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# Energy Efficiency Certificate Trading in Australia

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# Presentation Topics

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- Basics of energy efficiency certificate trading
- Overview of EE certificate trading in Australia
- New South Wales Energy Savings Scheme (ESS)
- Victorian Energy Efficiency Target scheme (VEET)
- South Australian Residential Energy Efficiency Scheme (REES)
- Conclusion
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# Basics of EE Certificate Trading (1)



- Through legislation, a government imposes an obligation on a group of parties (“obligated parties”) to achieve annual energy efficiency targets
- This is an “energy efficiency obligation” also known as an “energy efficiency resource standard”
- The government or a regulator determines:
  - the eligible activities that may be undertaken to achieve energy savings that contribute to the target
  - how parties are accredited to carry out eligible energy efficiency activities and create certificates
  - how energy savings are measured and verified

# Basics of EE Certificate Trading (2)



- Parties who carry out eligible energy efficiency activities are authorised to create energy efficiency certificates for the total amount of verified energy savings they achieve
- These certificate must be registered and then they may be sold to obligated parties or to third parties
- Obligated parties must either:
  - carry out eligible energy efficiency activities themselves to achieve their EE targets; and/or
  - purchase energy efficiency certificates from other parties to make up any shortfalls from their EE targets and then surrender these certificates

# Overview of EE Certificate Trading in Australia



- In Australia, there are currently two energy efficiency certificate trading schemes in operation:
  - the Energy Savings Scheme (ESS) in the State of New South Wales (NSW); and
  - the Victorian Energy Efficiency Target scheme (VEET) in the State of Victoria
- In the State of South Australia, there is an energy efficiency target scheme without certificates, the Residential Energy Efficiency Scheme (REES)
- In addition, the Australian federal government is planning to introduce a national cap-and-trade emissions trading scheme in 2011

# NSW Energy Savings Scheme (1)



- The predecessor of ESS was an energy efficiency component of a larger emissions trading scheme (the GGAS scheme) that commenced in NSW in January 2003; this was the first operational white certificate scheme in the world
- GGAS is a baseline-and-credit scheme; it will be terminated when the national cap-and-trade emissions trading scheme is introduced (probably in 2011) because the two schemes will be incompatible
- To maintain an ongoing energy efficiency obligation, in July 2009 the NSW Government separated the Energy Savings Scheme from the GGAS scheme

# NSW Energy Savings Scheme (2)



- Under ESS, the obligated parties are electricity retailers
- The total energy savings requirement across all the NSW electricity retailers each year is set as a percentage of the liable electricity sales for that year
- Each retailer's individual target is calculated based on their percentage of total electricity sales in that year
- Energy savings are measured in kilowatt-hours and kilowatt-hour savings are converted to tonnes of CO2 equivalent; each Energy Savings Certificate is equivalent to one abated tonne of CO2 equivalent
- Retailers who do not meet their targets must pay a shortfall penalty per tCO2-e; this penalty sets the maximum price per certificate in the trading market

# NSW Energy Savings Scheme (3)



- Eligible energy efficiency activities can be carried out in the residential, commercial or industrial sectors and generally must be individually approved by the scheme administrator
- However, the scheme rules also include a list of deemed energy saving values (in MWh) for specified energy efficiency activities
- These are mainly activities in the residential sector, eg installation of energy efficient lamps, purchase of a new high efficiency household appliance
- Deemed energy savings values are also included for energy efficient motors and commercial lighting

# Victorian Energy Efficiency Target Scheme (1)



- Under VEET, the obligated parties are energy retailers (both electricity and gas retailers)
- While VEET is an energy efficiency scheme the unit of measurement is emissions abatement (tCO<sub>2</sub>-e) rather than reduction in energy use (MWh)
- The VEET legislation establishes an annual target of avoided GHG emissions to be achieved by major energy retail businesses in Victoria through improvements to household energy efficiency

# Victorian Energy Efficiency Target Scheme (2)



- Victorian Energy Efficiency Certificates (VEECs) may be created by implementing any of a list of eligible energy efficiency activities prescribed by regulations; the regulations also deem the number of VEECs that can be created for each eligible activity
- One VEEC represents lifetime abatement of one tonne of CO2 equivalent
- Eligible EE activities cover six areas in the residential sector, including replacing an electric water heater with a gas or solar one, installing ceiling or under floor installation, installing energy efficient lamps, and purchasing a high efficiency refrigerator or freezer

