

Market Analytics:

Q4 2019 Quarterly Energy Dynamics Report

Presented to WA Electricity Consultative Forum
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19 February 2020

Demand

Record Minimum and Maximum

* All demand measurements use 'Operational Demand' which is the average measured total of all wholesale generation in the SWIS and is based on non-loss adjusted sent out SCADA data

At 1230 hrs on Sunday, 13 October 2019 the WEM recorded an all time minimum demand of 1,159 MW.

- Output from rooftop PV was estimated to be 875 MW during this Trading Interval, fulfilling 43% of underlying demand.

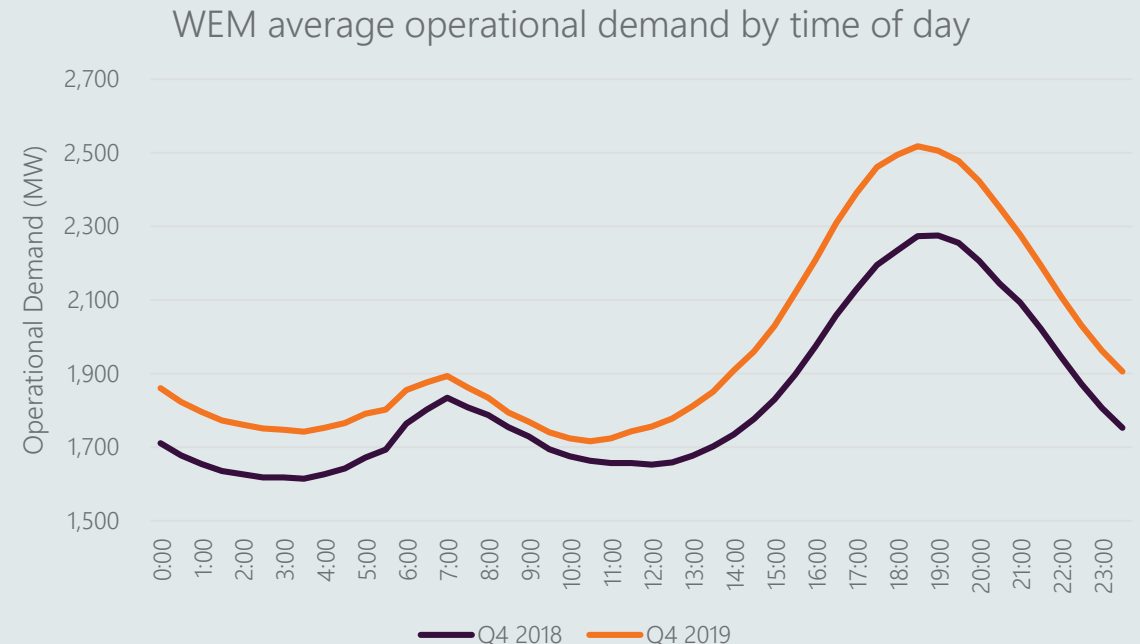
In contrast, at 1730 hrs on Thursday, 12 December 2019, the WEM recorded its highest Q4 maximum demand of 3,587 MW.

- This was primarily driven by the extended periods of high temperatures experienced in Perth in December 2019.

Due to increased cooling requirements associated with hot weather, average demand in Q4 2019 increased by 7.9% (145 MW) compared to Q4 2018.

- This resulted in an average 9% (245 MW) increase in operational demand during the 1830 Trading Interval.

Maximum demand (MW)			Minimum demand (MW)		
Q4 2019	All-time	All Q4	Q4 2019	All-time	All Q4
3,587	4,006	3,587	1,159	1,159	1,159



