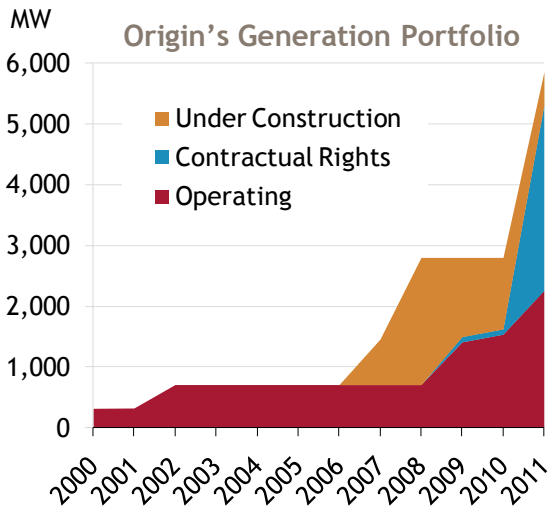
Energy Markets

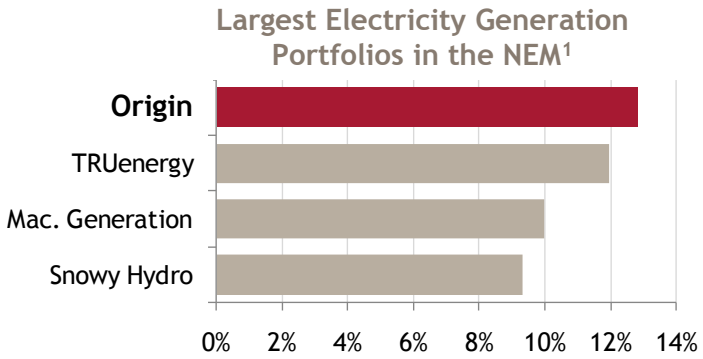
Presented by Frank Calabria
Chief Executive Officer, Energy Markets

Origin Operational Review and Asset Visit
19-20 September, 2011

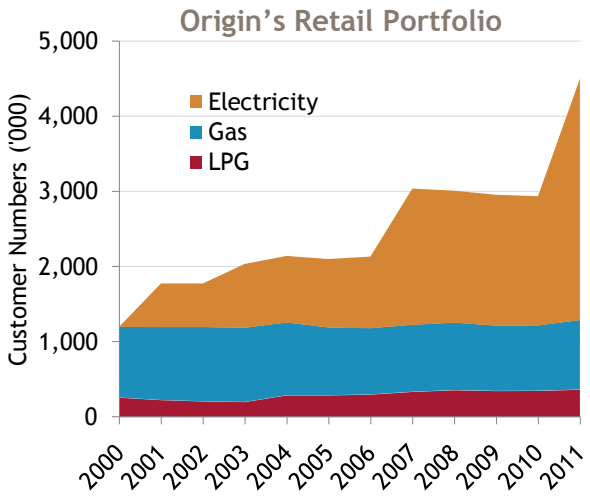
Energy markets on the east coast of Australia have undergone a process of deregulation, privatisation and consolidation

