energy networks association

ENA

OPPORTUNITIES FOR GAS IN EMISSION REDUCTION POLICIES

ENERGY NETWORKS 2014

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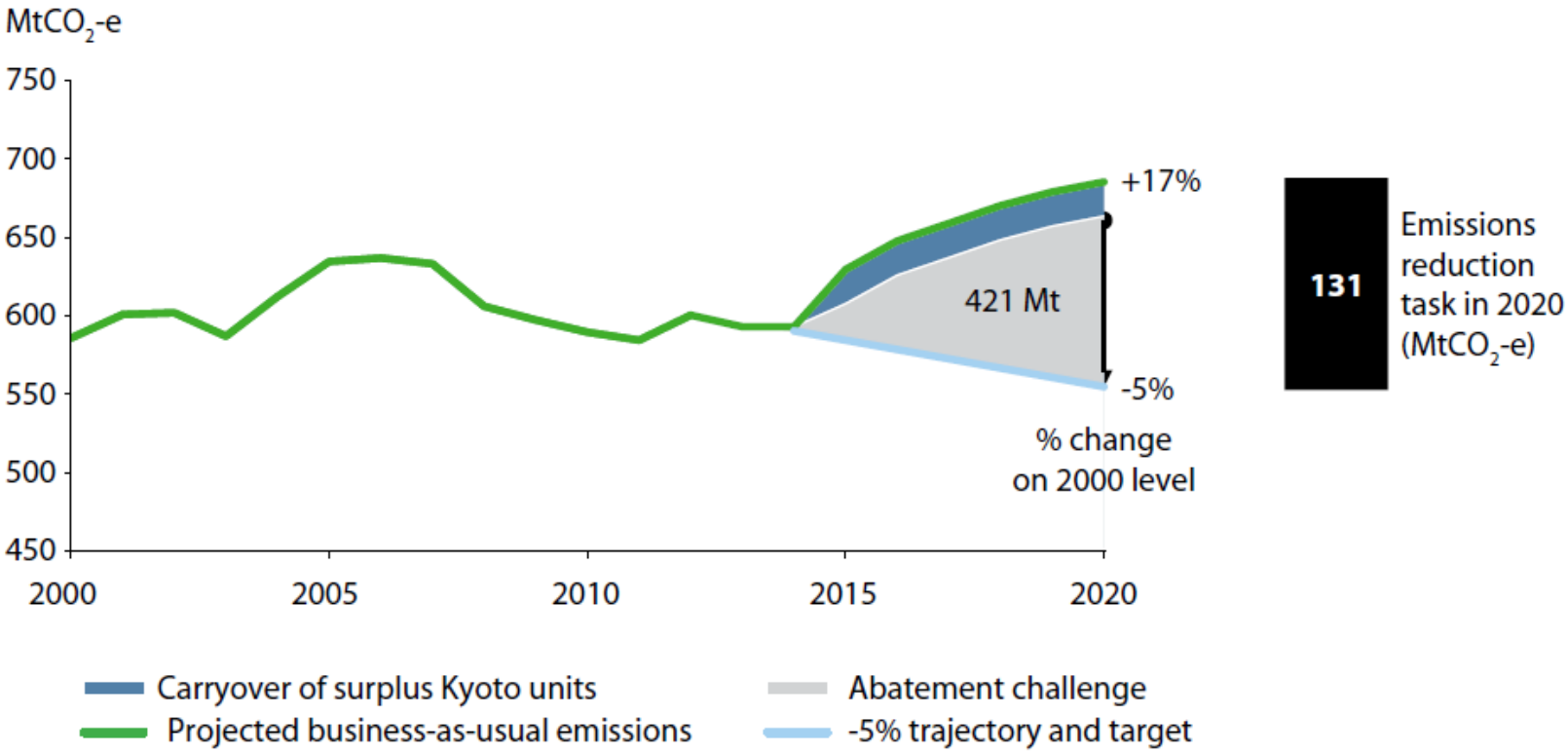
Outline

- Magnitude of the task
- How gas can assist the abatement challenge
- Current Emission Reduction measures
- Gas Hot Water Heating and the Emissions Reduction Fund
- Removing barriers to the potential of gas

