

All-Energy 2010 Renewable Energy Target

Matthew Warren
Clean Energy Council
October 6 2010
Clean Energy – the future is now



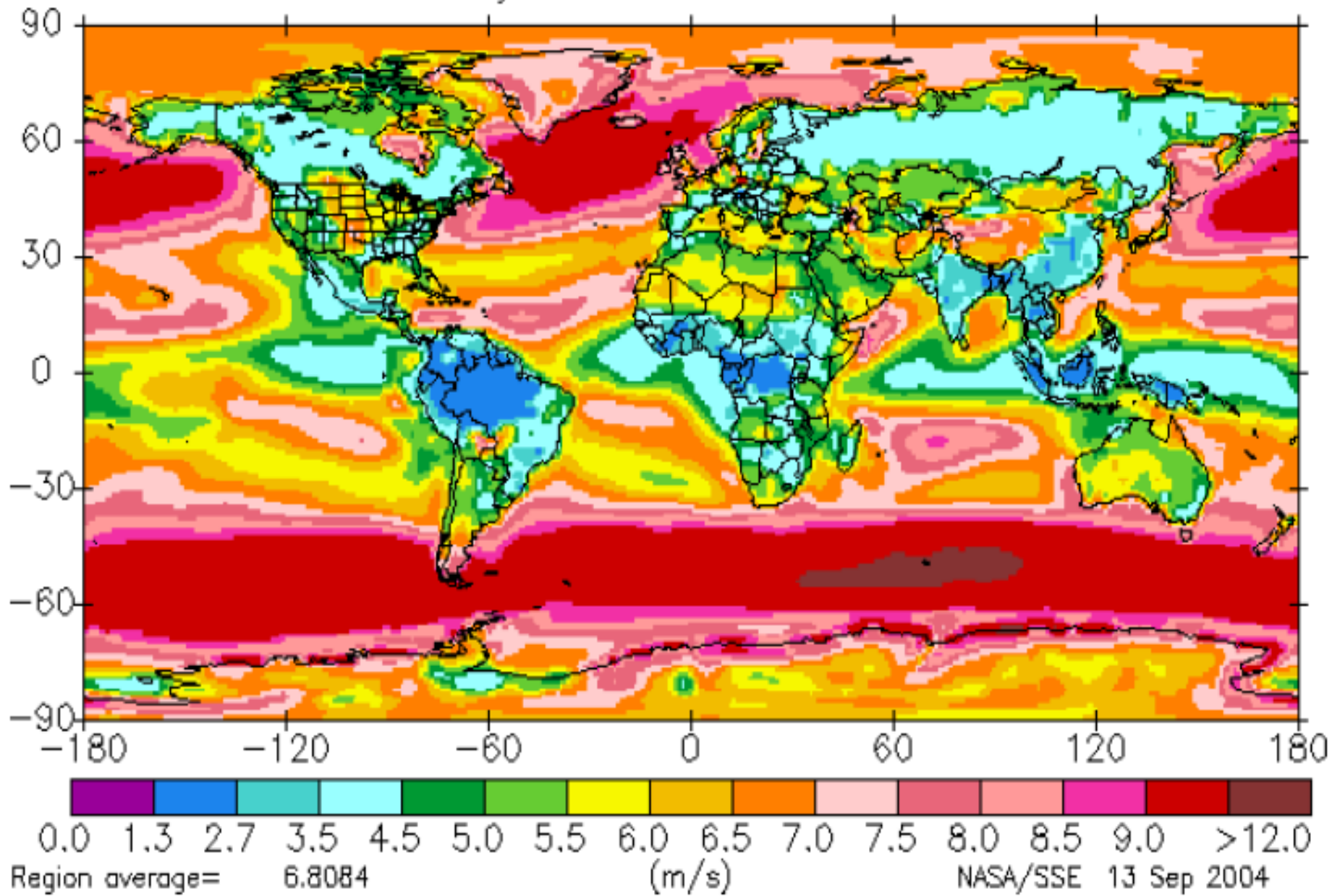


Clean Energy Council - Australia

- Peak body for clean energy and energy efficiency in Australia
- 380 member companies including AGL, Origin, TRU, GE, Siemens, First Solar, Vestas, Suzlon, Rheem and leading Australian energy companies
- Cover all technologies including wind, solar, hot water, bioenergy, wave, hydro and energy efficiency