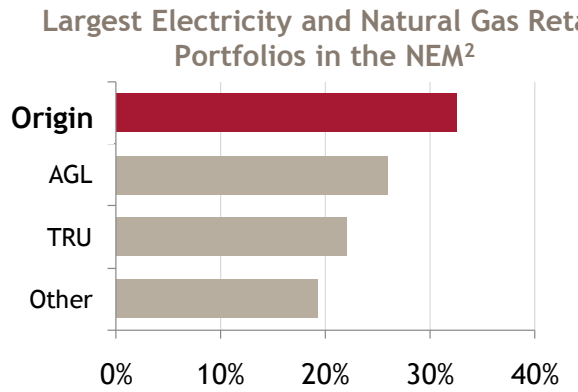
Electricity Generation





Energy Retail



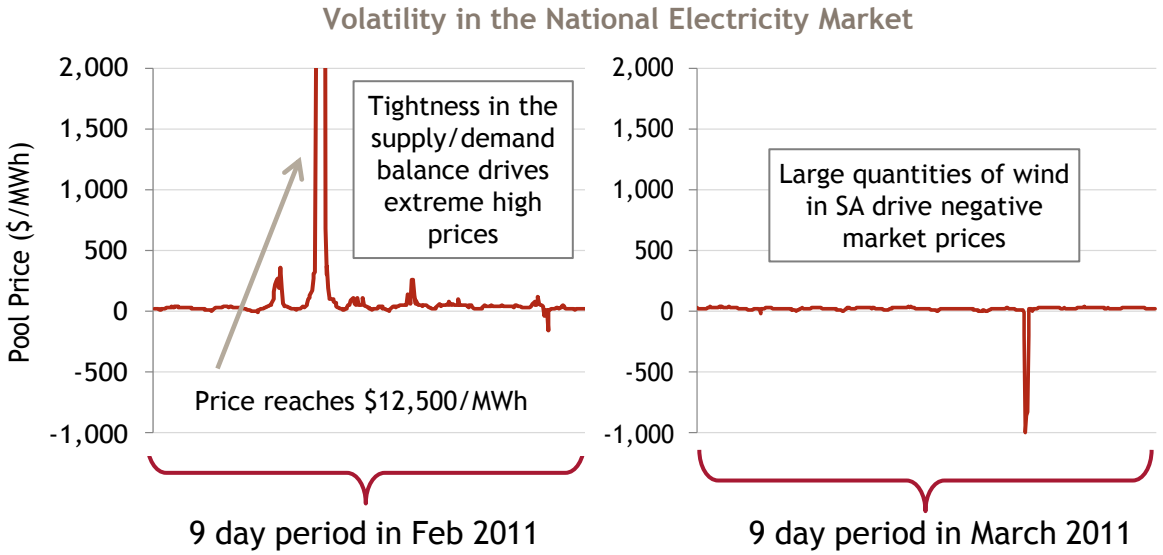


Through this process Origin has emerged as the market-leading integrated energy company

(1) Includes Mortlake Power Station, currently under construction and expected to be operational in FY2012; Includes the NEM registered capacity of scheduled market generation

(2) Origin, AGL and TRU Customer accounts as released at June 30 2011, total market data published by UBS in October 2010

Australian wholesale energy markets exhibit high volatility …



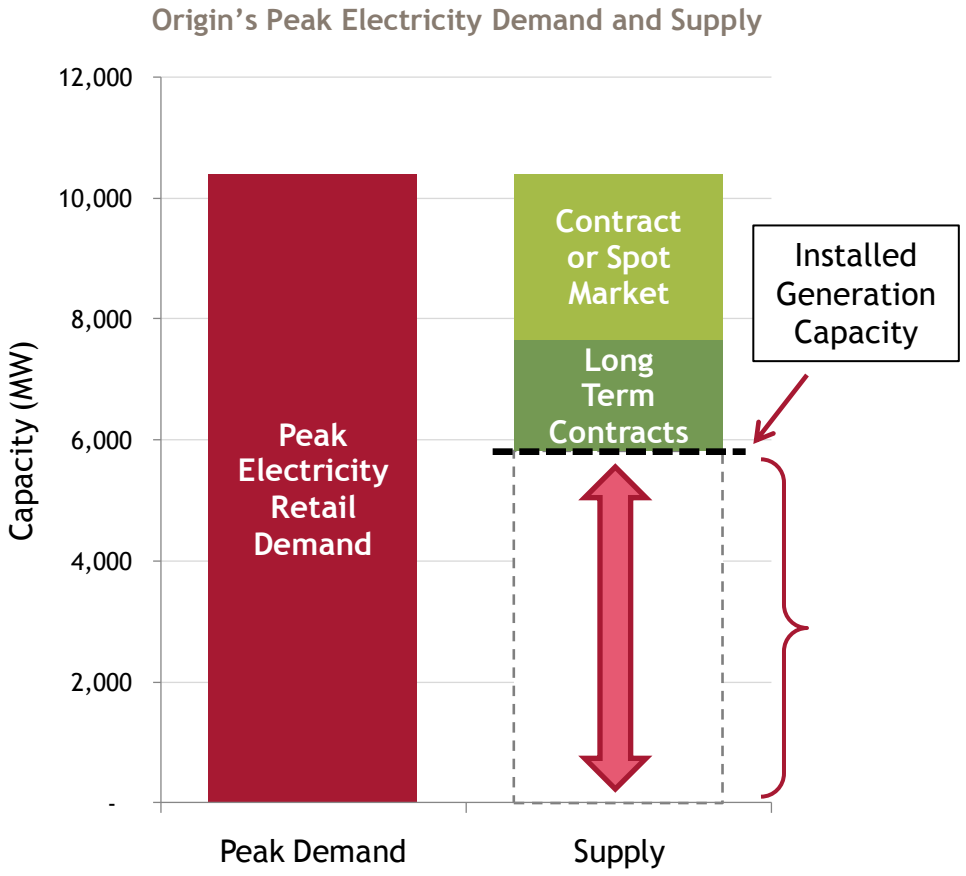
- Prices in the wholesale National Electricity Market can vary between -$1,000/MWh and +$12,500/MWh

