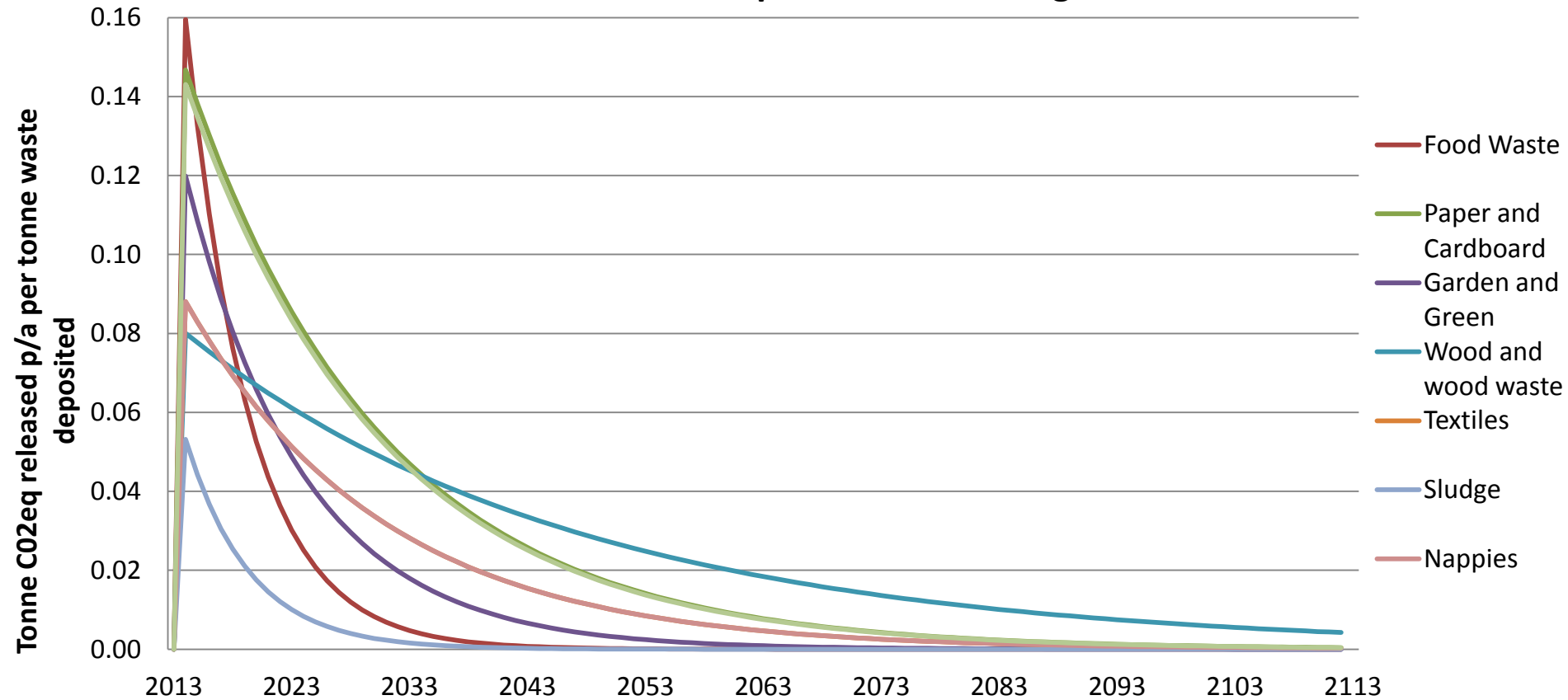




# Emissions profile

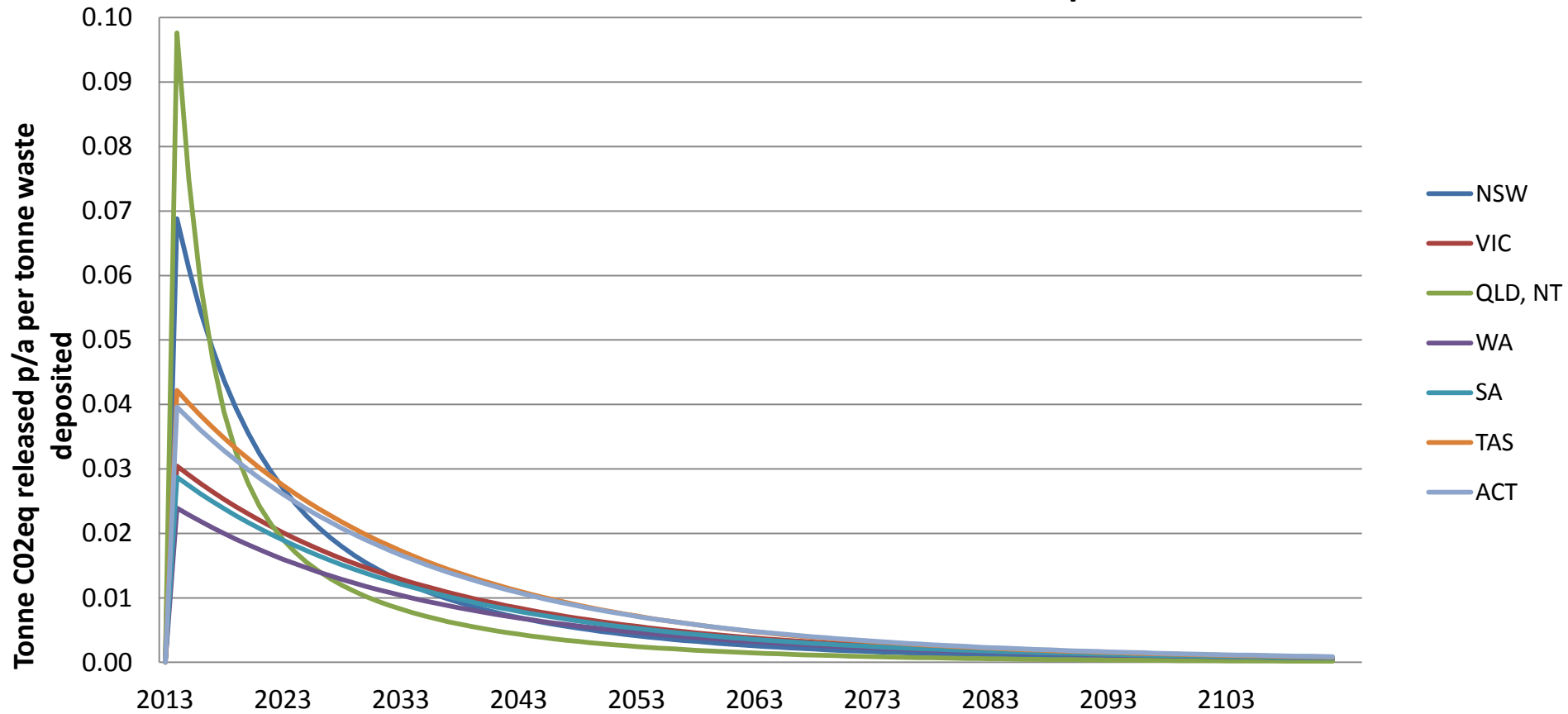
Different waste types release different emission levels over different time periods

Emissions release profile for NSW region



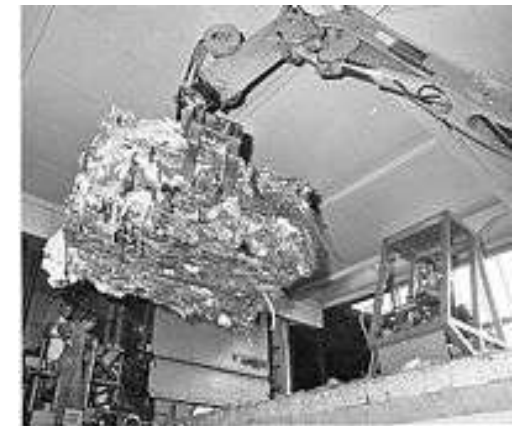
# Different regions and climatic zones

## Default waste mix emission release profile



# Sources and Coverage

- Anaerobic decomposition of organic waste
  - degrades to methane (covered)
- Some from transport and sorting
  - not covered (for carbon pricing purposes)
- Some from electricity use
  - not covered (for carbon pricing purposes)



# The 2011-12 solid waste calculator



Australian Government  
Clean Energy Regulator

Read "Solid Waste Disposal on Land User Guide" for important information on:

- the landfill facility activities that must be reported (energy/emissions)
- how to use this calculator
- OSCAR reporting