# Victorian Energy Efficiency Target Scheme (3)



- Under VEET, certificate creators offer householders energy efficiency products selected from the list of eligible EE activities
- After accepting an offer, householders sign a form assigning to the certificate creator the right to create VEECs based on an eligible activity having taken place in the householders' premises
- Once the VEECs have been created and registered, the creator is free to sell them to the obligated parties (energy retailers) or to third parties
- The maximum price is set by the penalty payable by obligated parties if they fail to meet their targets

# Residential Energy Efficiency Scheme (1)



- Under REES, the obligated parties are all electricity and gas retailers in the State of South Australia who supply more than 5,000 residential customers
- Obligated retailers are required to achieve three annual targets:
  - to achieve a set amount of greenhouse gas savings (tCO<sub>2</sub>-e) by implementing approved energy efficiency activities in households;
  - to achieve a set proportion of the GHG savings target in low income and disadvantaged households;
  - to undertake a set number of energy audits in low income and disadvantaged households

# Residential Energy Efficiency Scheme (2)



- Individual targets are allocated to obligated retailers based on formulae that take into account greenhouse gas emissions associated with residential energy sales, accredited GreenPower sales to residential customers, and residential customer numbers
- REES is not based on tradeable energy efficiency certificates; instead retailers accumulate credits towards their three targets
- Retailers may choose to transfer any excess credits to another obligated retailer; this enables a limited amount of 'trading' of credits

# Conclusions (1)



- In Australia, the primary objective for imposing energy efficiency obligations on electricity retailers is to mitigate climate change through reducing GHG emissions; assisting disadvantaged household is important only in the South Australian scheme
- The NSW scheme aims to achieve low cost emissions abatement in all three sectors: residential, commercial and industrial
- In Victoria and South Australia, energy efficiency obligations have been directed entirely towards the residential sector

# Conclusions (2)



- The Australian schemes make extensive use of deemed savings for specified individual EE measures
- In NSW, deemed savings in the original GGAS scheme stimulated the development of new entrepreneurial businesses that carried out mass distribution of energy efficient devices such as compact fluorescent lamps and water efficient showerheads; rule changes were required to ensure that these devices were actually installed
- Deemed savings also work against adopting a “whole house” approach to energy efficiency improvements because certificate creators concentrate on implementing only the deemed measures

# Information Resources



- David Crossley: [crossley@efa.com.au](mailto:crossley@efa.com.au)
- Energy Futures Australia, my company's website: [www.efa.com.au](http://www.efa.com.au)
- My paper on the NSW GGAS scheme in the international journal *Energy Efficiency*: <http://www.springerlink.com/content/px01053860418332/fulltext.pdf>
- ESS Website: [www.ess.nsw.gov.au/](http://www.ess.nsw.gov.au/)
- VEET website: <http://www.esc.vic.gov.au/public/VEET/Victorian+Energy+Efficiency+Target+scheme.htm>
- REES website: <http://www.escosa.sa.gov.au/site/page.cfm?u=290>



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# Additional Slides

# Results and Targets (1)



## **New South Wales GGAS Scheme**

During the period July 2003 to December 2008, just over 90 million tCO<sub>2</sub>-e of greenhouse gas emissions were abated under GGAS

26.75 million tCO<sub>2</sub>-e were abated from energy efficiency projects; 24.5 million tCO<sub>2</sub>-e were from energy efficiency projects in the residential sector

# Results and Targets (2)



## Energy Savings Scheme

In the first four years of the Scheme, it is estimated that 8.5 million megawatt-hours of electricity will be saved; this is equivalent to around 8.5 million tCO<sub>2</sub>-e of GHG

<b>Year</b>	<b>Effective Scheme Target (% of annual NSW electricity sales)</b>	<b>Retailer Compliance Obligation (% of annual liable electricity sales)</b>
2009 (from 1 July)	0.4%	0.5%
2010	1.2%	1.5%
2011	2.0%	2.5%
2012	2.8%	3.5%
2013	3.6%	4.5%
2014–2020	4.0%	5.0%

# Results and Targets (3)



## Victorian Energy Efficiency Target Scheme

The target for Phase 1 of VEET was set as 2.7 million tCO<sub>2</sub>-e GHG emissions avoided in each of the first three years of operation of the scheme (a total of 8.1 million)

## Residential Energy Efficiency Scheme

Target	2009	2010	2011
Annual greenhouse gas reduction target (tCO <sub>2</sub> -e)	155,000	235,000	255,000
Percentage of annual greenhouse gas reduction target to be achieved in low income households	35%	35%	35%
Number of energy audits to be delivered to low income households	3,000	5,000	5,000