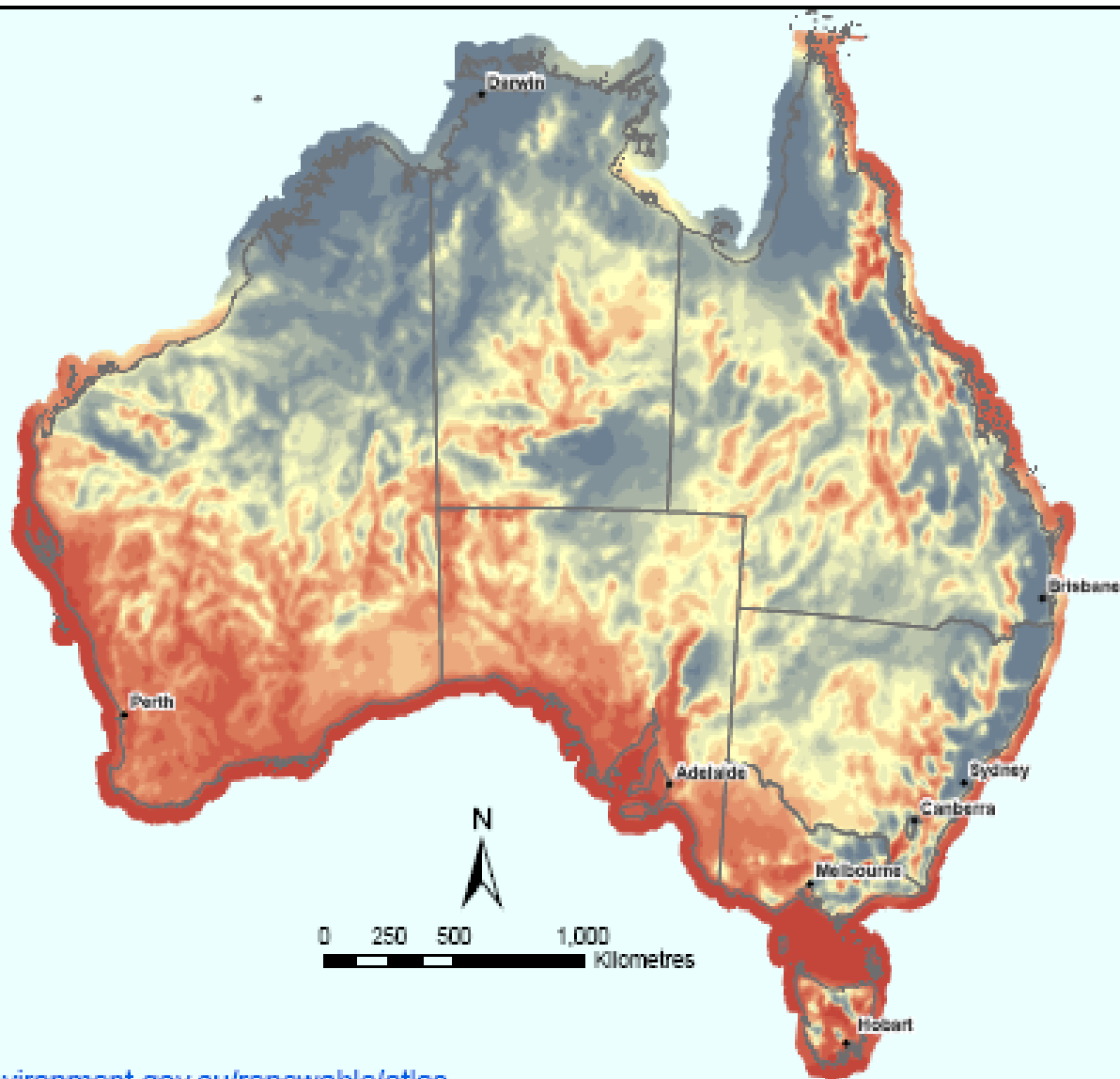
Annual 50m Wind Speed July 1983 – June 1993



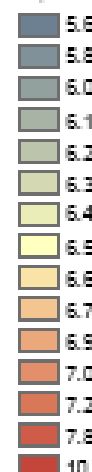
RENEWABLE ENERGY ATLAS OF AUSTRALIA: Mean Wind Speed at 80m above ground level



Australian Government
Department of the Environment,
Water, Heritage and the Arts



Metres per Second



Data Sources:
Capital Cities
© Commonwealth of Australia (Department of the Environment, Water, Heritage and the Arts) 2008
State Borders
© Commonwealth of Australia (Geoscience Australia) 2008
Wind Speed
© Windlab Systems Pty Ltd 2007