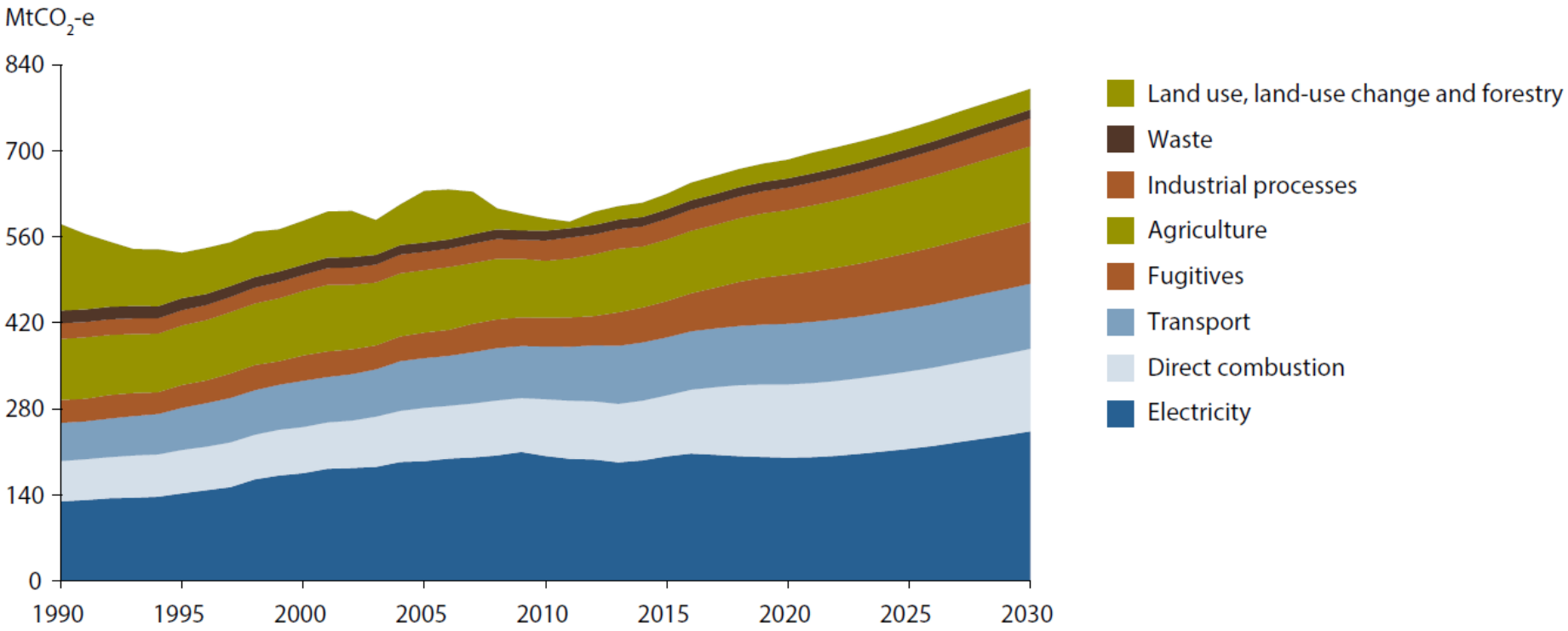
Emissions Reduction – Magnitude of the Task

