# DOMESTIC GAS ANALYSIS

## WESTERN AUSTRALIA'S DOMESTIC GAS RESERVATION POLICY

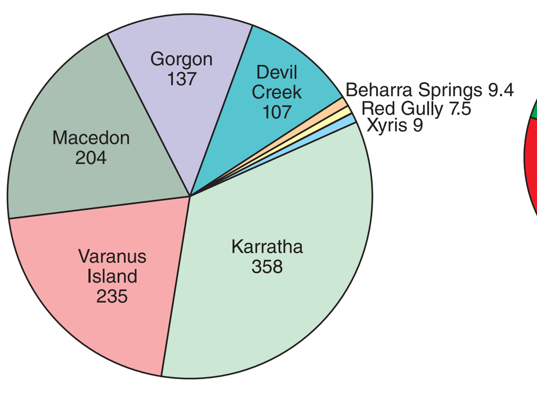
Certain LNG producers are required to make available domestic gas (Domgas) equivalent to 15 per cent of LNG production through:

- Reserving domestic gas equivalent to 15 per cent of LNG production from specific LNG export projects
- Developing and obtaining the necessary infrastructure (including a Domgas plant, associated facilities and offshore pipelines) to meet their Domgas commitment as part of the approval process
- Demonstrating diligent and good faith in marketing gas to the domestic market

## AVERAGE GAS SUPPLY AND CONSUMPTION

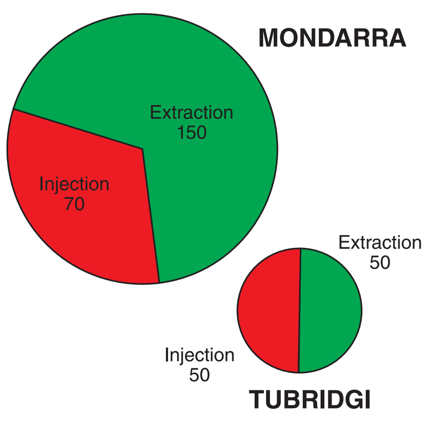
**DURING THE LAST SIX MONTHS**

**GAS SUPPLY**
1046.9 TJ/d

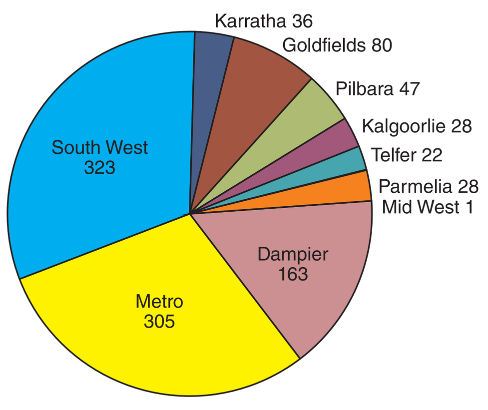



**FACILITIES**

**UNDERGROUND GAS STORAGE CAPACITY**
(TJ/d)




**GAS CONSUMPTION**
1033 TJ/d




**PIPELINES/REGIONS**

## DOMESTIC GAS SUPPLY OUTLOOK AND DEMAND FORECAST

### GAS SUPPLY

In Western Australia, Domgas demand is currently around 1045 TJ/d.

