

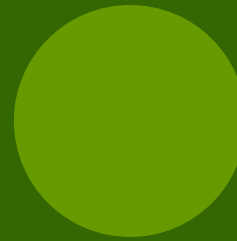


De-mystifying GreenPower

Brad Shone, Alternative Technology Association

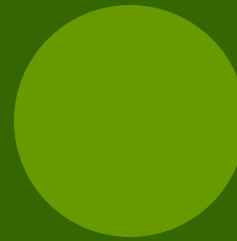
Building and Home Improvement Expo 2007

Overview



- Why GreenPower?
- What is GreenPower?
- The National Electricity Market
- The Mandatory Renewable Energy Target (MRET)
- What Are You Paying For? (And how much...)
- Trends in GreenPower adoption
- Alternatives to GreenPower
- Further information

Why GreenPower?



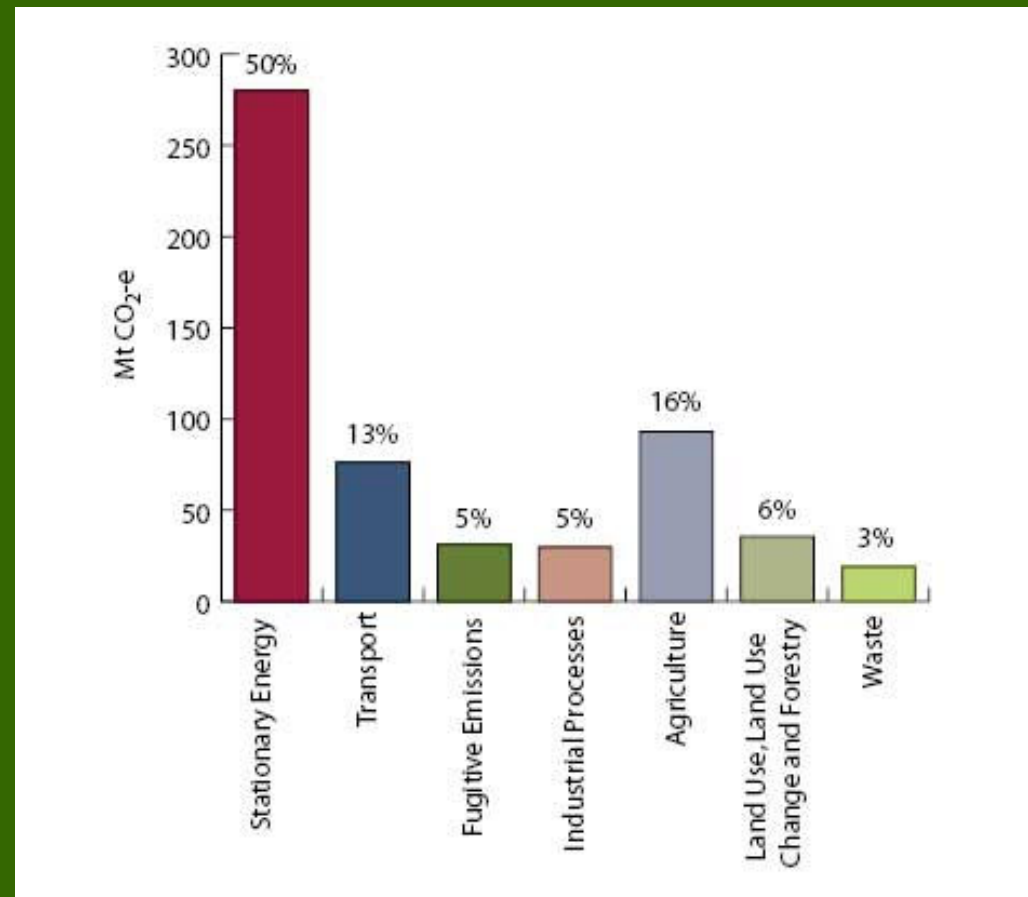
- Electricity generation largest single source of greenhouse gas emissions
- 35% of Australia's greenhouse emissions
- >50% increase on 1990 levels (2004)
- Australia consumes: 227,000 GWh / year
- Victoria about 22%
- Consumption growing at 2% - 3% per year

Emission From Electricity

- Stationary Energy



- Electricity generation
- Petroleum refining
- Gas processing
- Solid fuel manufacturing
- Energy used in manufacturing (incl. metals, pulp & paper and food processing)
- Gas (commercial & residential)
- Fuel for agriculture, fishery and forestry equipment
- Military fuel use