… while uncertainty around carbon and renewable energy policy continues to cloud generation investment decisions …

- A carbon pricing scheme is likely to be legislated by the end of 2011. However, even once in place investors in generation will be cautious to risk large amounts of capital as the Opposition has threatened to repeal the legislation if elected
- Similarly, the Renewable Energy Target of 20% by 2020 is an ambitious target which is largely reliant on one mature technology – wind. With a review scheduled for 2012 investors are cautious about investing in large, long term projects

… leading to the requirement for a generation portfolio with significant flexibility to respond to a range of market and policy outcomes

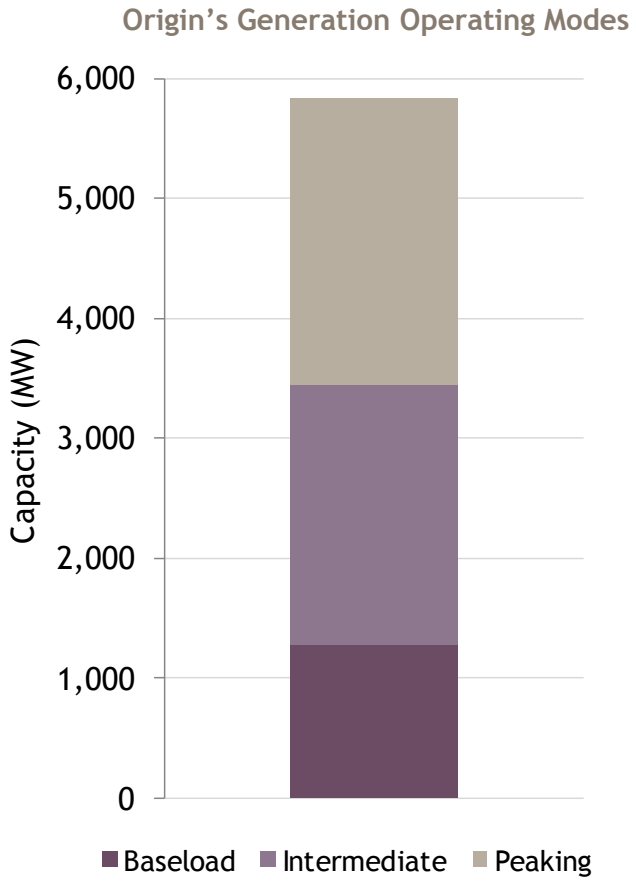
Origin's generation portfolio offers considerable flexibility …