caveat:
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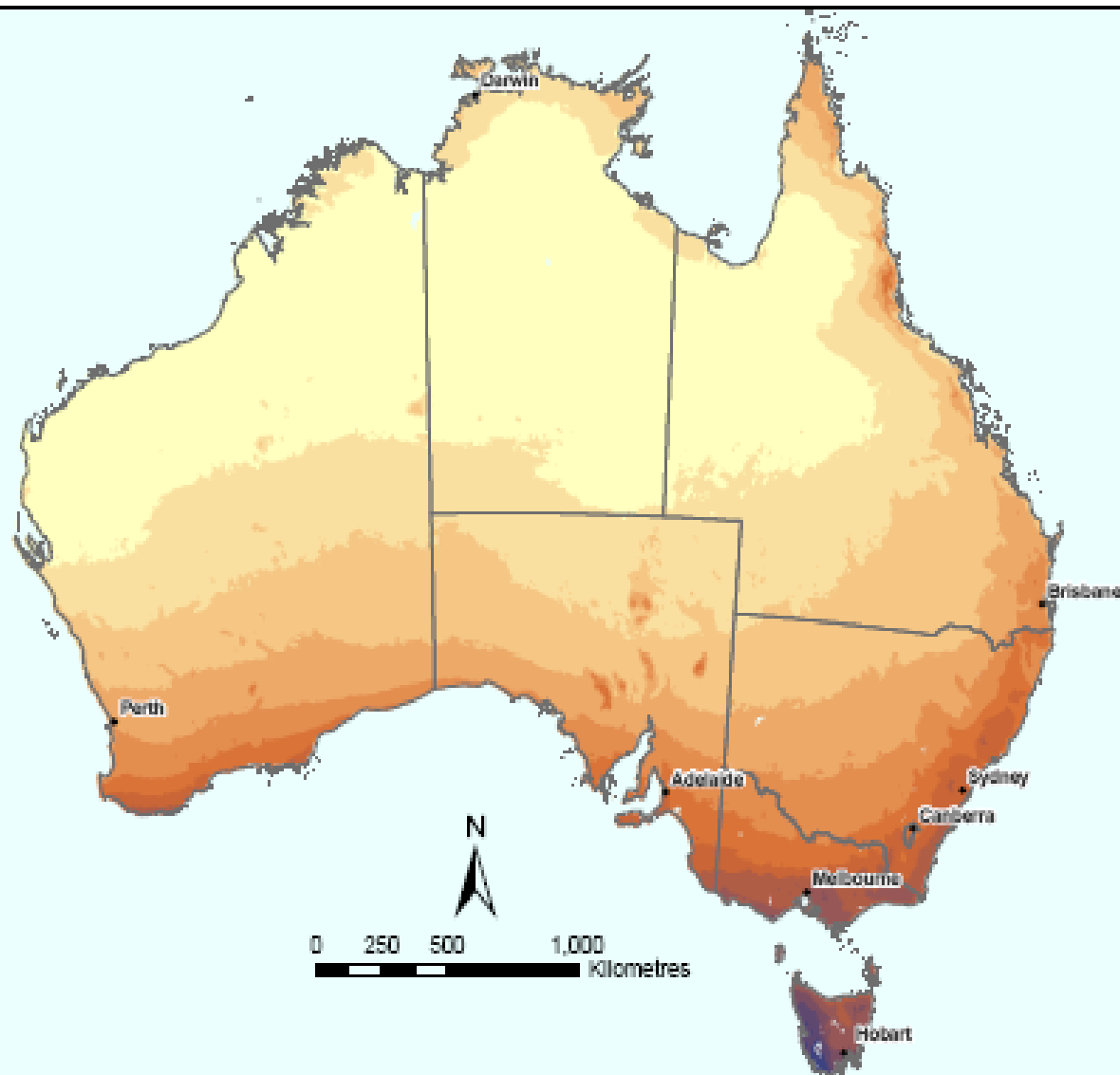
Map produced by:
Environmental Resources Information Network (ERIN), Department of the Environment, Water, Heritage and the Arts, October 2008.

Albert Equal-Area Projection (SIR94)

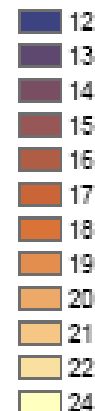
RENEWABLE ENERGY ATLAS OF AUSTRALIA: Daily Solar Exposure - Annual Average



Australian Government
Department of the Environment,
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MegaJoules/m²



Data Sources:
Capital Cities
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State Borders
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Solar Exposure
© Japan Meteorological Agency (JMA) and Commonwealth of Australia, Bureau of Meteorology 2008

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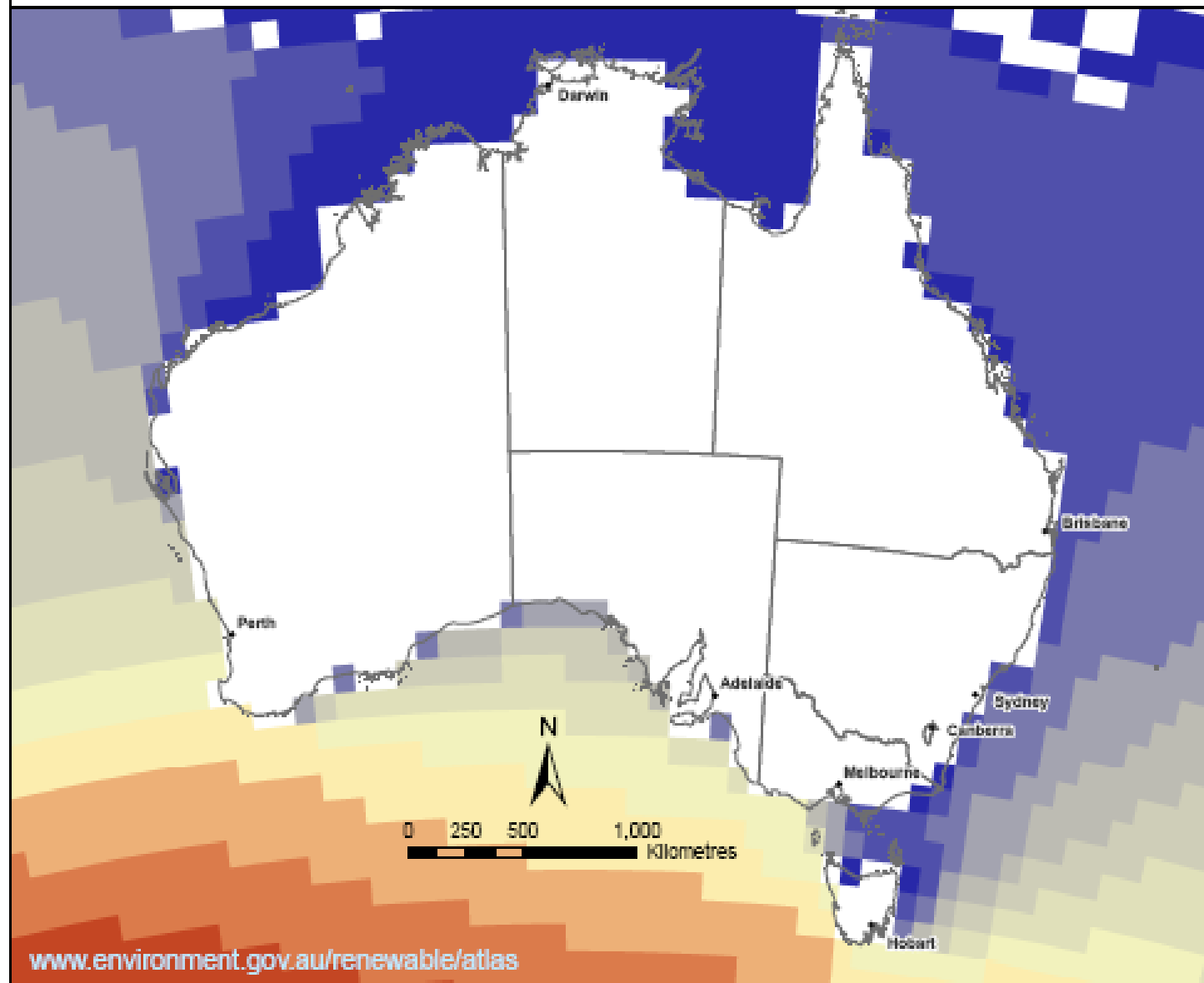
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Albert Equal-Area Projection (SIR94)