[Please click here for user guide!](#)

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References: NGER Determ., IPCC 2006 G'lines Vol. 5, Clean Energy Act, CFI Act	NGER Determ. Section 5.5	NGER Determ. Section 5.4						NGER Determ. Section 5.4; IPCC 2006 Equation 3.6	NGER Determ. Section 5.4; Clean Energy Act Section 23-25	
<b>2014</b>	<b>Input: (&lt;---) reporting year, State/Terr., landfill open year (below), Waste (t), Q<sub>cap</sub>, Q<sub>flared</sub>, Q<sub>tr</sub>. Note: fin. year ending,</b>				<b>No input required in the fields below</b>					
<b>NSW</b>	Waste received landfill (t)	Q <sub>cap</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Q <sub>flared</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Q <sub>tr</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Total captured (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>flared</sub> ) (t CO <sub>2</sub> -e)	Legacy capture (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>flared</sub> ) (t CO <sub>2</sub> -e)	Post-legacy capture (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>flared</sub> ) (t CO <sub>2</sub> -e)	CH <sub>4</sub> * (t CO <sub>2</sub> -e)	CH <sub>4</sub> gen (t CO <sub>2</sub> -e)	Total emissions E <sub>j</sub> (CO <sub>2</sub> -e) (t)

Available at [www.cleanenergyregulator.gov.au/National-Greenhouse-and-Energy-Reporting/Forms-and-calculators](http://www.cleanenergyregulator.gov.au/National-Greenhouse-and-Energy-Reporting/Forms-and-calculators)