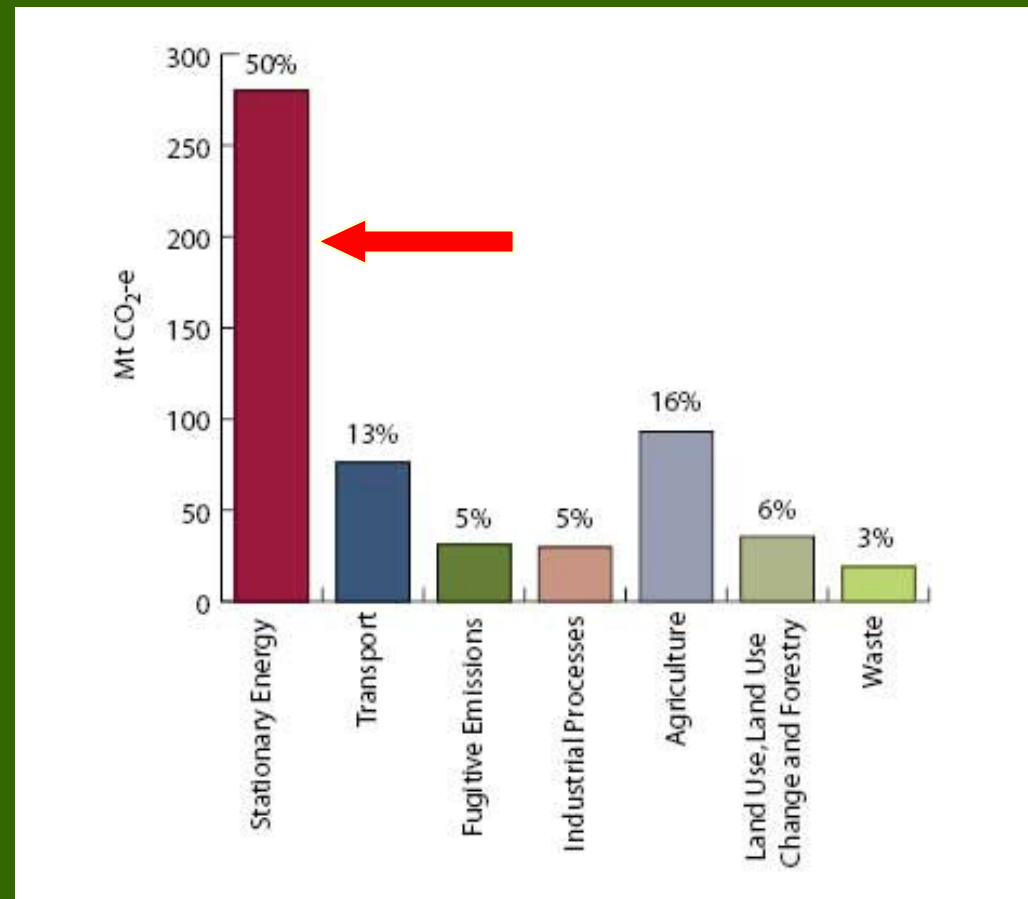
Source: National Greenhouse Gas Inventory 2004

Emission From Electricity

- Stationary Energy



- Electricity generation (195Mt)
- Petroleum refining
- Gas processing
- Solid fuel manufacturing
- Energy used in manufacturing (incl. metals, pulp & paper and food processing)
- Gas (commercial & residential)
- Fuel for agriculture, fishery and forestry equipment
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Source: National Greenhouse Gas Inventory 2004

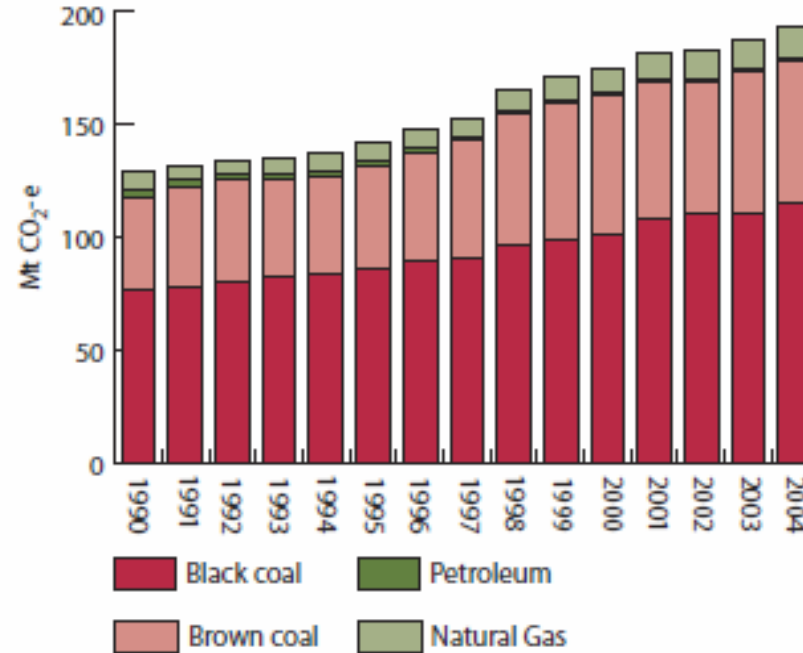
Emission From Electricity (2)

- Electricity Generation



- 1990 = 130Mt
- 2004 = 195Mt
- >50% increase

Figure 3.2 CO₂-e emissions from electricity generation by fossil fuels, 1990–2004