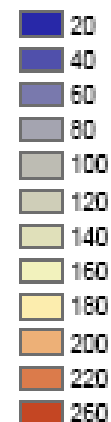
RENEWABLE ENERGY ATLAS OF AUSTRALIA: Highest Wave Power



Australian Government
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Water, Heritage and the Arts



Kilowatts/m²



Data Sources:
Capital Cities
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State Borders
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Wave Power
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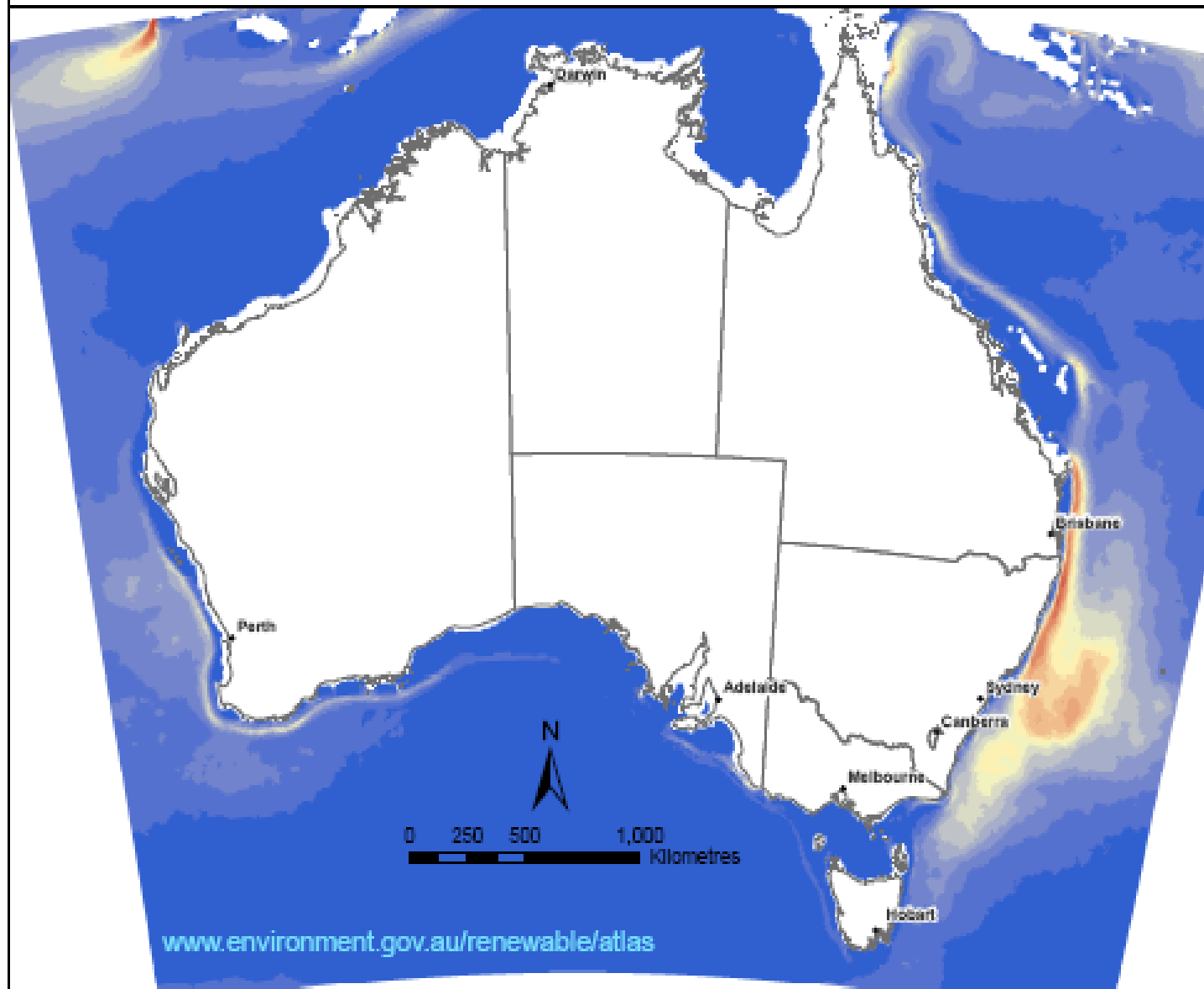
Map produced by:
Environmental Resources Information System (ERIS), Department of the Environment, Water, Heritage and the Arts, October 2008.