## Sample scenario

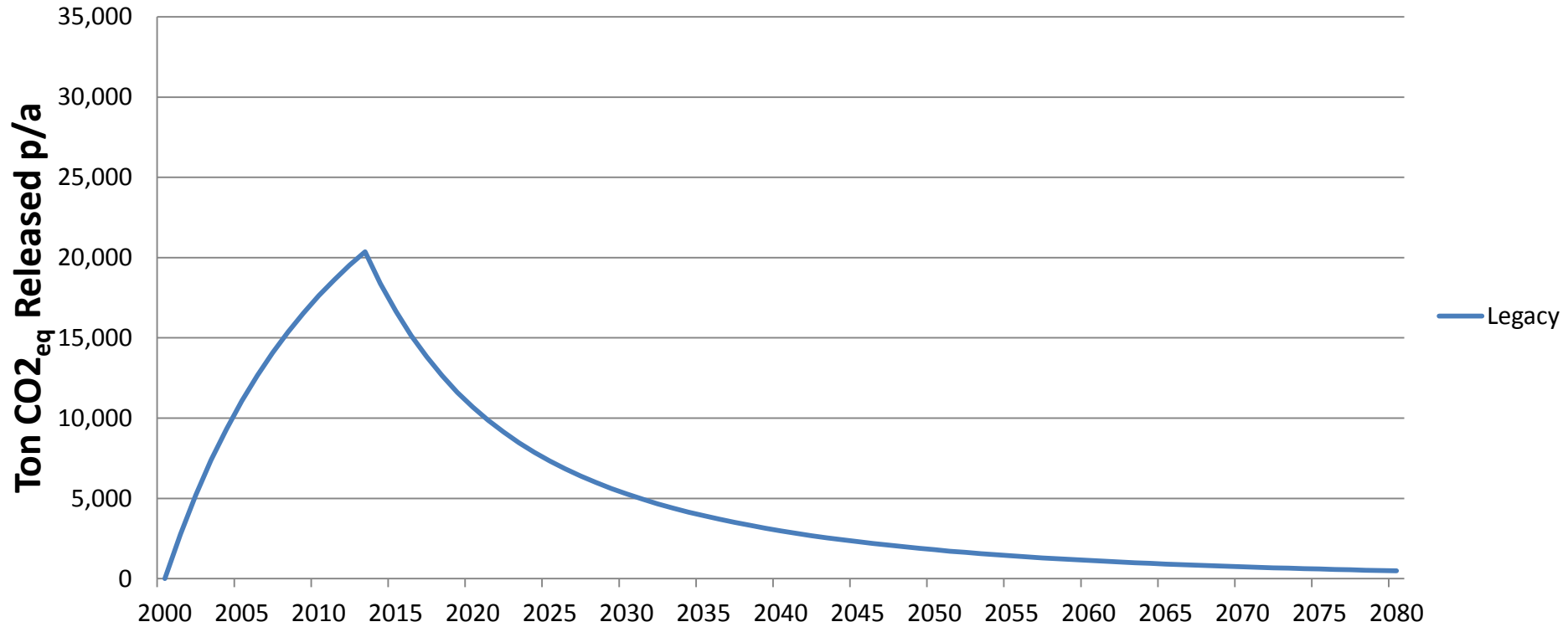
### **‘Sunny Place Landfill’**

- **Location:** NSW
- **Constructed:** 2000
- **Expected life:** 30 years
- **Capacity:** 40,000 tonnes/annum
- **Mitigation Technologies:** None
- **Waste mix type:** 2010-11 default