Source: AGO, National Inventory Report 2004

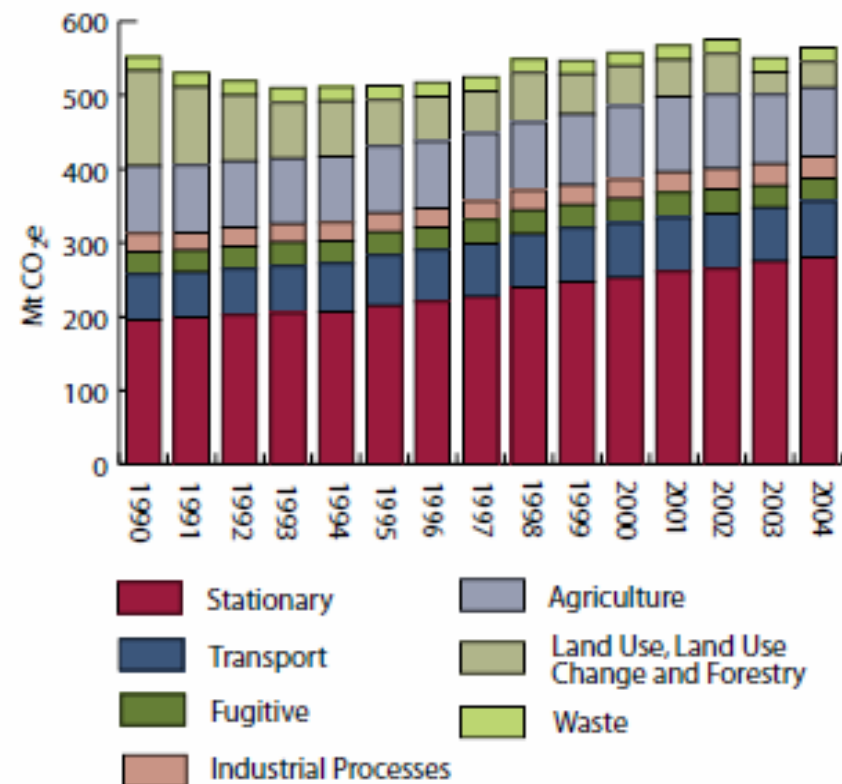
Emission From Electricity (3)

- Australia's greenhouse gas emissions



- 5.2% increase on 1990 levels
- On-track for +8% at 2008
- Land Use, Land Use Changes & Forestry = 72% reduction
- Slight reduction in Waste (0.7%)
- All other sectors have grown

Figure 3: Trends in CO₂-e emissions and removals by sector, 1990–2004



Source: AGO, National Inventory Report 2004

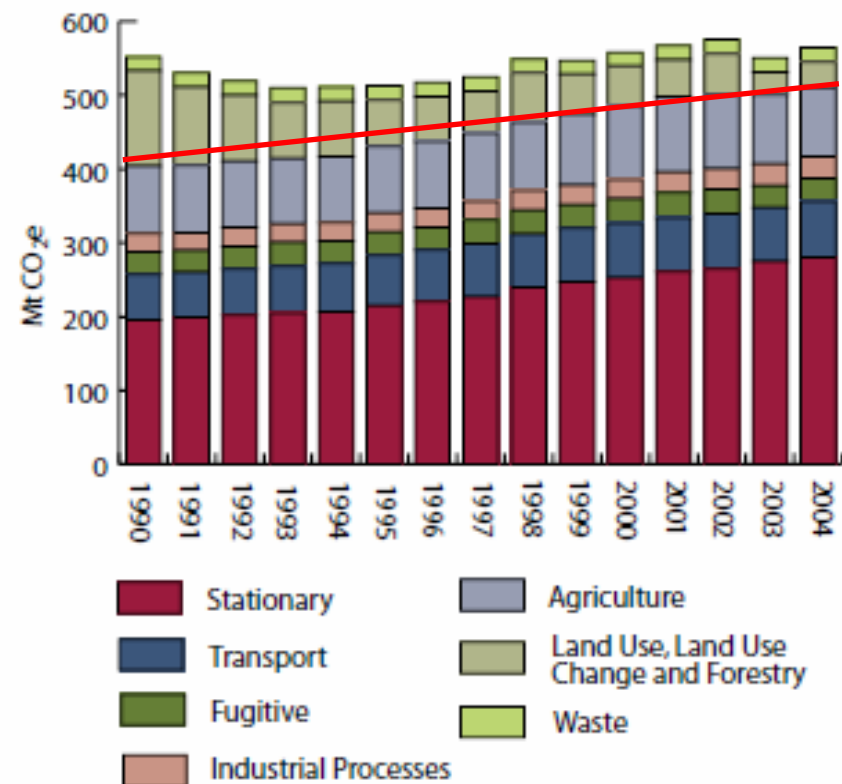
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- **Without LULUC&F, 25% increase!**