Albers Equal-Area Projection (GDA84)

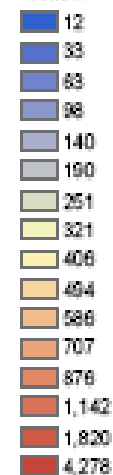
RENEWABLE ENERGY ATLAS OF AUSTRALIA: Highest Near Surface Current Power



Australian Government
Department of the Environment,
Water, Heritage and the Arts



Watts/m²



Data Sources:

Capital Cities

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State Borders

© Commonwealth of Australia (Geoscience Australia) 2008

Current

© CSIRO Marine and Atmospheric Research 2008

Caution:

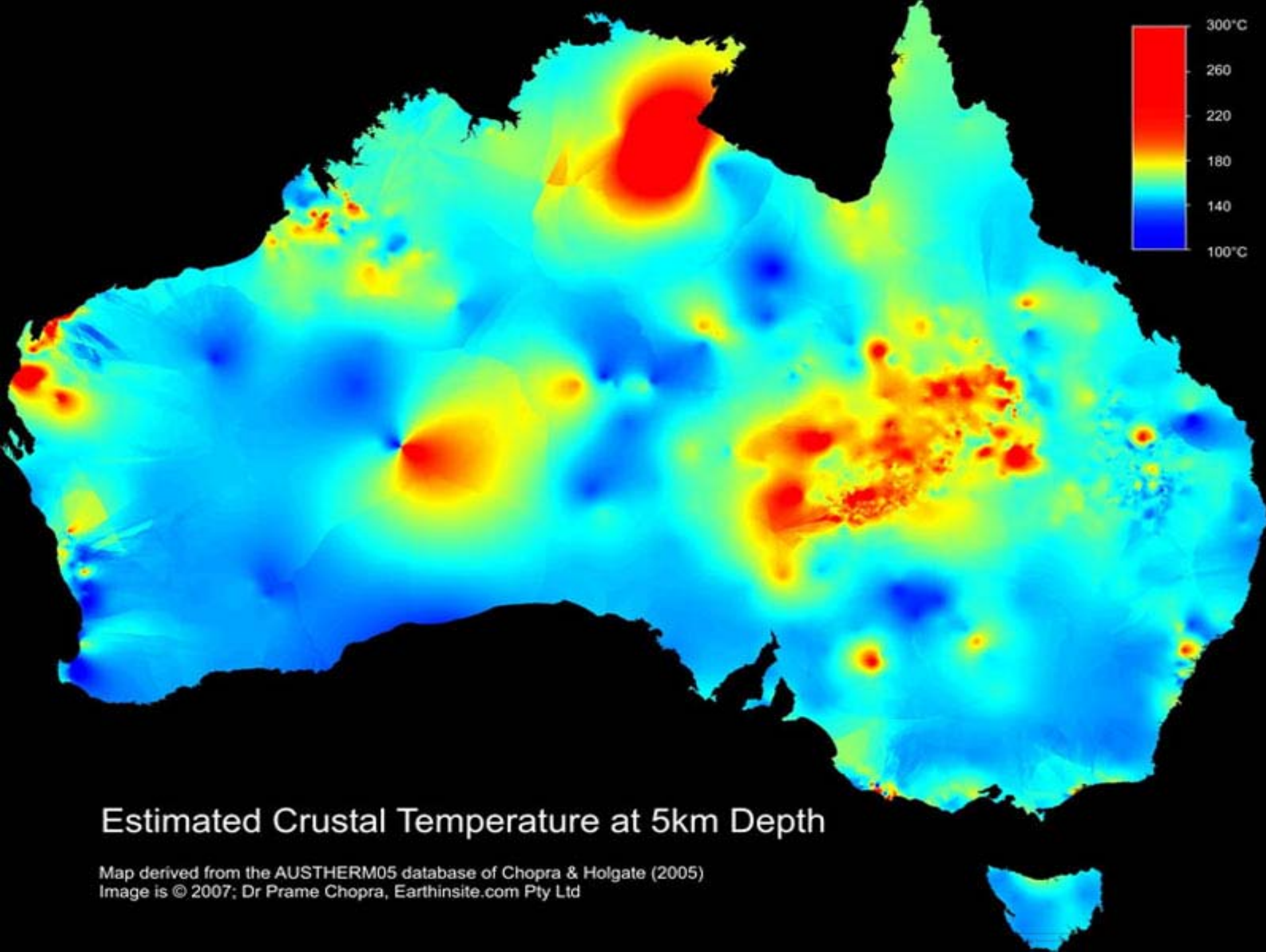
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Atlas's Equal-Area Projection (GECA4)

