EIANZ Forum

Trevor St Baker

Chairman

ERM Power

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Power for generations

Introduction

- Transitioning from coal-fired generation to gas is essential to achieving deep emissions cuts and complementing renewables in the next decade
- Over time, the introduction of smart grids will play a critical role in transforming electricity end-use – driving energy efficiency and improved network utilisation, and supporting electrification of the transport sector

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Transitioning to gas generation

- On a business-as-usual basis, electricity sector emissions in 2020 will be 12% higher than 2000 baseline emissions even if the 20% renewable energy target is achieved
- The only currently feasible means of achieving near-term deep emissions cuts in the stationary energy sector is the orderly retirement of coal generation capacity and replacement with gas-fired generation.
- A gas energy target of around 40% by 2025 with a fuel requirement of 1,000PJ/a is needed to achieve targeted emissions reductions

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The transition to a gas-based generation sector

- A national gas incentivation scheme – similar to the Queensland GEC scheme – will give the necessary certainty to support investment in gas generation. Alternatively the scheme could be implemented as an extension of the renewable energy target with minimal cost to consumers.
- Coal plant retirements should occur at their economic/technical life of 45 years, or 20 years after a major refurbishment, to avoid sovereign risk issues.

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Gas-backed renewables

- Intermittent renewables such as wind and solar require 90% gas-backing for firm supply
- A gas incentive scheme will underpin investment in this gas capacity which may otherwise be problematic given the potential impact of renewables on pool revenue to gas generation
- Gas can back around 5,000 MW of wind – beyond this, need smart grid-enabled services to manage and offset intermittency

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Smart grids to transform energy use

- Smart grids will enable a range of end-use reforms and demand side measures
  - time-of-use metering/energy efficiency
  - remotely controllable power switches
  - distributed generation
  - electric vehicles with charge options and grid feed-in capability to balance intermittent renewable generation
- This will drive substantial savings in network costs over the next decade through reduced maximum demand and greater network utilisation

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Summary

- A legislated gas energy target is a pre-requisite for investment in gas-fired generation to achieve emissions reduction targets and complement renewables
- Smart grid is the enabler for a transformed energy sector and electrification of the transport sector – driving significant end-use efficiencies and improved network utilisation