

# INTEGRATING GAS AND ELECTRICITY MARKETS IN MODELLING

18 March 2015

- AEMO is responsible for reliability and security including:
  - Planning function for transmission networks
  - Gas adequacy modelling
  - Supply adequacy
  - Markets operation and performance

### 3.2.3 Power system operations

- (a) Subject to Chapter 4, *AEMO* must manage the day to day operation of the *power system*, using its reasonable endeavours to maintain *power system security* in accordance with this Chapter.
- (b) *AEMO* must perform *projected assessment of system adequacy processes (PASA)* in accordance with rule 3.7, *publish* the details of these assessments in accordance with rule 3.13 and implement an escalating series of *market interventions* in accordance with this Chapter to maintain *power system security*.

- January 2015: First LNG ship left Gladstone
  - International prices
  - Higher production costs
  - Shorter contracts
- New STTM hubs and exchange traded products
- Electricity consumption from the grid in decline
  - Exception is Queensland
  - Continued small scale PV uptake
  - Energy efficiency schemes

**16 March 2015**

Market Participant

**New Contracts: ASX Australian & New Zealand Natural Gas Futures**

ASX Energy is pleased to advise Market Participants that ASX will launch the following four contracts on Tuesday 7th April 2015 for **Trade Date 7th April 2015**.

1. Wallumbilla Natural Gas Calendar Quarter Futures (GK)
2. Wallumbilla Natural Gas Calendar Month Futures (GJ)
3. New Zealand Natural Gas Calendar Quarter Futures (EY)
4. New Zealand Natural Gas Calendar Month Futures (EX)

- Swanbank E has been placed in cold storage partly due to high gas prices

### Cold storage

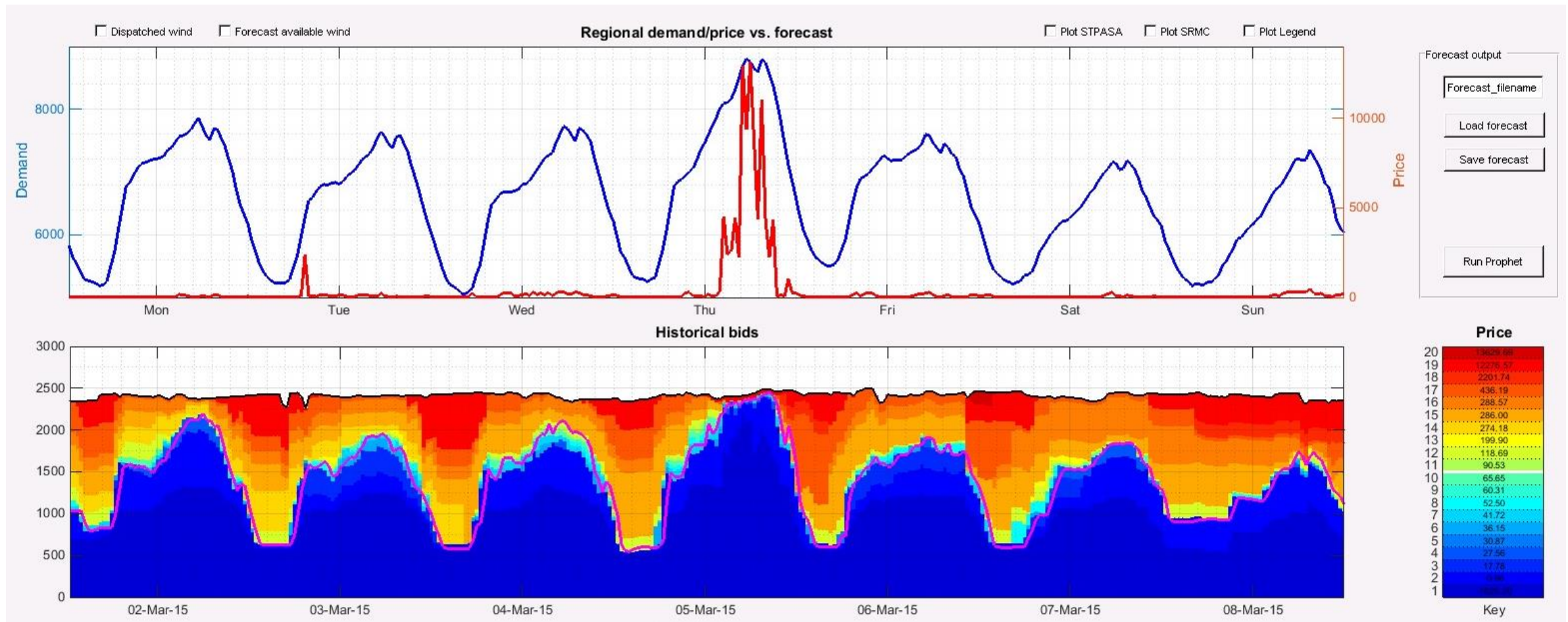
Swanbank E was put in cold storage on 1 December 2014 for up to three years. It will not be used to generate electricity at this time.