Figure i: Australia's emissions reduction task to 2020



Source: Emissions Reduction Fund White Paper , 2014

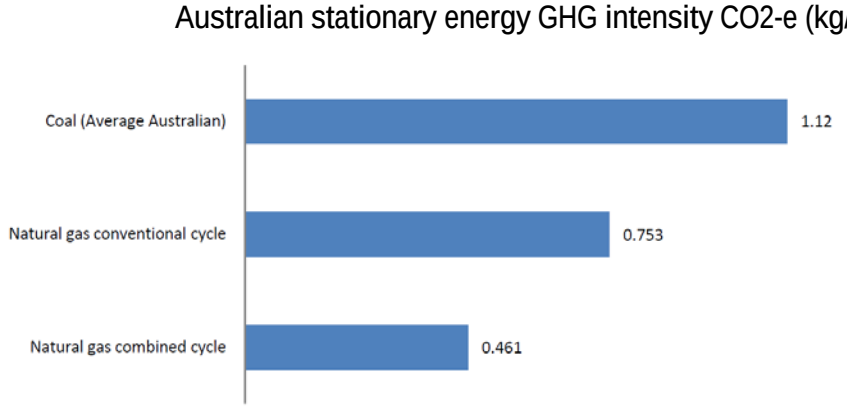
Where gas can contribute



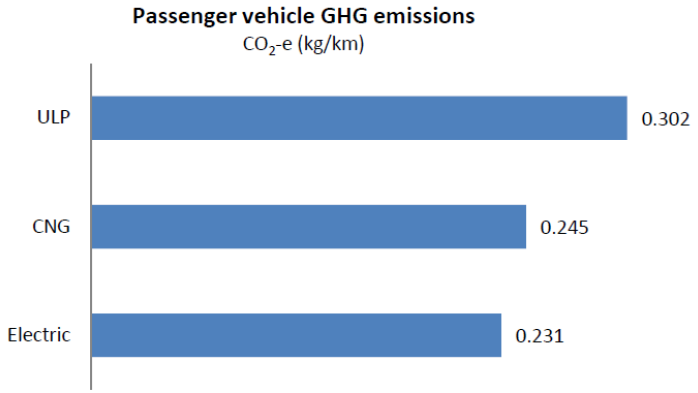
Sourcee: Australia's Abatement task and 2013 Emissions Projections, Department of Environment

Where gas can contribute

Electricity Generation



Heavy and Passenger Vehicle Transport



Sourcee: ACIL Tasman, EnergyQuest, Purvin & Gertz and Rare Consulting. (2009). Australia's future transport fuel supply options – economic implications of alternative regional supply and demand scenarios. Report prepared for Queensland Energy Resources

Gas Hot Water Heating

- Electric HWS Emissions approach 12 Mt CO-2 per year
  - Gas HWS can achieve 65% emissions abatement producing ~1 tonne CO2-e per year, vs Electric HWS of 3 tpa (NSW) or 4.5 tpa (Vic)
  - Gas water heaters on par with electric boosted heat pumps for emissions intensity
- Gas water heaters can penetrate market in areas unsuitable for solar or heatpumps (e.g. highrise or cold areas)

Challenges for Gas HWS competition…

- Changing Government policy measures on phase out of Electric Resistance increase potential for “Like for Like” replacement .
- Sensitivity to upfront rather than ‘whole of life’ cost
- Sensitivity to installation time
- Information barriers (e.g. future gas prices)
- Split incentives (e.g. tenant/landlord)

Source: ACIL Allen (2013) Analysis for the Energy Networks Association

Gas Hot Water Heating

House/location type	Abatement 'upper limit' (Mt CO_2-e)
Standalone, with gas connection	2.1
Standalone, in gas reticulation area (no connection)	1.8
Standalone, outside gas reticulation area	1.4
Multi-unit	2.1
All dwelling types	**7.5**

Note: Scope 1 & 2 emissions only; replacement with 7 star instantaneous

Source: ACIL Allen (2014) Analysis for the Energy Networks Association

Key Emission Reduction Funding Measures

Technology Neutral?

- RET
  - LRET - Costing $812m pa in 2011/12 increasing to $2.2 bn pa in 2020* ✗
  - SRET - total of $4.4 BN to 2020 * ✗
- Emissions Reduction Fund
  - $2.55 BN by 2020 – potential to increase to $4.55 BN ? ✓
- Million Solar Roofs
  - $500 million to c. 2025 ✗

* *Source: AEMC (2011) INTERIM REPORT IImpact of the enhanced Renewable Energy Target on energy markets*

Opportunity for Gas HWS replacement in ERF?

- If economic clearing price large scale aggregation schemes could be possible, recognising:
  - Proven methodologies (eg. VEET and REES)
  - Hot water use is passive, diversified over large program and relatively irreversible – lending itself to **deeming**.
- VEET and REES use deeming to reduce transaction costs
  - Average assumptions drawn from Australian Standard (AS/NZS 42234-2008) for unit size, efficiency and useful life.