www.environment.gov.au/renewable/atlas

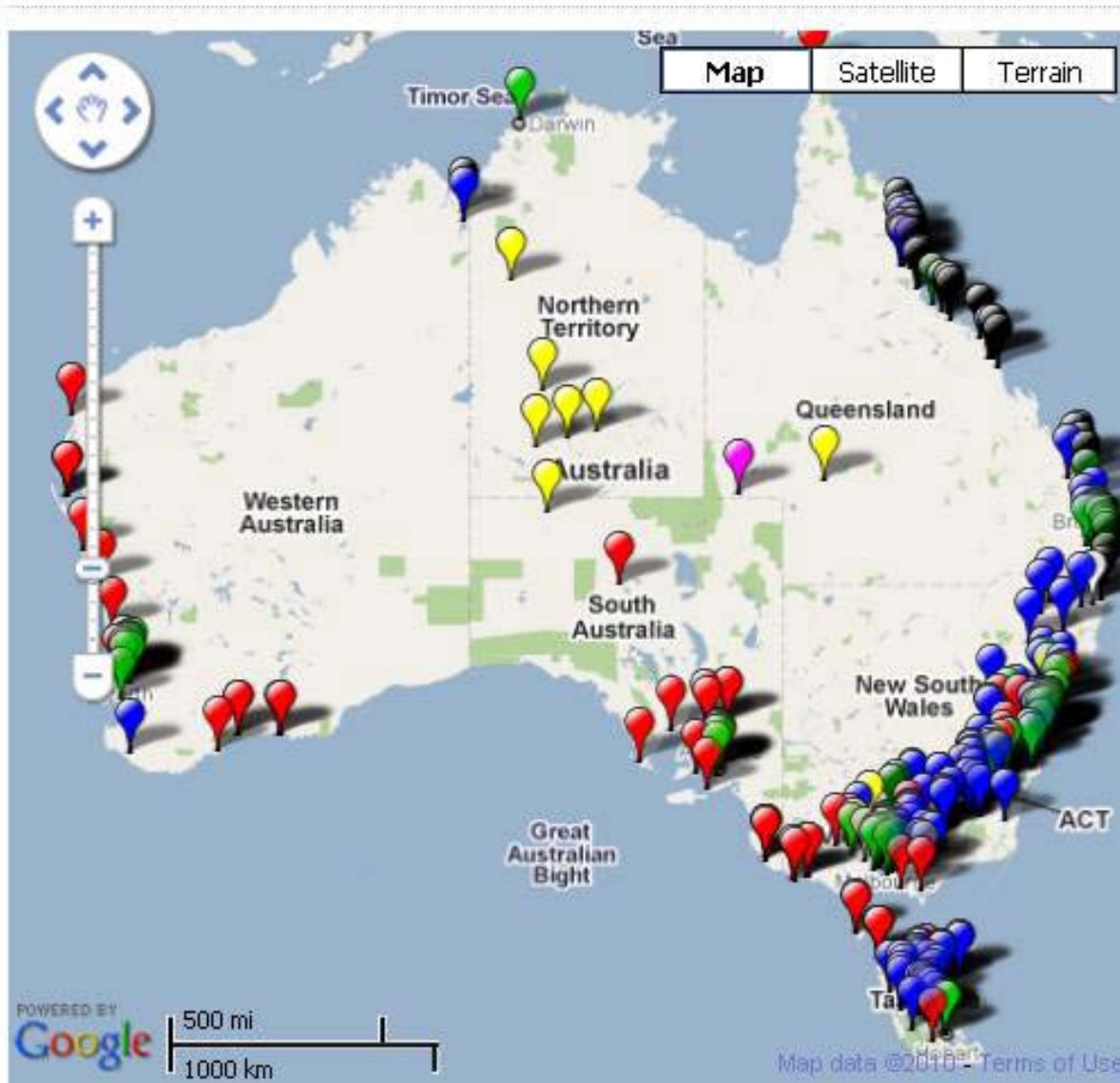


Estimated Crustal Temperature at 5km Depth

Map derived from the AUSTHERM05 database of Chopra & Holgate (2005)
Image is © 2007; Dr Prame Chopra, Earthinsite.com Pty Ltd



Clean energy generation in Australia



Legend:

- | | |
|----------------------|---------------|
| Bagasse Cogeneration | Biomass |
| Geothermal | Hydro |
| Landfill Gas | PV / Solar |
| Sewage Gas | Solar Thermal |
| Tidal / Wave | Wind |
| Woodwaste | |