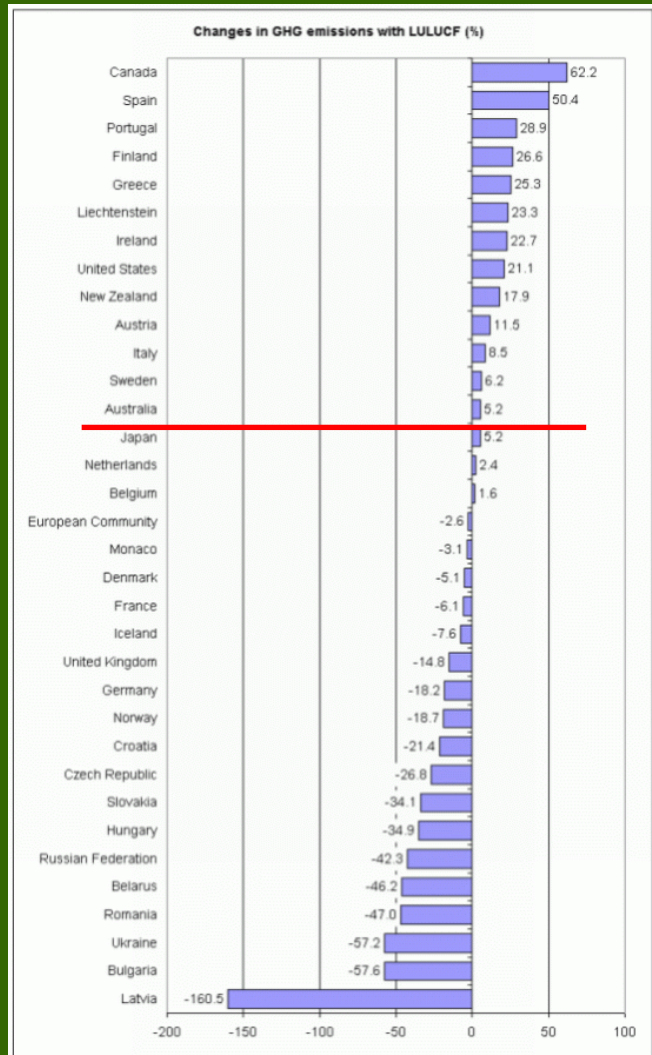
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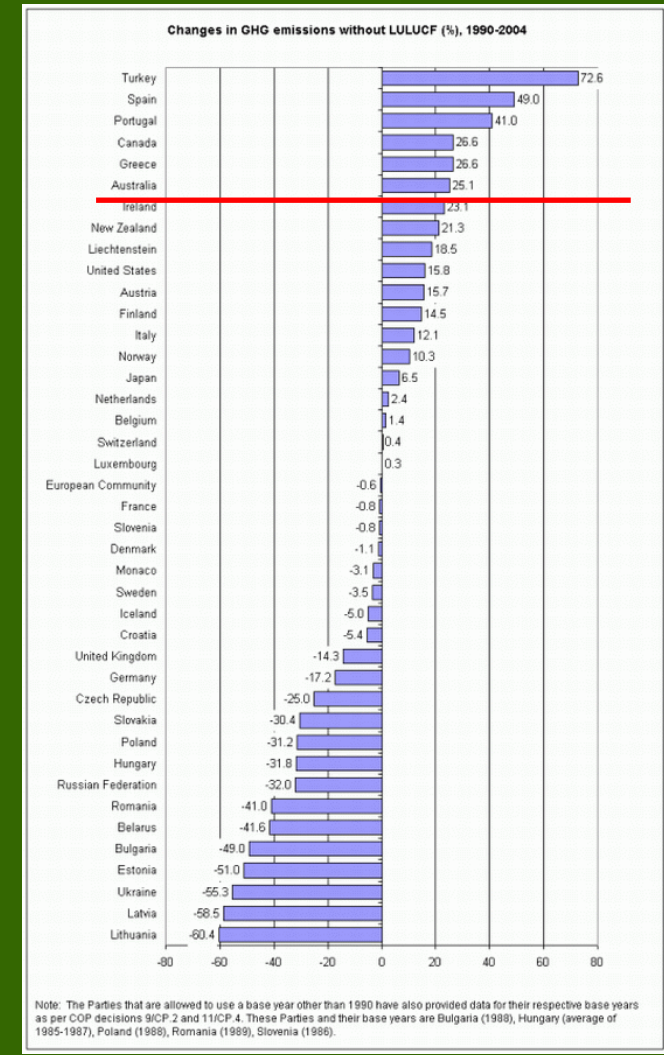
Emission From Electricity (4)

- Global context (2004)



← With LULUC&F

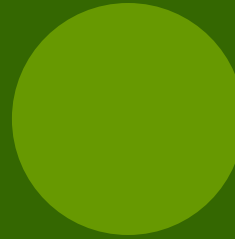
Without LULUC&F →



Note: The Parties that are allowed to use a base year other than 1990 have also provided data for their respective base years as per COP decisions 9/CP.2 and 11/CP.4. These Parties and their base years are Bulgaria (1989), Hungary (average of 1985-1987), Poland (1988), Romania (1989), Slovenia (1986).

Source: UNFCC

What is GreenPower?