Sourcee: Australia's Abatement task and 2013 Emissions Projections, Department of Environment

Price Outlook uncertain from the ERF

- Will be challenging if clearing price is as implied in funding envelope.
  - Current funding of $2.55 BN/421 mt implies max price of $6.05 per tonne;
  - If extend final year funding until 2019/20 implies max. price of $12.00 per tonne
- Recognise:
  - the actual clearing price will depend on market response.
  - Uncertainty in both the required Abatement Volumes and the Cost Curve of verifiable responses.

Impact of the Small Scale Renewable Energy Scheme

- Solar Hot Water receives $1300 to $1500 per unit SRES benefit, distorting appliance and abatement markets.
- Electric heat pumps receive $1100 per unit
- No equivalent subsidy for Gas HWS based on abatement.
- Approx. 800,000 Solar HWS installed in Australia.
- Nearly 1.2 million Solar PV units

Sourcee: Australia's Abatement task and 2013 Emissions Projections, Department of Environment

Distortion Effect of Small Scale RET on HWS…

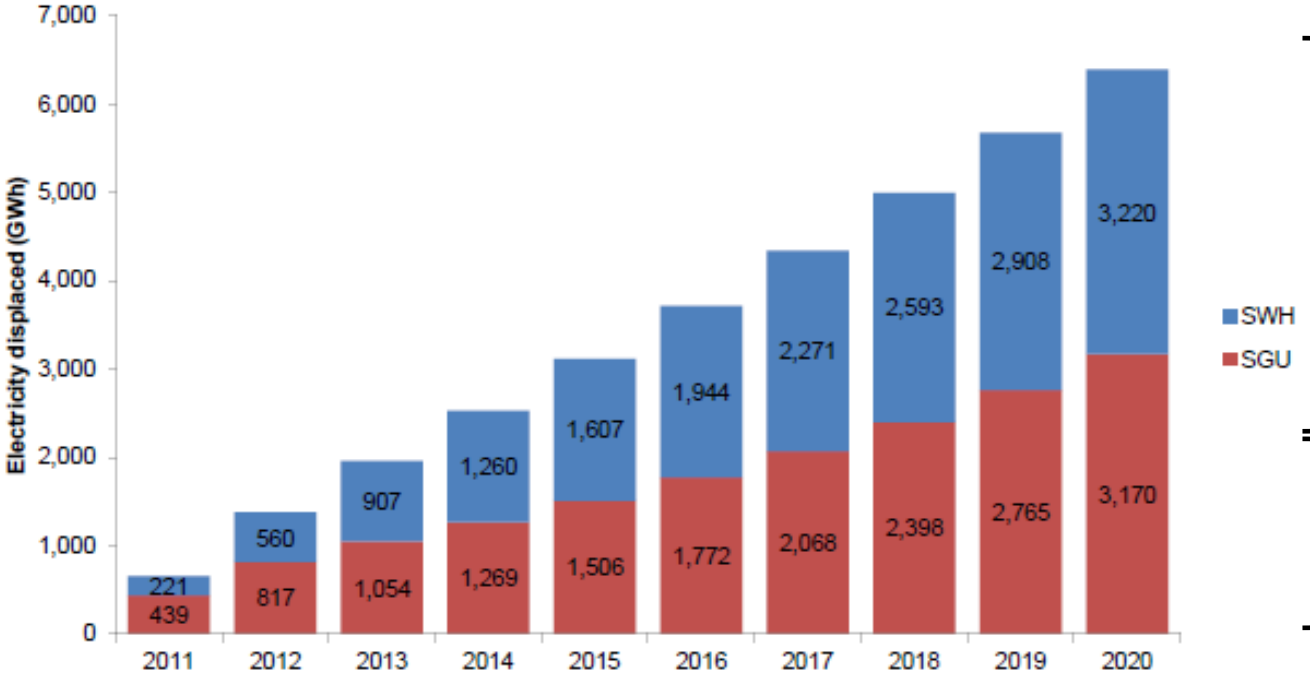
	Efficiency*	Appliance	Installation	Total	STCs	Net cost	Equivalent subsidy foregone…
Solar (gas boost)	95%	$4,000	$1,900	$5,900	$1,500	$4,400	
Solar (electric boost)	85%	$3,800	$1,500	$5,300	$1,300	$4,000	
Electric heat pump	70%	$3,200	$600	$3,900	$1,100	$2,800	
Gas (5 star instantaneous	70%	$1,400	$800	$2,200		$2,200	$1,100
Gas (5 Star storage)	65%	$1,400	$600	$2,000		$2,000	$900
Electric resistance		$1,200	$500	$1,700		$1,700	