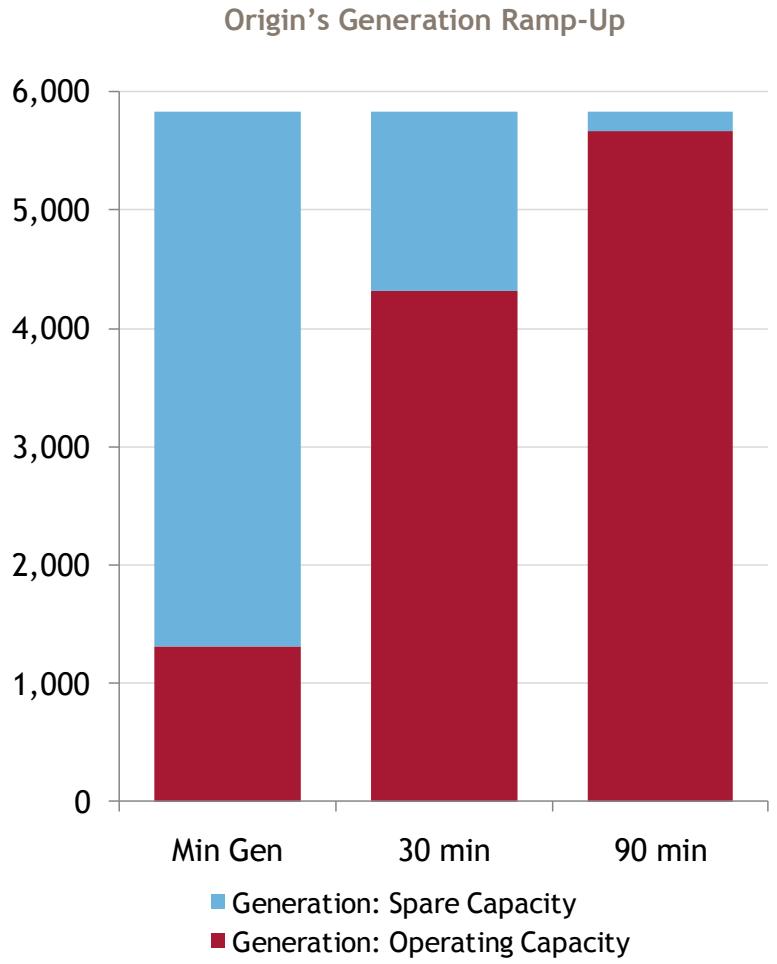


- **Origin can meet a large portion of its retail demand through its installed generation capacity**
- **Significant optionality derives from the ability for Origin to choose how to run this generation, including the choice to supply the demand through the spot market**
  - Run coal-fired generation
  - Run gas-fired generation
  - Run peaking liquids generation
  - Run pumped-storage hydro generation
  - Purchase from spot market (pool)

… providing significant optionality for its energy procurement

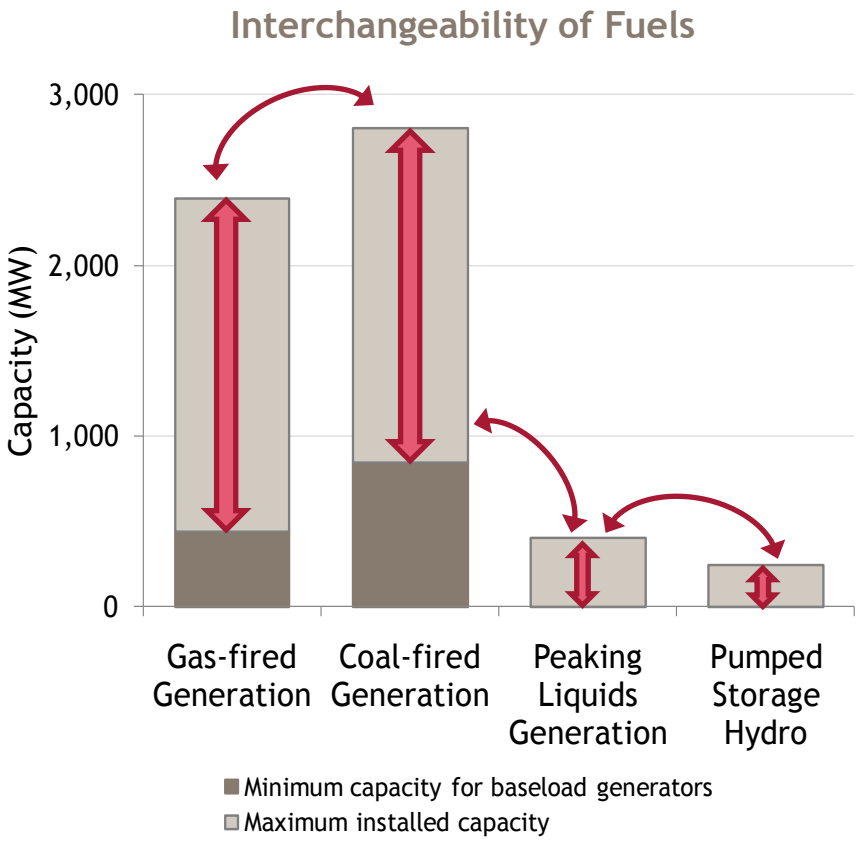
Diversity of operating modes, from base load through to intermediate and peaking, provides the ability to ramp to full load rapidly …