- Not all renewable energy is GreenPower
- GreenPower refers to the national government accreditation scheme
- First in NSW (1997), then nationally (2000)
- Generated from renewable energy sources
- Sources include solar, wind, hydro & biomass
- Installed after Jan 1997

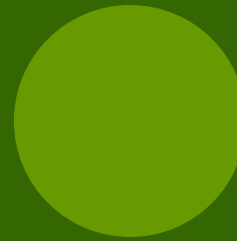


What *isn't* GreenPower?



- Non-certified renewable energy products
 - Pre-1997 generation sources (EG: Snowy hydro)
 - Post-1997 but un-certified
- Non-renewable energy sources
 - Coal, gas or oil-fired electricity
 - Nuclear power

Accredited Products



- Minimum 10% certified GreenPower
- Labeling must show GreenPower percentage

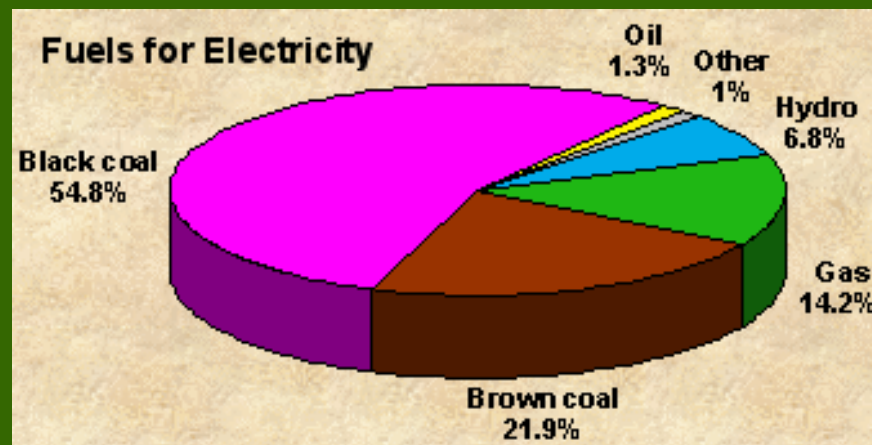


- All labeled GreenPower component must be 100% new certified renewable generation
- Prior to July 2006, requirement was 80% new

Non-Accredited Products

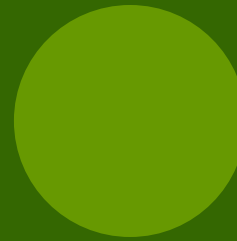


- Often claim 100% renewable energy “at no extra costs”
- However, use existing renewable energy
- Displacing renewable generation from pool
- No change to overall energy mix

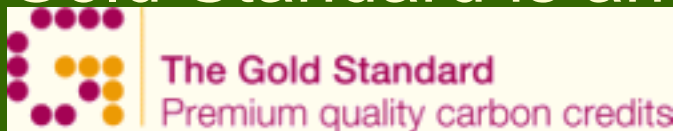


Source: www.uic.com.au

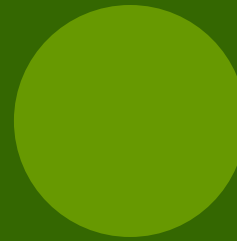
'Backfill'



- Non-GreenPower accredited portion
- Sometimes described as renewable when making up an '100% renewable' product
 - From existing source
 - No guarantee of making a difference
- Gold Standard is an exception...



Key Points So Far...



- Australia's emissions are increasing
- Electricity consumption driving force
- Accredited GreenPower guarantees new renewable energy is purchased
- Non-accredited products (even if claiming to be "100% renewable") don't reduce emissions
- All accredited products carry GreenPower logo
- 100% is best



'De-Mystifying' Doesn't Mean Simplifying...



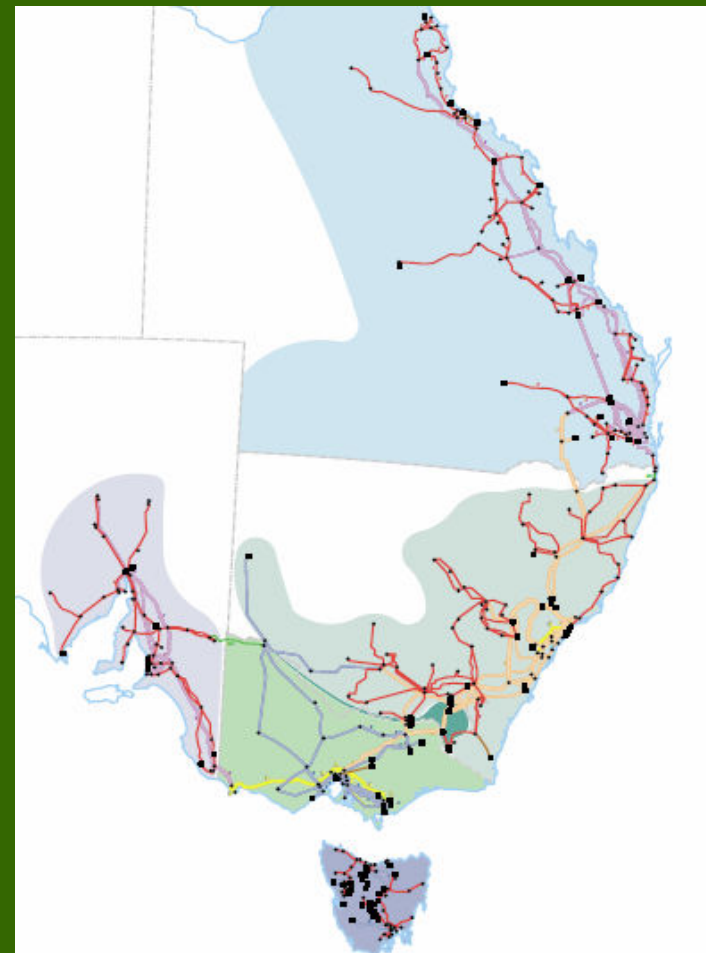
Still to come:

