

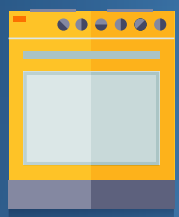
# AUSTRALIA'S GAS FUTURE AT A CROSSROADS

The Australian Energy Market Operator's (AEMO) 2016 National Gas Forecasting Report (NGFR) highlights some of the major uncertainties and challenges complicating gas demand forecasts for eastern and south-eastern Australia's interconnected gas markets over the next 20 years.

## Uncertainties and challenges – future shapers

The 2016 NGFR provides a gas lens into the increasingly complex interdependencies between the gas and electricity sectors and the relationship between Australia's energy demand and growing links to the international gas sector.

The forecasting scenarios, developed with industry, represents the most probable pathway for Australia, with neutral (most likely), weak and strong economic scenarios.



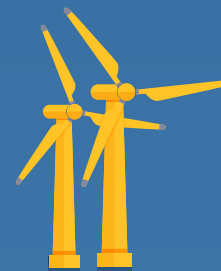
Changing domestic role of gas, challenging supply and prices.



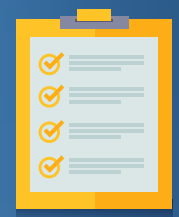
Changing economy; changing industry; changing consumers.



Links to volatile international oil and gas markets.



Transforming to a lower emissions power system.



Planning challenges to cater for a range of future economic scenarios.

## Weighing up the economic cases

### Neutral economic scenario

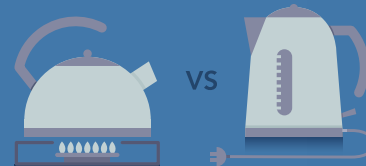
A snapshot of forecast gas consumption over the next 20 years.



Total gas consumption is forecast to increase by 30%, driven by liquefied natural gas (LNG) exports and growth in gas-powered generation (GPG).



GPG is forecast to increase as gas is used as a transition fuel to a low-emissions power system.



Residential, commercial, and industrial gas use (excluding GPG) is projected to decline, with growth from a rising population offset by a gas to electric appliance switching trend, and declines in gas-intensive industries.



LNG is forecast to continue ramping-up as coal seam gas projects commence deliveries of gas for export.

# Neutral economic case

The chart below highlights the short-term transformation of the sector expected during the ramp-up of the LNG facilities, the forecast domination of LNG export demand, and the projected growth in GPG in the 2020s.



**Figure 1:** Total annual gas consumption by sector, 2016 to 2036 (Neutral economic scenario)

With this outlook comes great challenges for policy-makers, infrastructure planners, and asset operators. The domestic gas sector in eastern and south-eastern Australia is now linked to a more volatile world market through our LNG export industry, and small supply chain disruptions can have large domestic impacts. While other technologies may develop in this space, the size and extent of coal retirements required to achieve national 2030 emissions targets indicate that GPG could play an important role in the transition to a low-carbon future. In the short term, GPG growth may push domestic conventional gas supply to just within the limit of developed reserves, with the greatest gas supply challenge forecast to occur between 2018 and 2024.

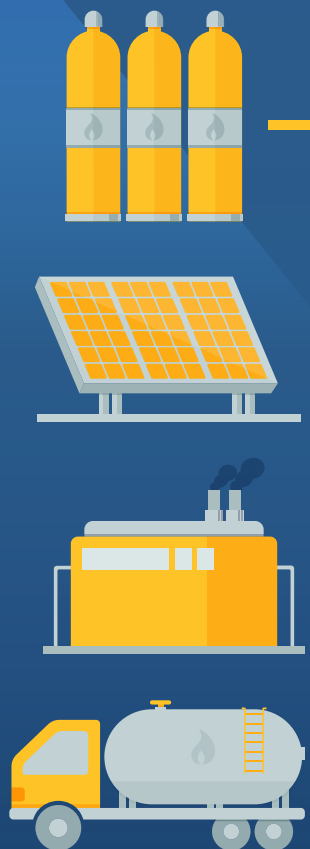
## Weak economic case

Annual consumption forecasts in 2036 are 943 petajoules (PJ) below the neutral economic case.

Assumes strong momentum to renewables and energy efficiency trends, which are projected to flatten energy demand, making emission targets easier to achieve.

Examines the impact of the assumed closure of some energy-intensive businesses, causing large falls in projected gas and electricity use.

Examines the impact of a sustained low international LNG price, a weak economy and a less confident consumer.



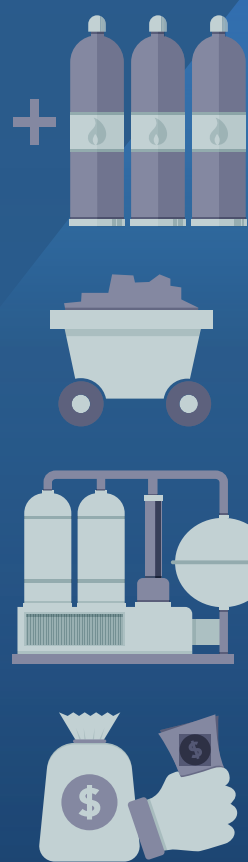
## Strong economic case

Annual consumption forecasts in 2036 are 639 PJ higher than the neutral economic case, most of this is attributable to LNG.

Examines the impact of assumed coal generation retirements.

Assumes LNG production from existing plants above name-plate capacity and the construction of a seventh LNG supply train from 2027.

Assumes high international LNG prices, a robust economy, and a confident consumer.



## What does it all mean?

The difference in gas consumption projections between the weak and strong economic cases is approximately 1,600 PJ. This difference indicates that the planning problem is great, with the most likely projections for gas consumption showing a number of potential asset investments are at increasing risk of being stranded if weaker economic assumptions were to prevail.

More than ever before, planning solutions will need to prioritise flexibility, innovation and options to defer investment until some uncertainty is resolved.

**Figure 2:** Comparison of projected total annual gas consumption by economic, 2016 to 2036