THE HYDRO-ELECTRIC
COMMISSION

CAUTION

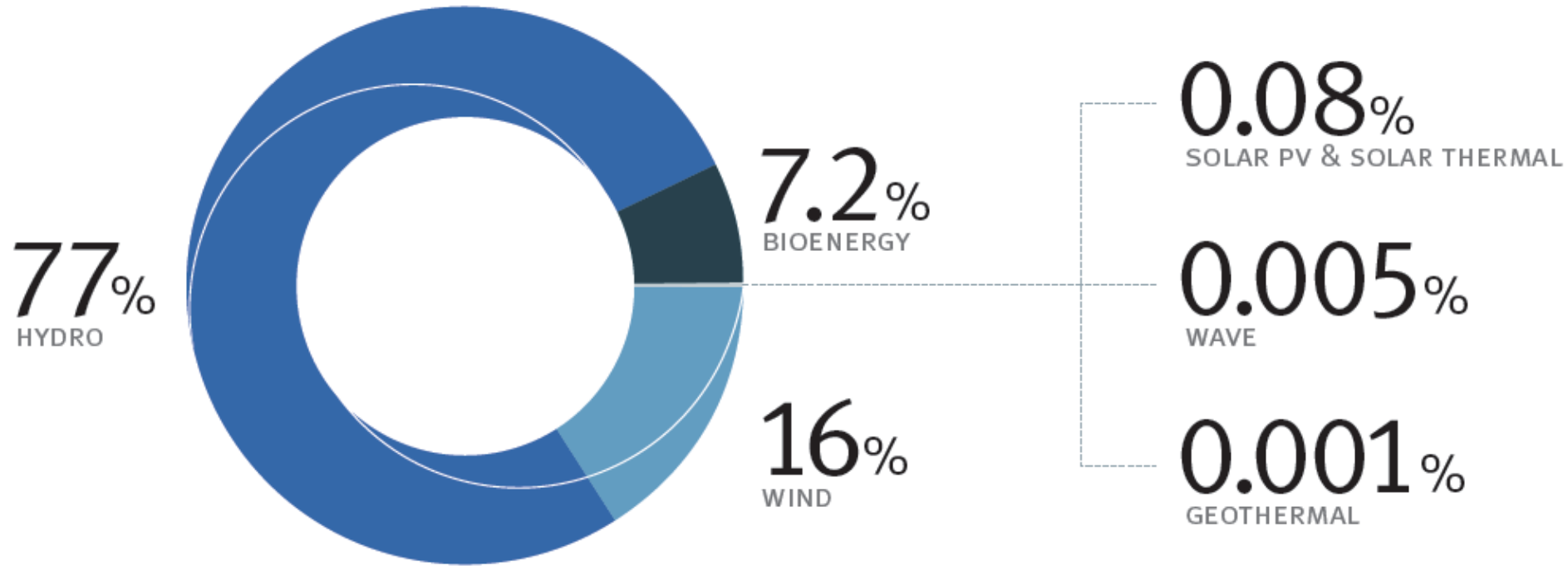








Renewable energy by type - Australia





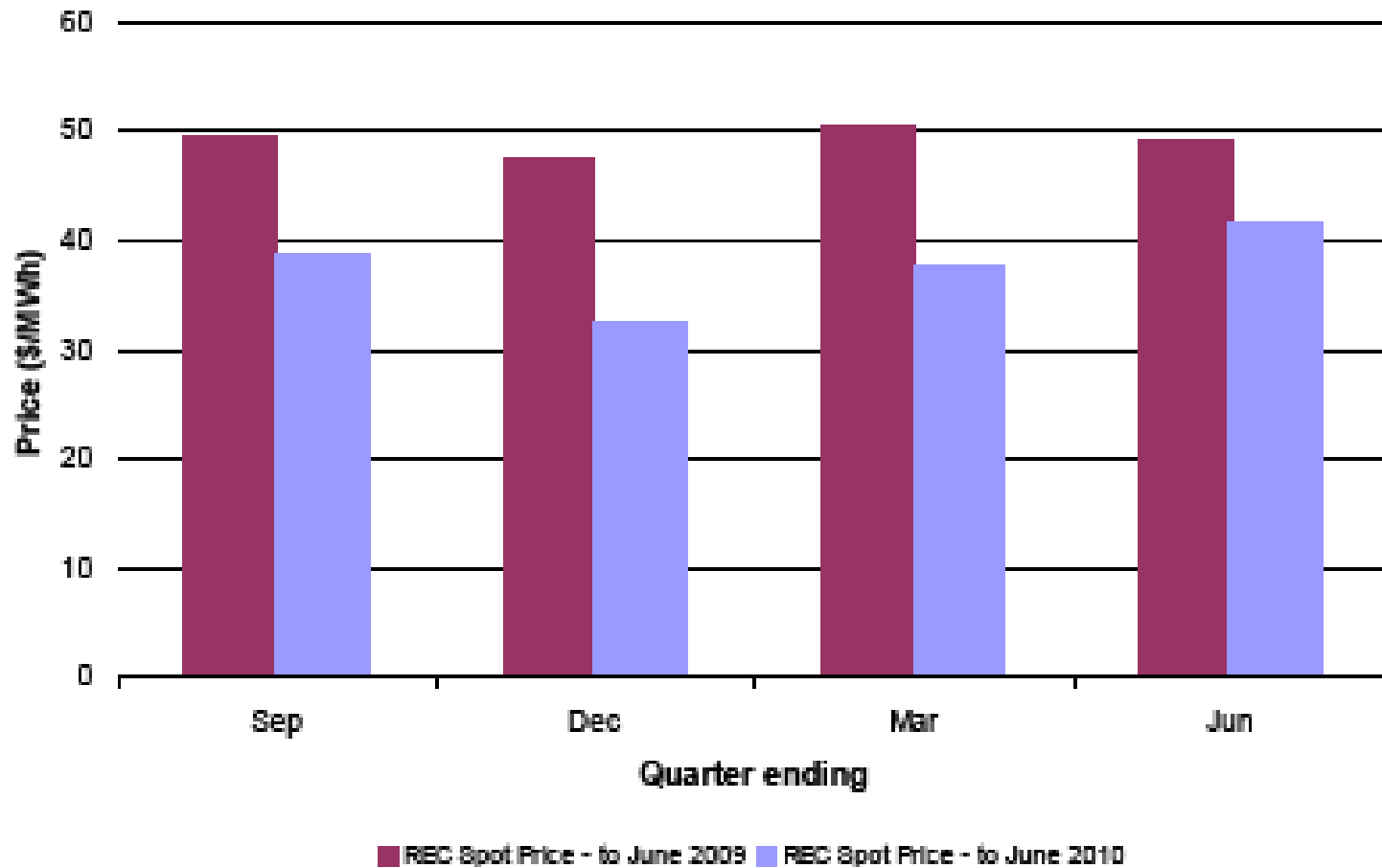
National renewable energy target

- 45,000 GWh renewable energy target by 2020 (20 per cent)
- Anticipated AUD \$20 billion of new clean energy investment this decade
- Reforms in June split industrial and household deploy of clean energy technologies
- Foundation for proven technologies