Source: Building Codes Queensland, Review of Hot Water System Laws

*Defined as the reduction in greenhouse gas emissions compared with electric resistance hot water heaters

Outlook for revised SRES 3 years ago…

Figure 3.15 **Forecast electricity displaced by small scale technologies**



4400 GWh due to SRES

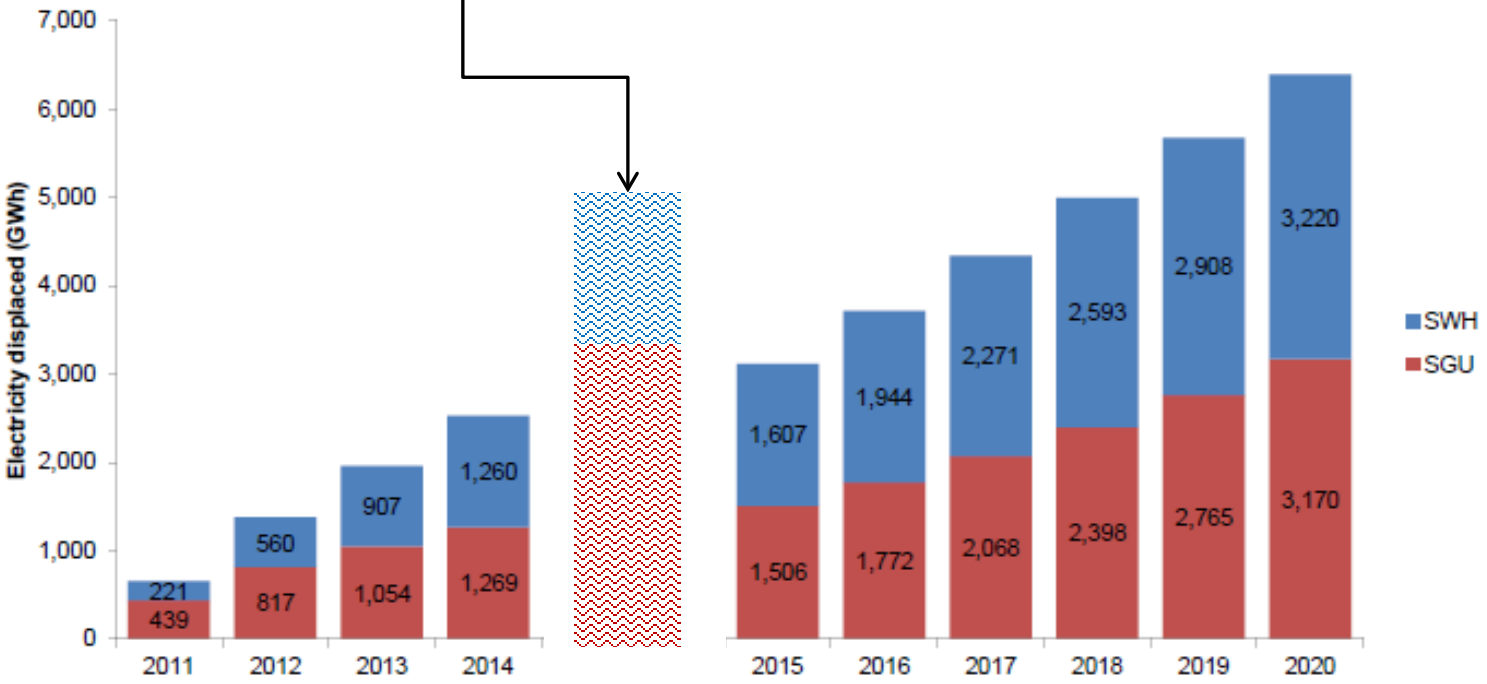
1959 GWh due to FITs

Source: AEMC (2011) INTERIM REPORT IImpact of the enhanced Renewable Energy Target on energy markets