Electricity Generation

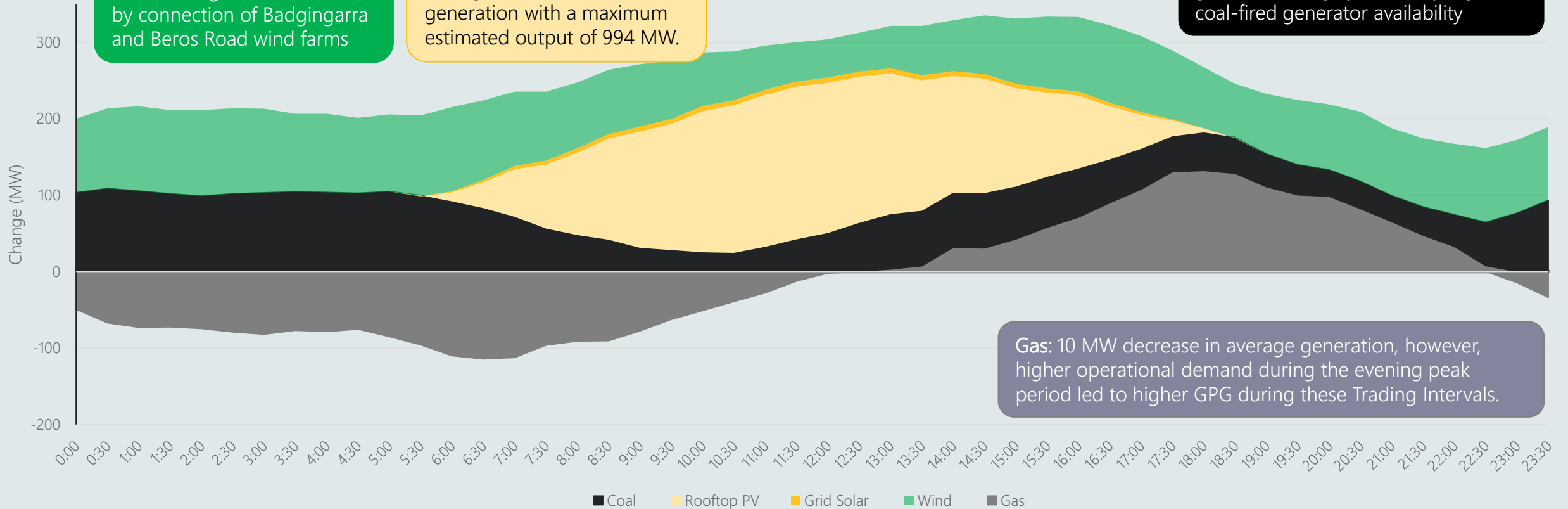
Change in supply – Q4 2019 v Q4 2018

Wind: 87 MW average increase in generation driven by connection of Badgingarra and Beros Road wind farms

Rooftop PV: Estimated 63 MW average increase in generation with a maximum estimated output of 994 MW.

Coal: 67 MW average increase in generation, largely driven by higher coal-fired generator availability

Gas: 10 MW decrease in average generation, however, higher operational demand during the evening peak period led to higher GPG during these Trading Intervals.



At 1130 hrs on Saturday, 30 November 2019 the SWIS recorded its highest ever level of VRE penetration. At the time, 51% of underlying system demand being supplied by VRE output.

Prices

Q4 2019 v Q4 2018

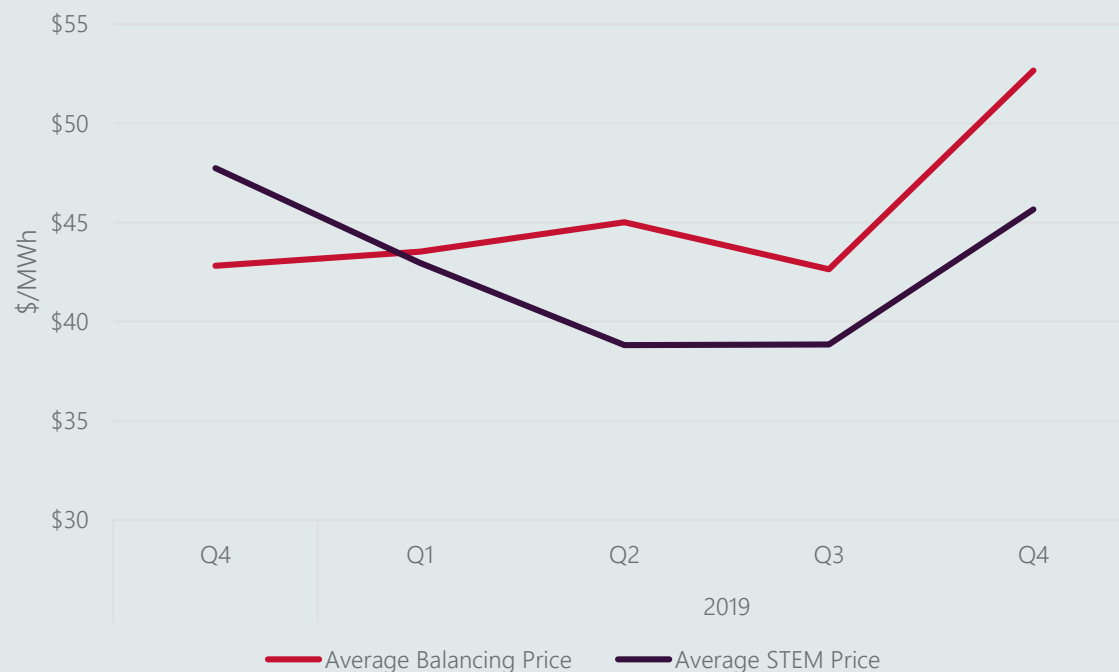
The average
Balancing
Price increased
by 23%

