

New Entrant Design for the Australian National Electricity Market

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Beyond carbon – emerging markets for
ecosystem services conference
Rüschlikon - October 2003

Agenda

- Introduction
- Electricity Demand
- Electricity Supply Options
 - Designing for a competitive market
 - Essential elements
 - Benefits
- Conclusion

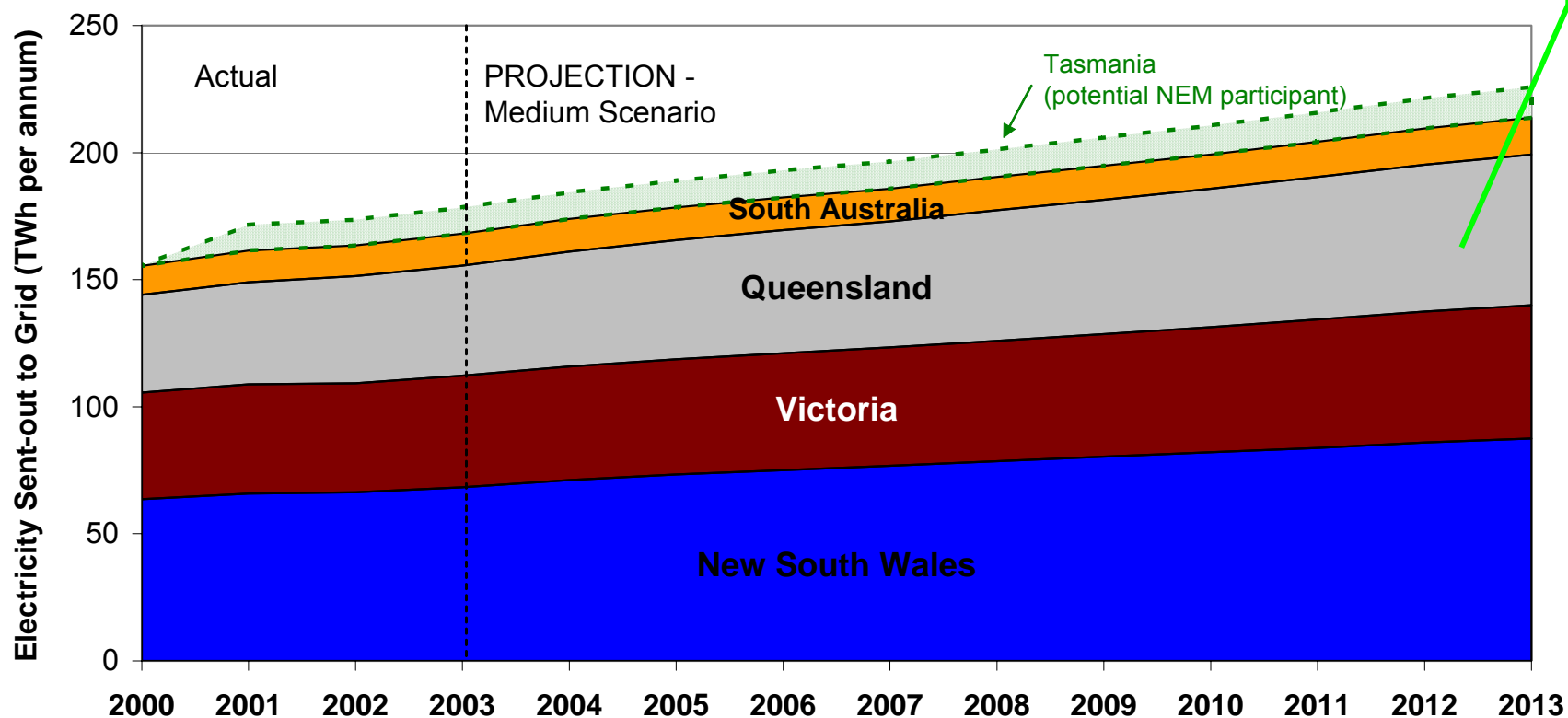
Introduction



- John Holland Group is one of Australia's leading construction companies.
- Australian Economic Outlook is positive
 - Will continue to support strong growth in commercial, industrial and social infrastructure.
 - Electricity supply infrastructure is projected to be a key growth area for construction activity and a number of independent projections indicate that new generation sources are required on or before 2008;
- Development of new electricity supply infrastructure – requires in-depth analysis of the associated risks and opportunities.

National Electricity Market Energy Growth

Next Decade sees
> 45 TWh increase in
energy requiring
6000 – 9000 MW of
sent-out capacity



Source NEMMCO 2003 SOO

How do we meet Australia's growing electricity demand?