The view today…

Over 5000 GWh from SRES. AEMO estimates Solar PV alone is now c3200 GWh

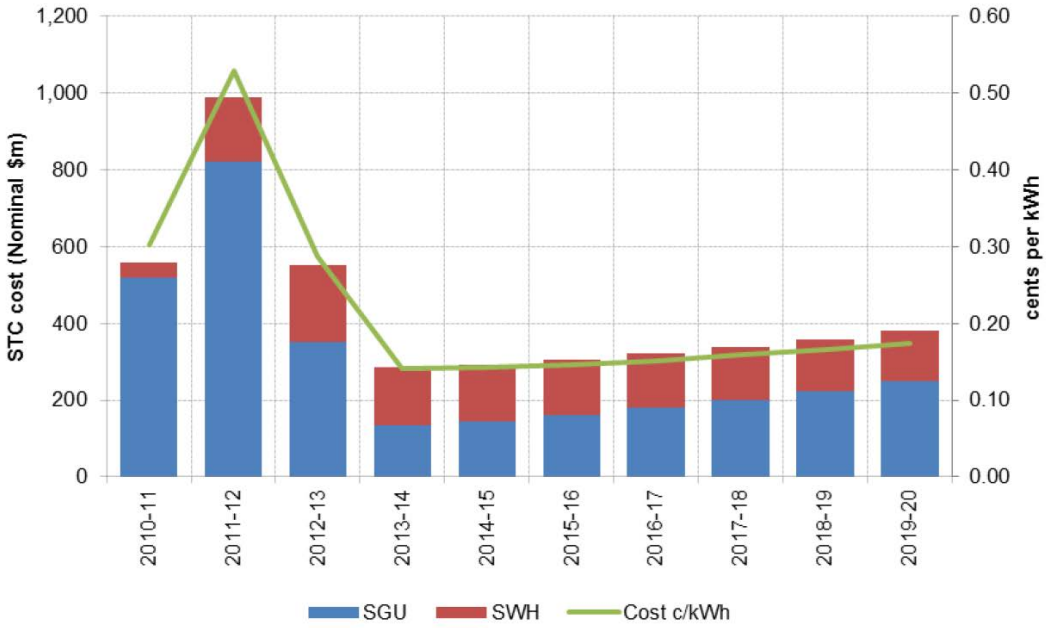
Aspirational SRES target of 4000 GWh by 2020 already exceeded