- This was primarily due to an 8% increase in average operational demand and greater GPG output from higher cost open cycle gas turbines.

The average
STEM price
decreased by
4.3%

- This is partly attributed to changes in Market Participant bidding and hedging behaviour.

WEM quarterly average wholesale electricity prices

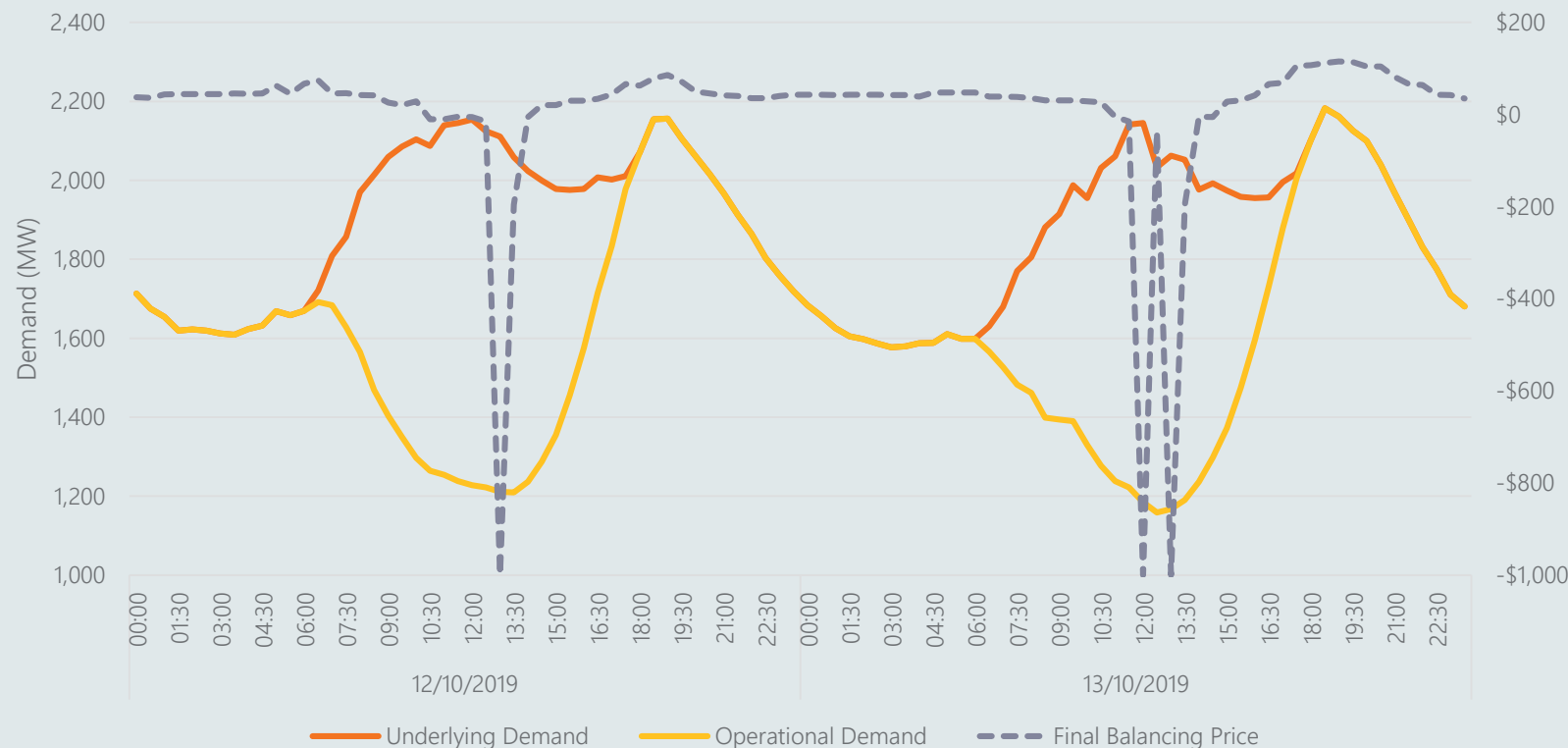


Price Floor reached

12 – 13 October 2019

For the first time since the WEM commenced in 2006, the wholesale electricity price cleared at $-\$1,000/\text{MWh}$. This outcome was driven by:

- Record low demand, with operational demand reaching an all-time low of 1,159 MW at 1230 hrs on Sunday, 13 October 2019.
- Rooftop PV generation that had an estimated average output of 927 MW during these Trading Intervals; and
- Market Participant bidding behaviour.



Further information can be found in the WAECF 23 meeting pack:

<https://www.aemo.com.au/consultations/industry-forums-and-working-groups/list-of-industry-forums-and-working-groups/wa-electricity-consultative-forum-waecf>