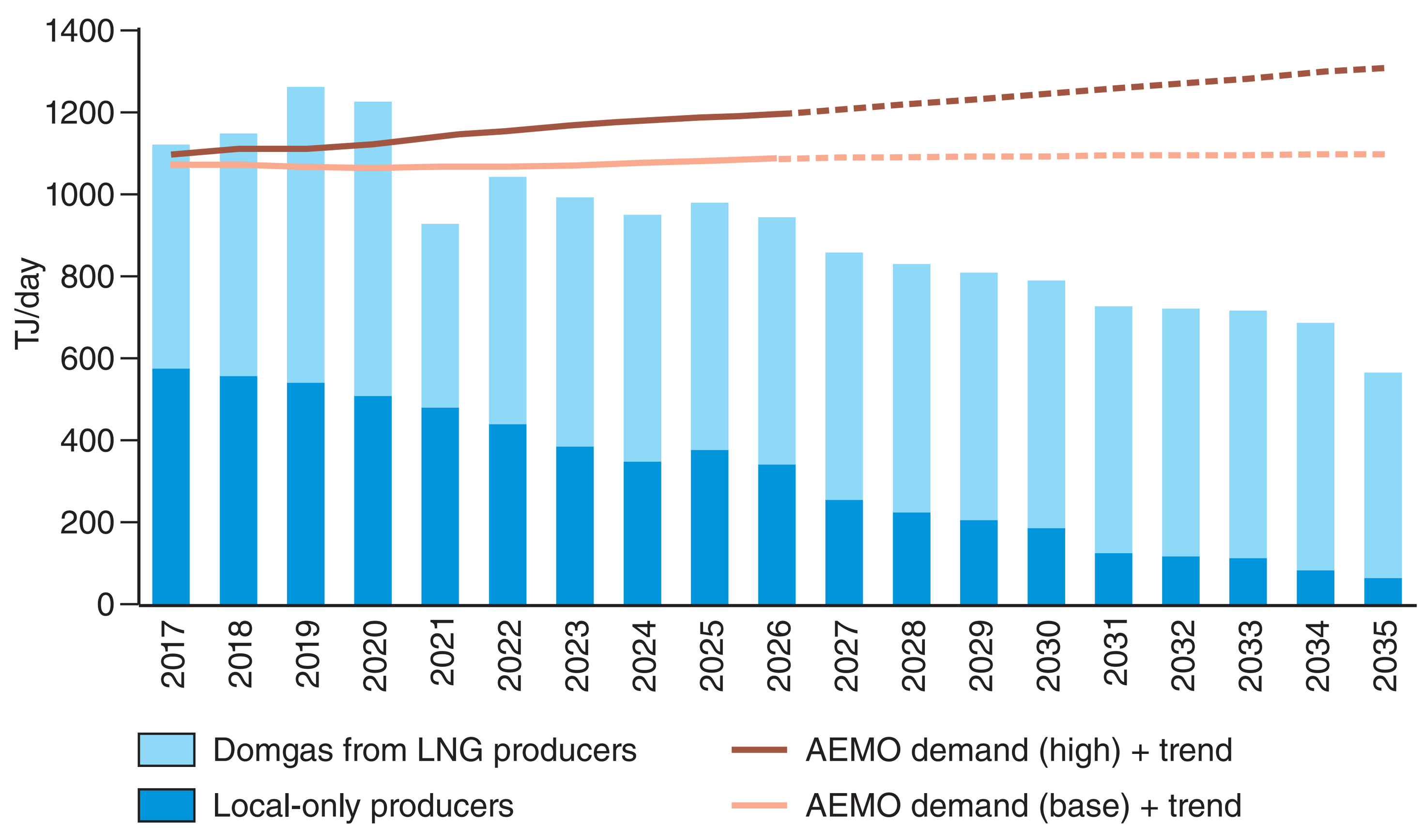
New gas production capacity, being developed or planned, includes:

- Wheatstone: capacity 200 TJ/d – expected late 2018 (under construction)
- Gorgon: capacity 300 TJ/d – flagged for 2021 (has been producing 137 TJ/d since 2016)

Supply from the North West Shelf project is expected to be depleted by the end of 2020 when the last long term domestic supply contract expires. It is desirable for the State to replace North West Shelf gas with gas from other projects to meet the Domgas demand.

### PROCESSING INFRASTRUCTURE

The majority of WA's domestic gas supply is sourced from the Carnarvon Basin and is primarily controlled by Woodside, Quadrant and BHP Billiton. The 15 per cent gas reservation policy will mean Chevron's role in Domgas supply will increase significantly. Domgas processing capacity will increase by 500 TJ/d from the current capacity once supply from Gorgon and Wheatstone come on stream.




### UNDERGROUND GAS STORAGE

Mondarra and Tubridgi are commercial underground gas storage facilities in Western Australia. Mondarra has the capability to inject gas at 70 TJ/d and withdraw gas at 150 TJ/d. Tubridgi has the capability of gas injection and extraction with a nominal capacity of up to 50 TJ/d.

### WAITSIA GAS PROJECT

The proposed full field development comprises approximately 20 wells over an area of 50 km$^2$ and is expected to deliver up to 100 TJ/d. Waitsia may produce gas for the domestic market for at least the next 20 years.

