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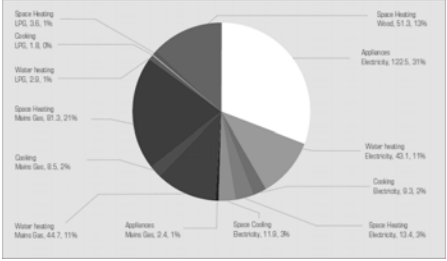
Delivering Zero Emission Homes to Australia

Michael Ambrose
Alternative Energy for Coastal Cities Forum 2009
27 May 2009

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Residential energy use

Energy end use for Australia - 2007



Category	Energy Source	Value	% of Total
Appliances	Electricity	22.5	31%
Space Heating	Wood	11.3	13%
Water Heating	Electricity	11.1	11%
Space Heating	Main Gas	8.3	21%
Water Heating	LPG	8.3	10%
Space Heating	Electricity	8.3	10%
Water Heating	Main Gas	8.3	10%
Space Heating	Electricity	8.3	10%
Water Heating	Main Gas	4.7	11%
Appliances	Main Gas	2.4	1%
Space Heating	Electricity	11.8	3%
Space Heating	Electricity	13.4	3%
Space Heating	Wood	51.3	13%

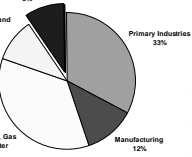
Energy consumption in petajoules (PJ) followed by % share of total

Source: DEWHA 2008, Energy use in the Australian residential sector (1985-2007), Canberra

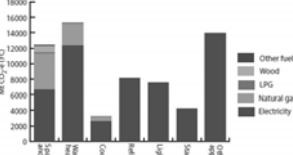
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Residential GHG Emissions

Direct GHG Emissions by Sector (2006)



Total Emissions = 576Mt CO₂-e
Residential Sector = 54.5Mt CO₂-e

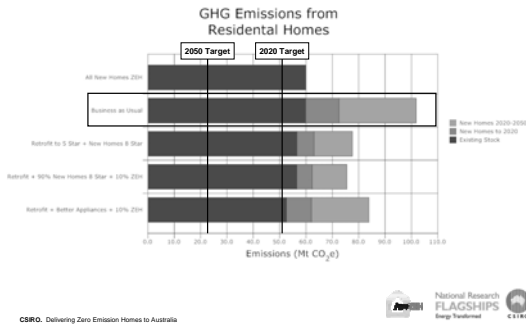


Energy Source	GHG Emissions (Mt CO ₂ -e)
Electricity	~14000
Natural gas	~10000
LPG	~8000
Other fuel	~4000
Wood	~2000

Source: Department of Climate Change 2008, National Inventory by Economic Sector 2006, Department of Climate Change, Canberra

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GHG reduction targets



Key actions

- Improve energy efficiency of new homes
 - Increase Star Rating to 7.5 – 8 Stars
 - Double glazed windows mandatory in temperate/cool climates
 - Improved sealing of homes (aim for 0.5 air changes/hour)
 - Improve appliance and fittings efficiency
 - Energy efficient lighting mandatory (no incandescent/halogens)
 - Efficient hot water systems mandatory (solar or heat pump)
 - Improved appliance star rating (TV, WM, DW, oven/stove, etc)
 - Energy monitoring and control
 - In house smart meters and monitoring providing real time feedback to occupants on use and ability to control appliances
 - Decentralised renewable energy generation
 - House based and/or community based systems (PV, wind, etc)
 - Cogeneration options for higher density residential areas
- CSIRO. Delivering Zero Emission Homes to Australia. National Research FLAGSHIPS Energy Transition CSIRO.

AusZEH Demonstration House

Laurimar Estate, Doreen
About 30kms from CBD

- 240m² (including garage)
- 8.2 Star rating
- 6kW PV array
- Low energy lights, appliances, etc
- Full monitoring and control system
- Water efficient systems (tank, greywater, etc)

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Thank you

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