- The National Electricity Market
- Mandatory Renewable Energy Target
- How the GreenPower Scheme works
- What you are paying for
- Trends in GreenPower
- Alternatives

National Electricity Market



- National 'grid' for electricity
- Covers Vic, NSW, Qld, SA, Tas and ACT
- Largest grid in the world

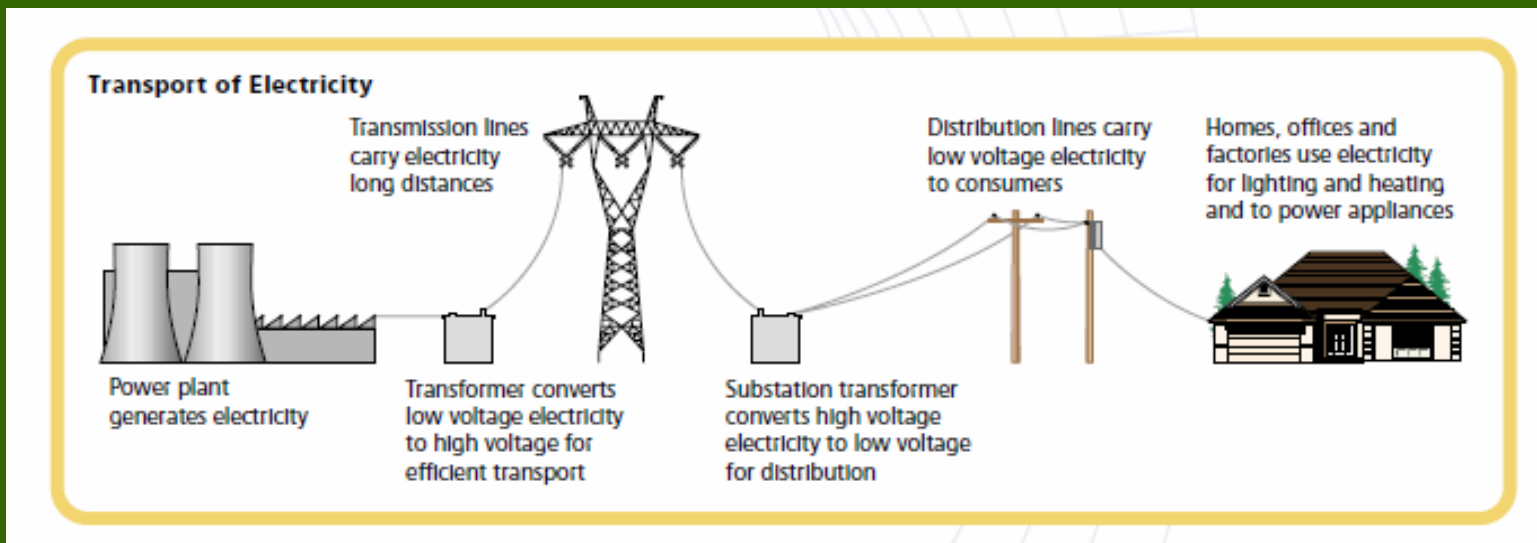


Source: NEMMCO

National Electricity Market (2)



- Electricity generators (power stations)
- Transmission businesses
- Distribution businesses
- Electricity retailers