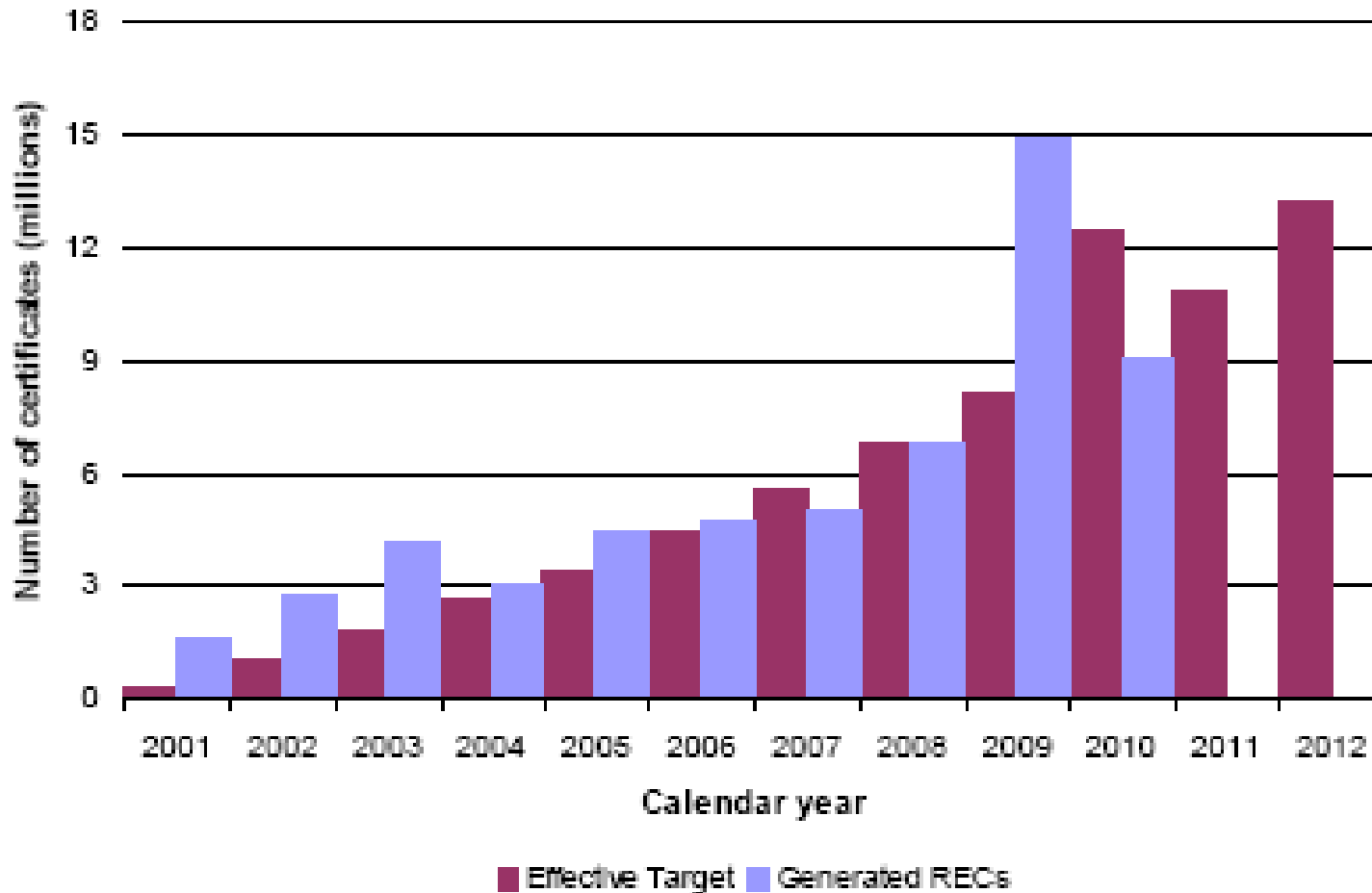


REC market





Supply exceeding demand





REC market is soft – why?

- RECs currently trading at around \$35
- 20 million banked RECs capped under new legislation
- NSW retailers not buying (40 per cent of market)
- Private retailers have shored up positions with major projects
- Electricity market uncertainty including carbon pricing





Emerging technologies – grant funding

- 2008: \$1.5 billion Solar Flagships program for large scale solar development (shortlisted)
- 2008: Geothermal drilling program \$50 million (mostly allocated)
- 2009: Renewable Energy Demonstration Program \$235 million (four projects from 42 applicants)





Policy gaps remain

- Weak investment incentives for early R&D development
- Unsuccessful grant applicants have little remedy to commercialise
- Benefits of world class clean energy resources offset by patchy policy framework, weak VC markets and relatively low energy costs





CEC policy recommendations

- Smaller scale R&D grant programs
- Tax incentives – increased depreciation deduction on R&D assets
- Treat clean energy exploration like any other resource – immediate deductions
- Loan guarantees
- Flagship programs for geothermal and wave





Clean Energy Council

Clean Energy Australia

Clean Energy Week
2 -7 May 2011
Melbourne, Australia

cleanenergycouncil.org.au

the future is now

www.cleanenergycouncil.org.au