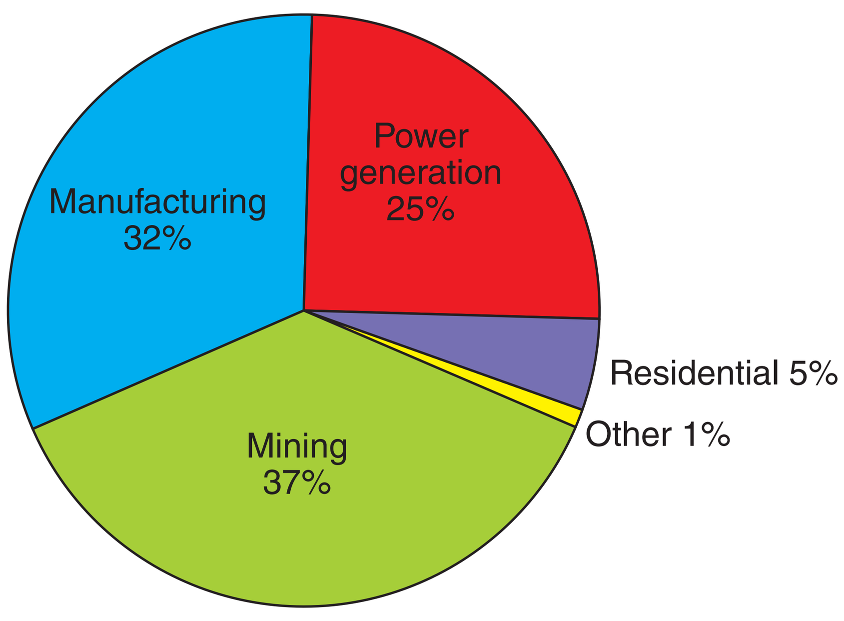
## DOMESTIC GAS PROCESSING CAPACITY

| Basin | Facilities | Operator | Average production (TJ/d) | Processing capacity (TJ/d) |
|---|---|---|---|---|
| Carnarvon | Karratha Gas Plant | Woodside | 358 | 630 |
| | Varanus Island | Quadrant | 215 | 390 |
| | Devil Creek | Quadrant | 107 | 220 |
| | Macedon | BHP Billiton | 204 | 200 |
| | Wheatstone | Chevron | Expected 2018 | 200 |
| | Gorgon | Chevron | 137 | 300 |
| Perth | Xyris | AWE | 9 | 11 |
| | Red Gully | Empire | 7.5 | 10 |
| | Beharra Springs | Origin Energy | 9.4 | 25 |
| | | Total | 1046.9 | 1986 |

## GAS PIPELINES SPECIFICATION IN WESTERN AUSTRALIA

| Component | Units | WA Standard | Parmelia Pipeline | Goldfields Gas Pipeline | Dampier–Bunbury Natural Gas Pipeline |
|---|---|---|---|---|---|
| Maximum total inert gases | mol % | 7.0 | 7.0 | 7.0 | 7.0 |
| Maximum $CO_2$ | mol % | 4.0 | 4.0 | 4.0 | 4.0 |
| Minimum higher heating value | MJ/sm$^3$ | 35.1 | 35.1 | 35.1 | 37.0 |
| Maximum higher heating value | MJ/sm$^3$ | 42.0 | 42.0 | 42.0 | 42.3 |
| Minimum Wobbe Index | | 46.0 | 46.0 | 46.0 | 46.5 |
| Maximum Wobbe Index | | 52.0 | 52.0 | 52.0 | 51.0 |
| Maximum total sulfur | | | | | |
| Unodorised gas | mg/sm$^3$ | 10.0 | 10.0 | 10.0 | 10.0 |
| Odorised gas | mg/sm$^3$ | 20.0 | 20.0 | | 20.0 |
| Maximum hydrogen sulfide | mg/sm$^3$ | 2.0 | 4.6 | 5.0 | 2.0 |
| Maximum oxygen | mol % | 0.2 | 0.2 | 0.2 | 0.2 |
| Maximum water | mg/sm$^3$ | 48.0 | 100.0 | 48.0 | 48.0 |
| Hydrocarbon dewpoint over pressure 2.5 to 8.72 MPa | 0.0°C | below 0.0°C | below 10°C | below 0.0°C | below 0.0°C |

## GAS DISTRIBUTION IN THE WESTERN AUSTRALIAN MARKET




## COMPARISON OF THE WESTERN AUSTRALIAN GAS PRICE

**WITH NATIONAL AND INTERNATIONAL MARKETS**