… so Origin can respond effectively to changing market conditions

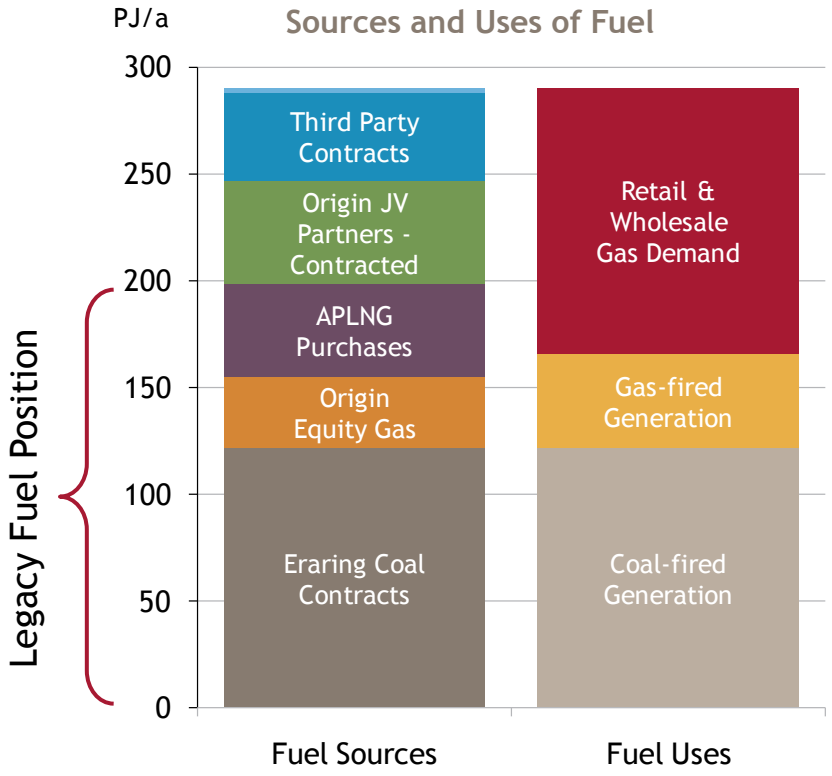
Access to diverse fuel sources enables Origin to optimise its energy supply portfolio



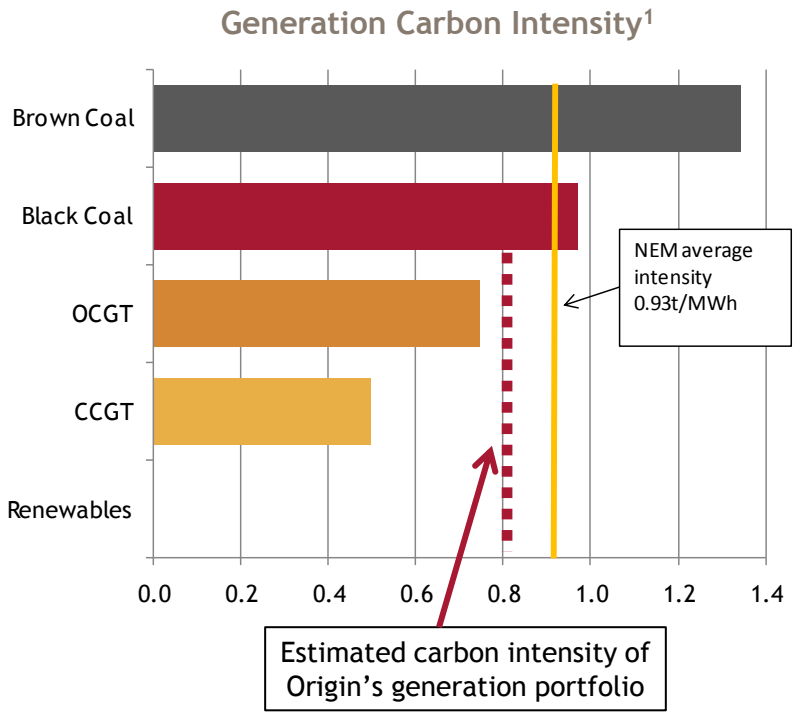
Catalysts that drive fuel-switching:

- Electricity market prices
- Spark spread between fuels
- High supply from intermittent generation (e.g. wind)
- A carbon price
- Ramp-down or shut-down of Victorian brown coal generators

Australian energy prices are set to increase as networks are upgraded, carbon is priced, and domestic fuel prices approach export parity



- As domestic fuels move towards export parity pricing, Origin's legacy fuel position should provide increased value



- The introduction of a price on carbon is expected to benefit Origin as the uplift in energy prices is likely to be higher than Origin's cost of carbon

Legacy fuel contracts and a lower than market-average carbon intensity enables Origin to benefit under this environment

 (1) Source: Origin data and AEMO Carbon Dioxide Equivalent Intensity Index based on FY07-FY11 weighted average energy output

Darling Downs Power Stations

Presented by Bill Renshaw
Asset Operations Manager

Origin Operational Review and Asset Visit
19-20 September, 2011

Background

- Darling Downs Power Station site purchased with Sun Retail acquisition in February 2007
- Site purchased with approval for a 510 MW open cycle peaking power plant
- Origin modified approval to a 640 MW base load combined cycle plant
- Amended Development Approval granted June 2007

Site Location

- Located at Braemar, approx. 40km West of Dalby
- Opposite Powerlink 330kV/275kV substation
- Strategic site location due to proximity to gas and electricity infrastructure

Site Details

- Site area 40.5 Ha
- Site originally re-growth scrub
- Site operating area cleared
- Balance of site left uncleared as buffer zone

Plant Construction

- Plant constructed by a consortium of General Electric and CH2MHill
- Construction commenced in 2007
- Commissioning commenced in 2009
- Commercial operation on July 1, 2010

Key Design Features

- 3 x 9E gas turbines (GT) (~120 MW each) + 280 MW steam turbine
  - Proven, unitised => high reliability
  - 280 MW steam turbine capacity includes use of duct firing
- Duct fired heat recovery steam generators (HRSGs) (~100 MWe)
  - Effective redundancy for 1 GT/HRSG train
  - Flexible operation – 110 MW peaking capacity over base load
- Performance
  - Facility Full Load Output – 530 MW
  - Maximum Supplementary Firing – 640 MW
- Environmental Aspects
  - Low Noise
  - Low Stack Emissions
  - Low Water Consumption

Operations and Staffing

- Cycling Base Load Operation
  - Continuous operation
  - Load to suit gas and electricity market requirements
- 35 Staff
  - 24/7 shift coverage, 4 operators per shift
  - Small maintenance team on day work
  - Small engineering team on day work
  - Management and administration on day work
- Contract Maintenance
  - Contractual Services Agreement with GE for turbine generator maintenance
  - Other specialised maintenance activities done by contractors

Noise and Emissions Mitigation

- Extensive noise attenuation
  - GT generators fully enclosed
  - GT and ST hall sound insulated
  - ST bypass valves enclosed
  - BFW pumps enclosed
  - Low noise ACC fans
- Dry low NOx (DLN) combustors on gas turbines

Water and Wastewater

- Water Supply from onsite bore
  - Onsite bore from Hutton Aquifer
- Air cooled condenser
  - Water consumption 2% of typical coal fired plant
- Water recycling
  - Boiler blowdown re-treated
  - Demin plant reject re-treated
- Wastewater
  - Wastewater removed from site by road tanker to licensed disposal facility
  - WSAC to concentrate wastewater in order to reduce road tanker movements
- Stormwater
  - Stormwater from roads and carparks treated in oil/sediment traps
  - All stormwater goes to stormwater settlement pond

Thank you