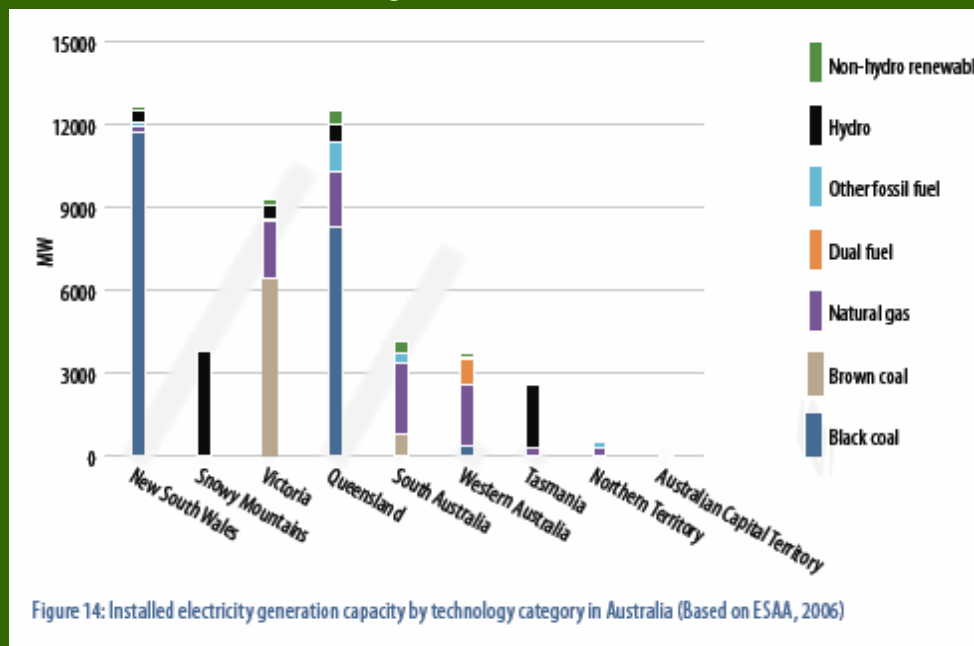


Source: NEMMCO

Renewable Energy in the NEM

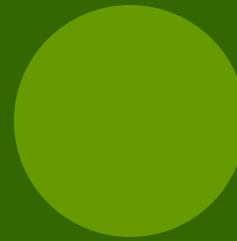


- Currently ~7% of all generation
- Mainly Hydro (Snowy and Tasmania)
- Increasing amount of wind power
- Growth driven by MRET and GreenPower



Source: "The Heat is On", CSIRO

MRET



- Mandatory Renewable Energy Target
- Introduced in April 2001
- Renewables accounted for 10.5% in 1998
- Goal to increase renewable generation by 2% to 12.5% by 2010
- Became a 9500GWh target
- However growth has outstripped predictions
- Now probably closer to +0.5% (IE: 11% in 2010)

MRET (2) – How it works



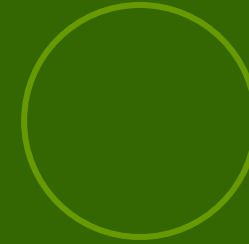
- Renewable energy generation sources create Renewable Energy Certificates (RECs)
- 1REC = 1MWh
- Electricity retailers obliged to buy RECs from renewable energy generators
- RECs traded on an open market
- Market-based scheme results in lowest cost
- Current price around \$25 / REC

GreenPower and MRET



- Greenpower operates through MRET
- Retailers have to supply RECs to the value of customers' GreenPower purchases
- 1REC = 1 MWh
- Any GreenPower purchases are over and above MRET requirements

GreenPower and MRET (2)



- 2005 GreenPower sales = 574,435 MWh
- 2005 MRET target = 3,400,000 MWh
- GreenPower increases MRET by 17%

GreenPower Costs

– Why pay more?