Analysis of the electricity and gas trading markets concluded that greater value could be achieved from Stanwell's gas entitlements by selling the gas rather than using it to generate electricity.

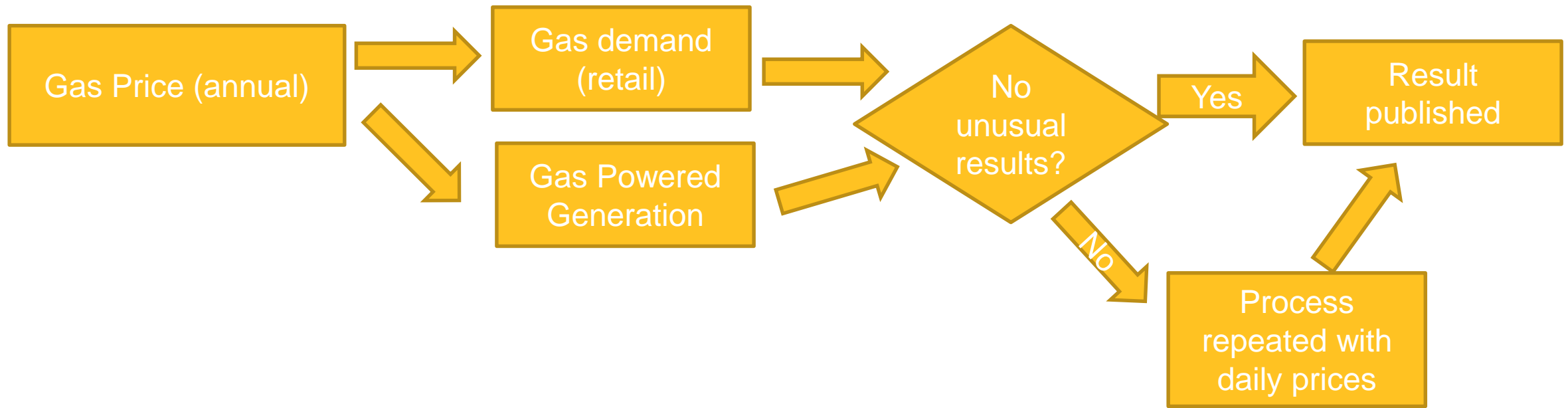
<http://www.stanwell.com/wp-content/uploads/Swanbank-E-December-2014.pdf>

- Fuel switching due to higher gas prices
- Ramp gas and potential future gas prices affecting perceived value of generation

# GAS BIDDING AND AVAILABILITY (QLD)



- Currently the models are run using annual estimation of forecast gas prices
- Gas prices fed into gas demand and Gas Powered Generation
- Where there is shortfall generation or gas, the process is repeated on a daily basis



- Fully integrated model
  - Issue with data granularity (daily vs five minutes)
  - Sensitive to estimated inputs (particularly gas)
    - Currently exploring this option
- Equilibrium model
  - Used by university and research organisations
  - In talks with organisations which run equilibrium models
- Gas elasticity curve
  - Solve for electricity prices and adjust gas consumption based on netback price
  - Difficult to create and observe