Source: AEMC (2011) INTERIM REPORT & AEMO data

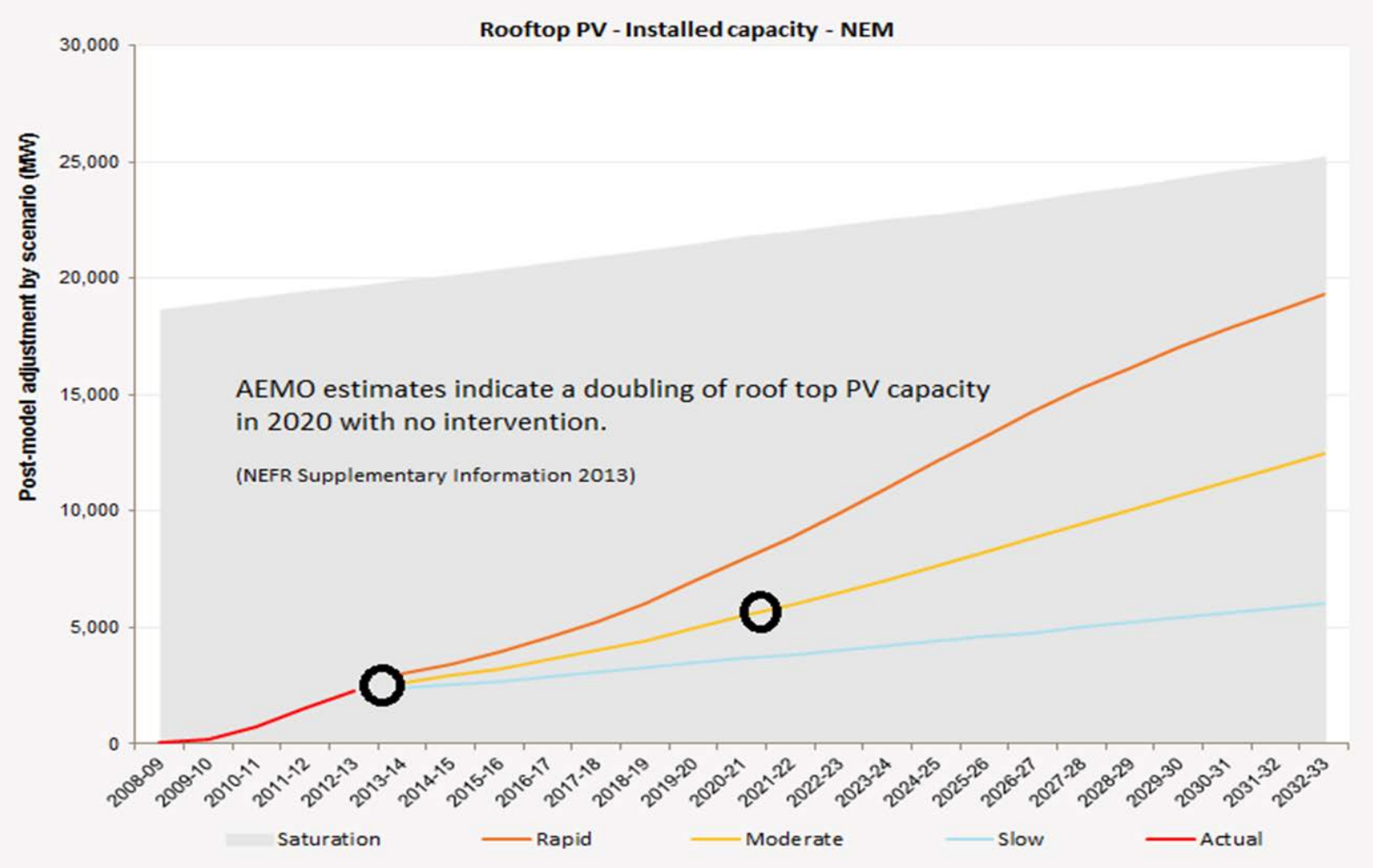
SRES represents High Cost Abatement…

- SRES expected to cost $4.4 Billion over 2011-2020, even when installations were expected to collapse after 2011/12.
- Emissions Abatement estimated at 13.3 Mt CO2-e
- Cost of Abatement estimated $500 per tonne CO2in 2011, falling to $300 per tonne in 2020.



Source: AEMC (2011) INTERIM REPORT & AEMO data

Another million solar roofs on the way…



Source: AEMC (2011) INTERIM REPORT & AEMO data

… savings available by deferring 'Million Solar Roofs'

- Coalition's Direct Action Plan (2010)

  Our goal is for one million additional solar energy roofs on homes by 2020, including either solar power or solar water heating systems (SWHs)'.

- Initiative assumes $500 rebate for either solar panels or solar hot water systems, capped at 100,000 rebates/year over 10 years.

- Key issues for ENA
  - Further Assistance to Solar Unnecessary
  - Prefer Technology neutral approach to Emissions Abatement
  - Minimising Distortionary impacts on Networks

Minimising a Gas 'Crunch' demand response …

- Reith Report cited Victorian Government modelling :
  - Average Victorian residential gas bill could increase by $180 (20%) by 2020 after peaking in 2015.

- Eastern Australian gas study assumes relatively inelastic demand for Residential, Commercial & Industrial customers.

- ENA concerned wholesale price volatility impacts -
  - consumers moving to higher emission options.
  - risk of permanent damage to Australia's domestic sector

Required action ...

- Confront wholesale price risk in *Eastern Australian Gas Supply Strategy to 2020* and the *Energy White Paper*

- ENA does not support government intervention in markets unless justified but…
  - Government should evaluate the role of a **National Interest Test** on future large-scale export gas developments, as has been adopted overseas
  - ENA supports evaluation of measures to increase **upstream transparency**
  - **Remove arbitrary barriers** to wholesale supply response, while maintaining community confidence in environmental regulation and approvals.

Better outcomes for consumers

- Least cost forms of abatement
- Market able to respond to emission reduction targets
- Integrated, rather than conflicting, policy measures
- Removal of upstream barriers and new transparency measures assessing domestic market issues.
- An adaptive management approach to solar election commitments