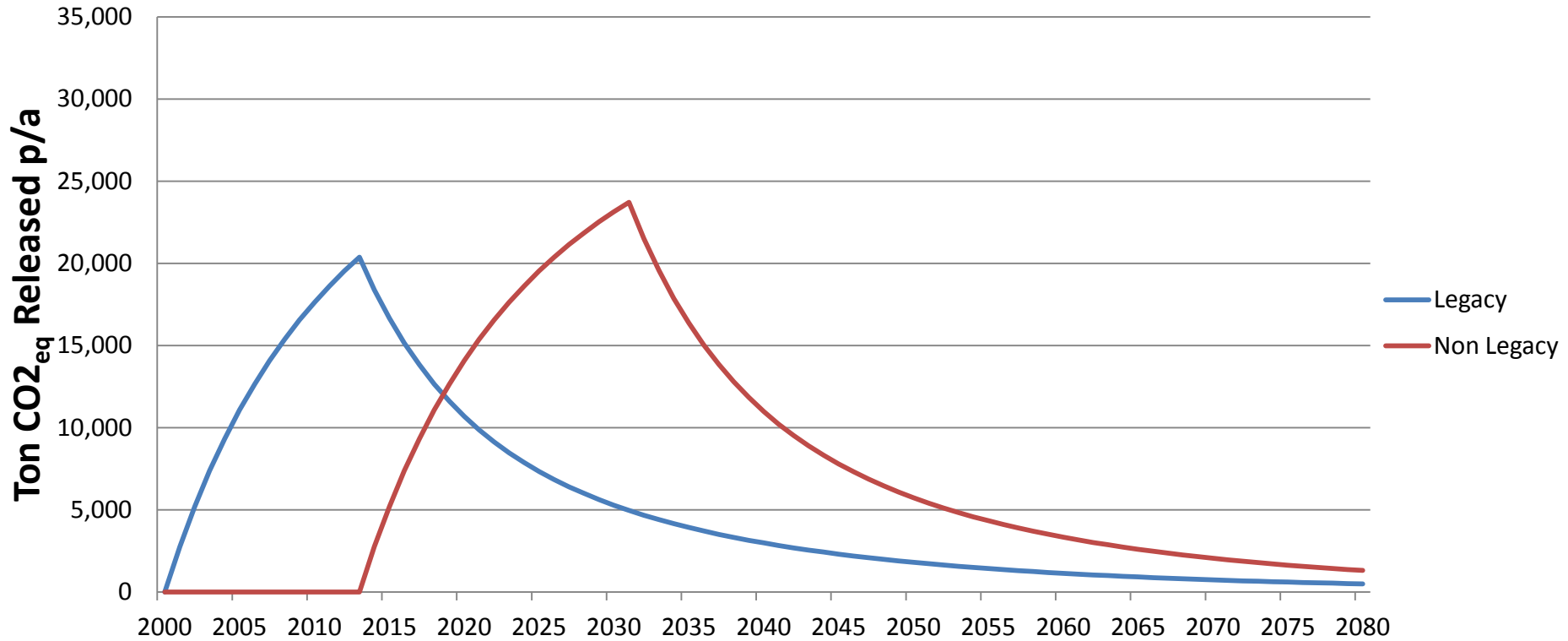
# Scenario

NSW	Waste received landfill (t)	Q <sub>cap</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Q <sub>flared</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Q <sub>tr</sub> (CH <sub>4</sub> only) (m <sup>3</sup> )	Total captured (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>fla</sub> red) (t CO <sub>2</sub> -e)	Legacy capture (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>fla</sub> red) (t CO <sub>2</sub> -e)	Post-legacy capture (Q <sub>cap</sub> +Q <sub>tr</sub> +Q <sub>fla</sub> red) (t CO <sub>2</sub> -e)	CH <sub>4</sub> * (t CO <sub>2</sub> -e)	CH <sub>4</sub> gen (t CO <sub>2</sub> -e)	Total emissions E <sub>j</sub> (CO <sub>2</sub> -e) (t)	Legacy emissions (CO <sub>2</sub> -e) (t)	Post-legacy emissions (CO <sub>2</sub> -e) (t)
2000	40,000	0	0	0	0.00	0.00	0.00	0	0	0	0	0
2001	40,000	0	0	0	0.00	0.00	0.00	3,840	3,840	3,456	3,456	0
2002	40,000	0	0	0	0.00	0.00	0.00	7,183	7,183	6,464	6,464	0
2003	40,000	0	0	0	0.00	0.00	0.00	10,102	10,102	9,092	9,092	0
2004	40,000	0	0	0	0.00	0.00	0.00	12,662	12,662	11,396	11,396	0
2005	40,000	0	0	0	0.00	0.00	0.00	14,914	14,914	13,422	13,422	0
2006	40,000	0	0	0	0.00	0.00	0.00	16,902	16,902	15,212	15,212	0
2007	40,000	0	0	0	0.00	0.00	0.00	18,665	18,665	16,799	16,799	0
2008	40,000	0	0	0	0.00	0.00	0.00	20,234	20,234	18,211	18,211	0
2009	40,000	0	0	0	0.00	0.00	0.00	21,635	21,635	19,472	19,472	0
2010	40,000	0	0	0	0.00	0.00	0.00	22,892	22,892	20,602	20,602	0
2011	40,000	0	0	0	0.00	0.00	0.00	24,022	24,022	21,619	21,619	0
2012	40,000	0	0	0	0.00	0.00	0.00	25,042	25,042	22,538	22,538	0
2013	40,000	0	0	0	0.00	0.00	0.00	25,966	25,966	23,370	23,370	0
2014	40,000	0	0	0	0.00	0.00	0.00	26,806	26,806	24,126	20,670	3,456
2015	40,000	0	0	0	0.00	0.00	0.00	27,572	27,572	24,815	18,351	6,464
2016	40,000	0	0	0	0.00	0.00	0.00	28,273	28,273	25,445	16,353	9,092
2017	40,000	0	0	0	0.00	0.00	0.00	28,915	28,915	26,023	14,628	11,396
2018	40,000	0	0	0	0.00	0.00	0.00	29,505	29,505	26,555	13,133	13,422
2019	40,000	0	0	0	0.00	0.00	0.00	30,050	30,050	27,045	11,833	15,212
2020	40,000	0	0	0	0.00	0.00	0.00	30,553	30,553	27,497	10,699	16,799
2021	40,000	0	0	0	0.00	0.00	0.00	31,018	31,018	27,917	9,706	18,211
2022	40,000	0	0	0	0.00	0.00	0.00	31,450	31,450	28,305	8,834	19,472
2023	40,000	0	0	0	0.00	0.00	0.00	31,852	31,852	28,667	8,065	20,602
2024	40,000	0	0	0	0.00	0.00	0.00	32,226	32,226	29,003	7,384	21,619
2025	40,000	0	0	0	0.00	0.00	0.00	32,575	32,575	29,317	6,780	22,538
2026	40,000	0	0	0	0.00	0.00	0.00	32,901	32,901	29,610	6,241	23,370
2027	40,000	0	0	0	0.00	0.00	0.00	33,205	33,205	29,885	5,759	24,126
2028	40,000	0	0	0	0.00	0.00	0.00	33,490	33,490	30,141	5,326	24,815
2029	40,000	0	0	0	0.00	0.00	0.00	33,758	33,758	30,382	4,937	25,445
2030	40,000	0	0	0	0.00	0.00	0.00	34,009	34,009	30,608	4,585	26,023
2031	0	0	0	0	0.00	0.00	0.00	34,245	34,245	30,820	4,266	26,555
2032	0	0	0	0	0.00	0.00	0.00	30,627	30,627	27,564	3,975	23,589
2033	0	0	0	0	0.00	0.00	0.00	27,493	27,493	24,744	3,710	21,033
2034	0	0	0	0	0.00	0.00	0.00	24,770	24,770	22,293	3,468	18,825