- Renewable energy is more expensive to produce

➤ Coal: \$30 - \$50

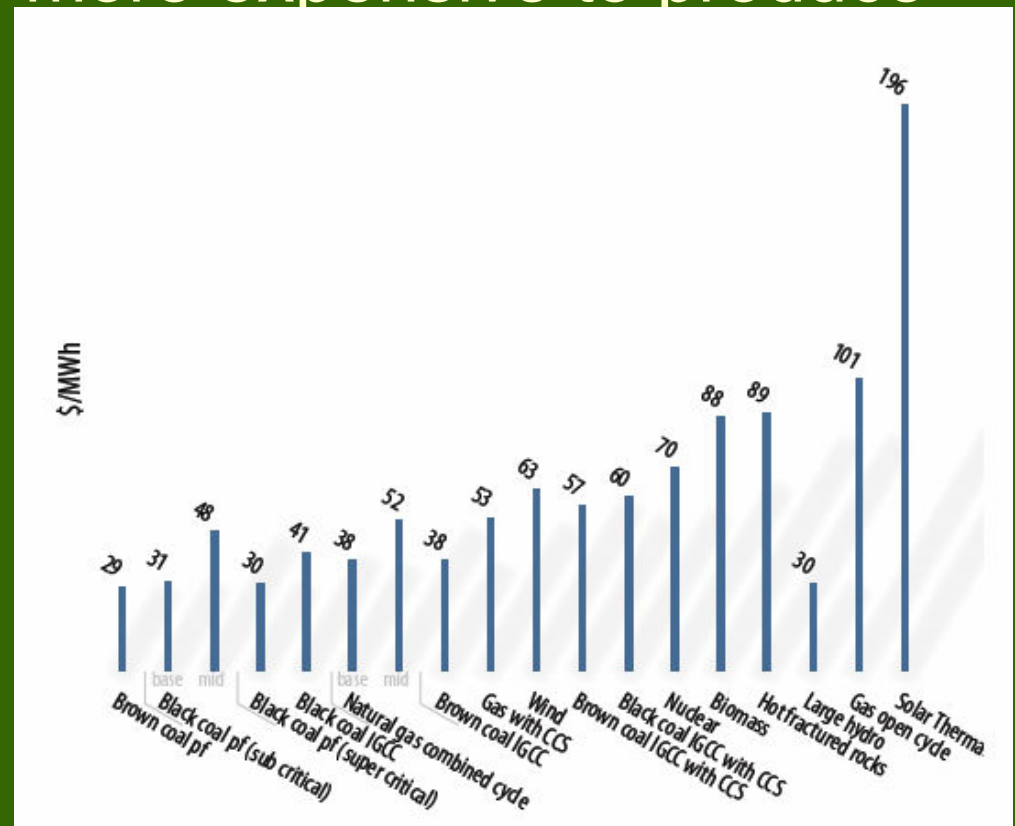
➤ Gas: \$40 - \$100

➤ Hydro: \$30

➤ Wind: \$60

➤ Hot rocks: \$90

➤ Solar: \$200

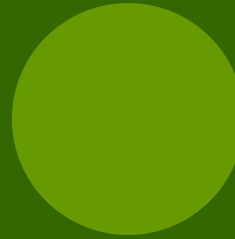


Source: "The Heat Is On", CSIRO

Price per MWh (in the absence of a carbon price...)

GreenPower Costs (2)

– What am I paying for?

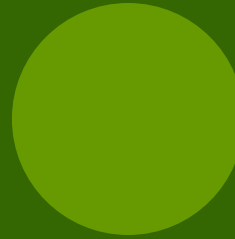


Three main types of GreenPower products:

1. Consumption based products
2. Contribution or 'block' products - set dollar contribution, based on average household electricity consumption
3. Purchase from a non-electricity retailer (off-set)

GreenPower Costs (3)

– How much?



- Most GreenPower products incur a 'premium'
- The premium = price of electricity + RECs + margin
- Typical retail price is about \$0.15 / kWh
- GreenPower costs roughly \$0.05 / kWh extra
- This equates to \$50 / MWh (GreenPower premium)

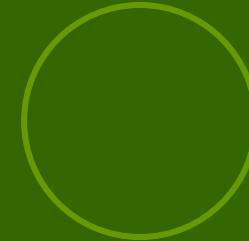
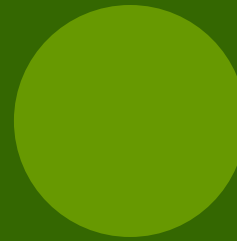
GreenPower Costs (4)

– Complications and Criticisms



- Retailers currently purchasing more than demand
 - Some retailers own generation capacity
 - Retailers in long-term hedge contracts for RECs, thus paying more than the 'spot' price
 - Demand drives retailers into contracts

Green Power Trends



- Customer numbers increased more than 118,000 between January and March 2007
- Over half a million customers Australia wide
- Doubled in the past 12 months
- 40% of all GreenPower customers are in Victoria

Alternatives to GreenPower

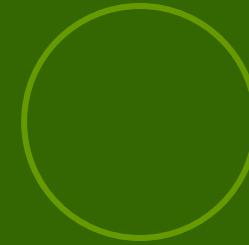
– Carbon Off-setting Programs



- Alternative option to compensate for emissions
- Investing in emission reductions elsewhere
- Programs include; planting trees, renewable energy (RECs), energy conservation, offshore projects, etc.
- Some off-sets are GreenPower accredited

Alternatives to GreenPower

– Carbon Off-setting Programs



- Can offset more than just electricity:
 - Gas, car, air flights, everything!
- May be cheaper than GreenPower
- However...
 - No government certification of programs
 - Uncertainty over offsets (esp. trees)

GreenPower Products in Vic

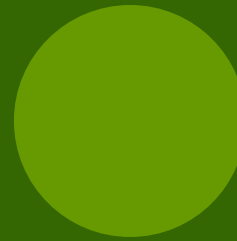


- Victoria has a deregulated retail market
- Consumers can choose their electricity retailer
- Sustainability Victoria list 10 electricity retailers and 3 off-set providers selling GreenPower
- When comparing products, consider:
 - % accredited; commitment to GreenPower

- Green Electricity Watch



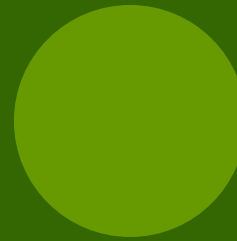
Summary



- Australia's emissions are increasing
- Accredited GreenPower guarantees new renewable energy is purchased
- Non-accredited products don't reduce emissions
- All accredited products carry GreenPower logo
- 100% is best
- GreenPower is in addition to MRET
- Growth in GreenPower is driving renewables



More Information



Excellent comparison of GreenPower products:

www.greenelectricitywatch.org.au

Also Check out:

www.ata.org.au

www.greenpower.gov.au

www.sustainability.vic.gov.au

Thank-you