- Demand side management / Energy Efficiency ?
- Renewable generation?
- Cogeneration / distributed generation?
- Larger scale baseload generation?
- **ANSWER:** a combination of all the above – the challenge is to ensure that new supply options systematically reduce the emissions intensity of the National Electricity Market.
- Baseload thermal plant must deliver low net emissions relative to existing benchmarks.
- Redbank plant in NSW was recently rejected for having CO₂ emissions intensity > existing average levels

Challenges for New Entrants to the Electricity Market

RISKS	
Market	- Price
	- Volume / Demand
	- Access
Regulatory / Legislatory	- Greenhouse
	- Change in tax/law
	- Change in market structure
Funding	Investors
	Interest Rates
	Foreign Exchange
Technical	Performance
	Deliverability
	Cost
Resource availability & cost	Fuel
	Water
	Labour / Materials
General / common	Environmental
	Credit-worthy counterparties
	Inflation
	Economic
	Force Majeure

- Be competitive with existing generators
- Proactively address all identified risks – including management of Greenhouse emissions
- Be attractive to investors.

Development

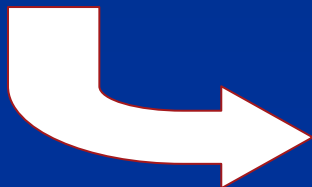
Construction

Operation

Can we achieve this ?

Key Components & Considerations

- Low marginal cost & reliable fuel source
- High availability & highest possible efficiency from power plant design
- Reduce Greenhouse regulatory risk with a long-term offset program, such as large scale reforestation
 - In parallel, assess potential to contribute to salinity & biodiversity conservation
- Potential to enhance regional economies & communities
- “Hybrid” cooling system to manage water usage
 - potential for “water trading” markets;
 - potential to use recycled water

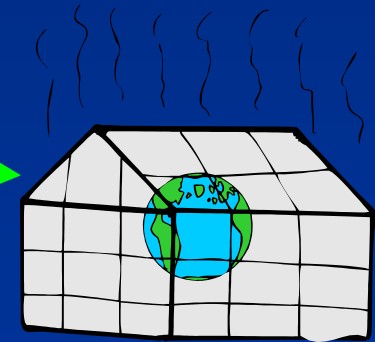
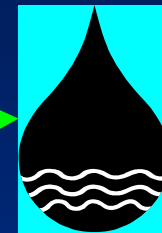
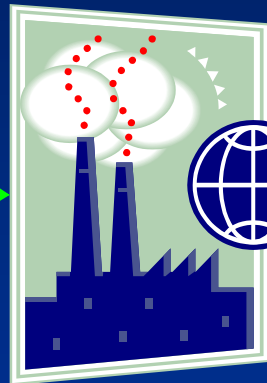
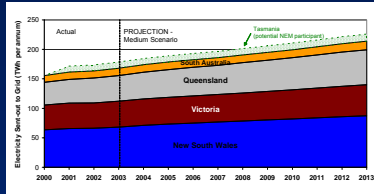


RESULT: Market Competitive, Sustainable & Emissions Management Competent

New Entrant Power Plant Design

- The Power Station Entity sells a new electricity product defined by its Emissions Intensity (“EI”):
 - “X” Kg/MWh certified CO₂-EI Electricity
 - The attainable value of “X” will be influenced by:
 - Underlying power station emissions (based on efficiency of the power station and fuel type);
 - Level of Carbon Offsets secured from Reforestation activities or arrangements;
 - Market or Regulated drivers that support the demand for this product & hence increase revenue potential.
- Power Station can also trade in water, possibly ‘salinity credits’ and/or other environmental products.

Diversified Electricity Portfolio



New Entrant Power Plant Design Essential Components

- Proven technology
 - Best possible efficiency & reliability
- Carbon Offsets from Forestry
 - Land availability, species suited to climate, timber markets, management expertise, accounting systems, term to support long economic life of power plant
- Legislation or Regulations that create a medium-long term defined market for Environmental or Greenhouse products or that rewards low emission generation sources;

Economic Benefits

- Ability to deliver a portfolio of products to customers and retailers of energy.
 - Alternate products diversify revenue.
 - May be able to attract new customers and assist them in attaining goals of sustainable and low emission, yet competitive supply sources of electricity.
- First-mover competitive advantage of securing access to CO₂ products before possible generator tax or mandate.
 - 30-40 year project has in-built capability to manage future Climate Change policies;

Social/Environmental Benefits

- Reforestation of salinity affected regions and degraded lands.
- Regional community benefits.
- Supports economic growth with consideration of future generation requirements for jobs & social prosperity.
- Solution allows phasing out of older emissions intense coal-fired plant on a larger scale than could otherwise occur.

Conclusion

- Australia has a growing economy and a growing population base that drives an ever-increasing demand for baseload energy
- Energy Efficiency Initiatives and Renewable Energy Incentives help – but are not enough
- Recent events indicate that Governments will reject projects that do not demonstrate a consideration for reducing greenhouse emissions.
- KEY: seek solutions that incorporate best practice technology, innovative use of co-investment in offsets such as reforestation and an overall “sustainability Orientation
- We are making progress to achieve these goals and remain commercially competitive.

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