## Sample scenario - emissions release profile

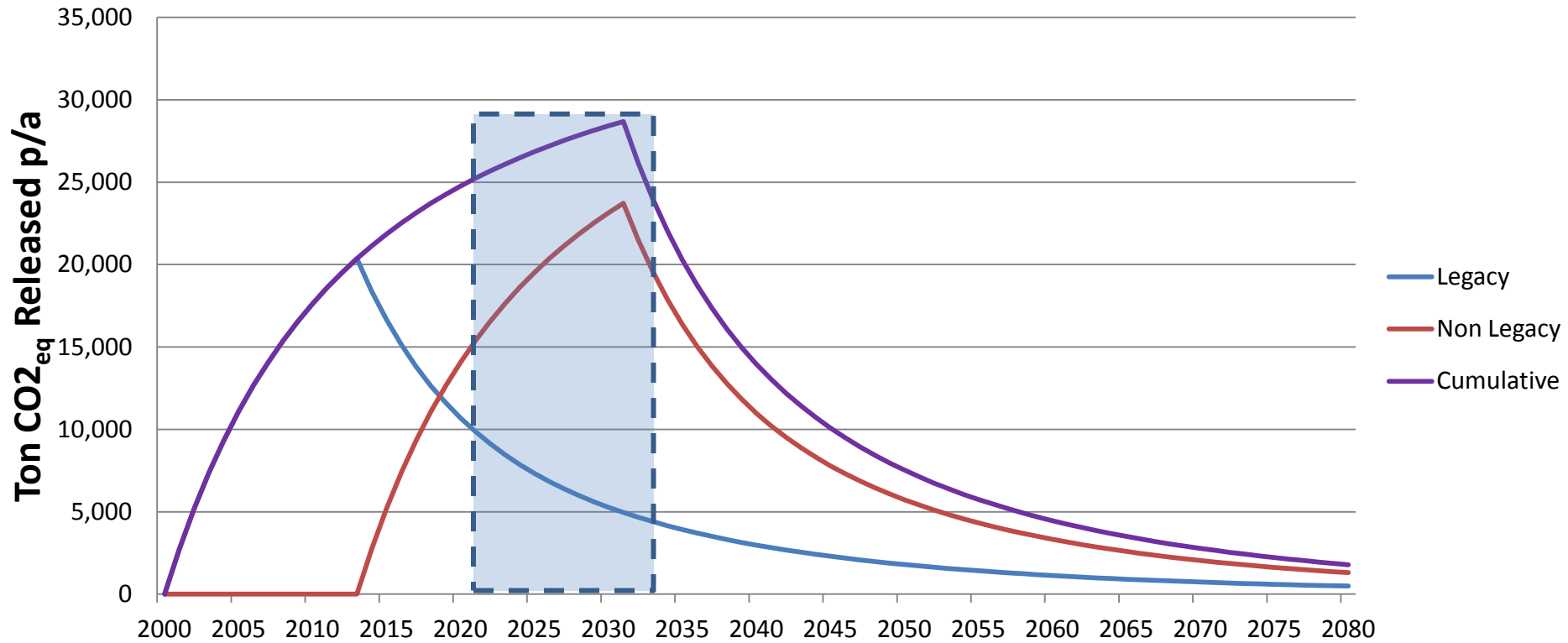


## Sample scenario- emissions release profile

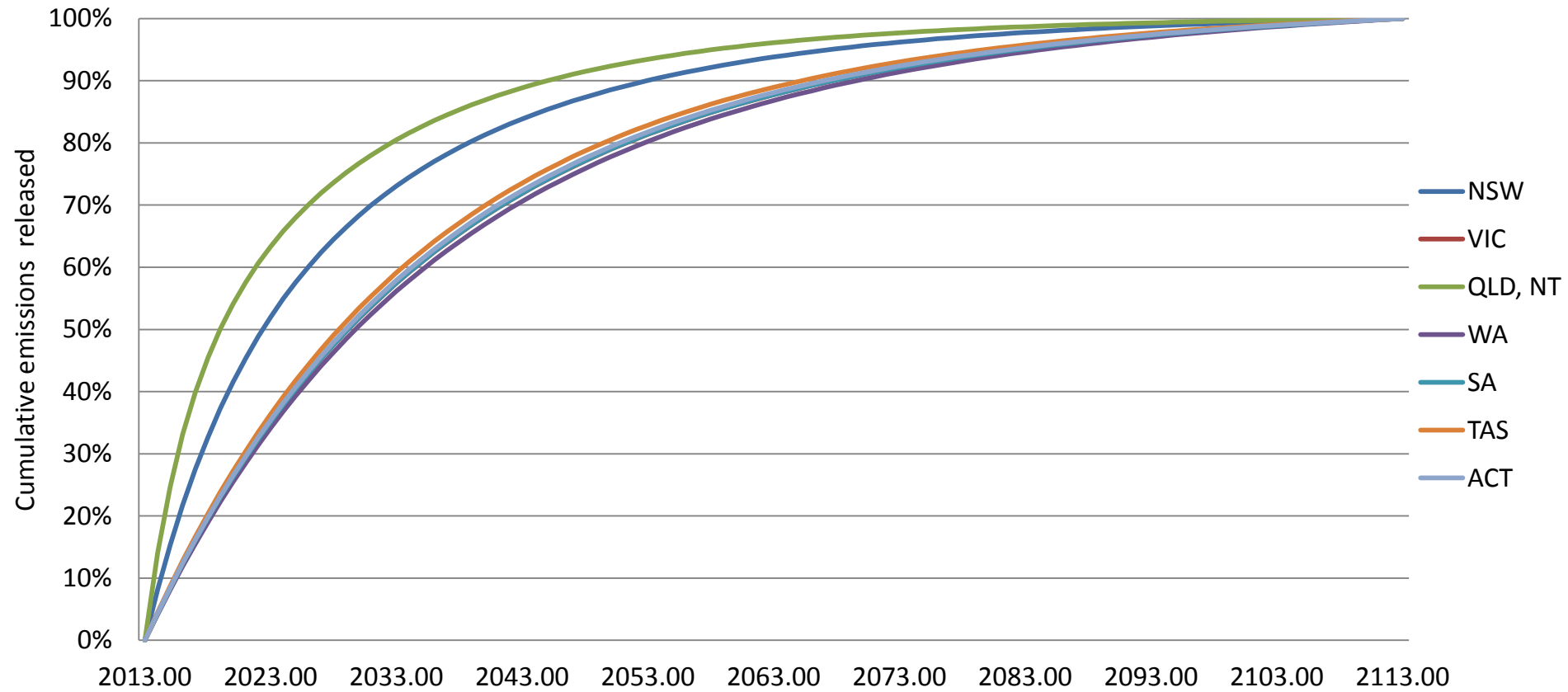




## Sample scenario - emissions release profile



## Cumulative emissions release profile for default waste mix



# Reducing liability

- Flare, capture or transfer methane
- Produce and bank Carbon Farming Initiative (CFI) credits – Australian Carbon Credit Units (ACCU)s
- Purchase sufficient ACCUs
  - if the majority (at least 50 per cent) of a liability comes from landfill emissions, a liable entity can surrender ACCUs up to its full liability during the fixed price period
- Reduce waste deposited or divert organic waste

## Financial control Liability Transfer Certificate – example

- ‘NeverWaste’ waste contractors have operational control of a landfill generating 50,000 tonnes CO<sub>2</sub>-e p/a.
- Sunny Place Council has financial control over the landfill.
- Sunny Place Council applies to the Clean Energy Regulator for a Liability Transfer Certificate with the permission of NeverWaste.
- Sunny Place Council can now meet its liability and manage its financial obligations.

## Mandatory Designated Joint Venture – example

- Three councils together operate a landfill in a joint venture arrangement.
- Each council has some ability to set operational policies for the landfill and so it is not clear who has operational control of the facility.
- It is thus necessary to request that the Clean Energy Regulator declare a mandatory designated joint venture.
- A Participating Percentage Determination will need to be submitted with this application.

# Conclusions

- Landfill operators liable if covered plus legacy emissions of 25,000 tonnes or more of CO<sub>2</sub>-e per annum
  - only liable for new emissions – those emissions from waste deposited after 1 July 2012
- Acquit one eligible emissions unit for every tonne of new emissions
  - interim emissions number 15 June (75 per cent estimate)
  - final surrender 1 February
- Options to reduce liability