Reserve Capacity Mechanism

Q4 2019 marks the start of the 2019-20 Capacity Year

The total number of Capacity Credits assigned increased from 4,819 MW in Capacity Year 2018-19 to 4,888 MW.

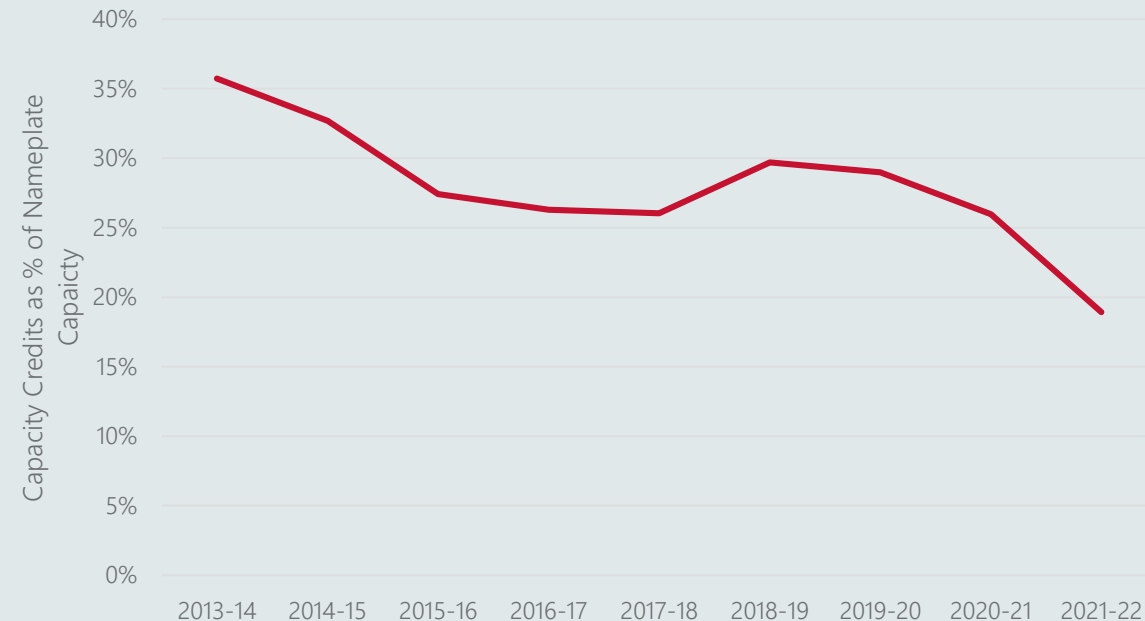
- This was mainly due to Badgingarra Wind Farm and Merredin Solar Farm being assigned 35 MW and 29 MW of CRC respectively.

The Benchmark Reserve Capacity Price is the lowest calculated since 2006 and has decreased by 8% compared to 2019.

- This decrease can mostly be attributed to the decreasing yield value of the Commonwealth Government bonds.

The level of Capacity Credits assigned to Intermittent Non-Scheduled Generators is reducing.

- The increasing penetration of behind the meter PV generation in the SWIS is resulting in periods of highest demand shifting to later in the day, and occurring more in the winter months when, on average, INSG output is lower.



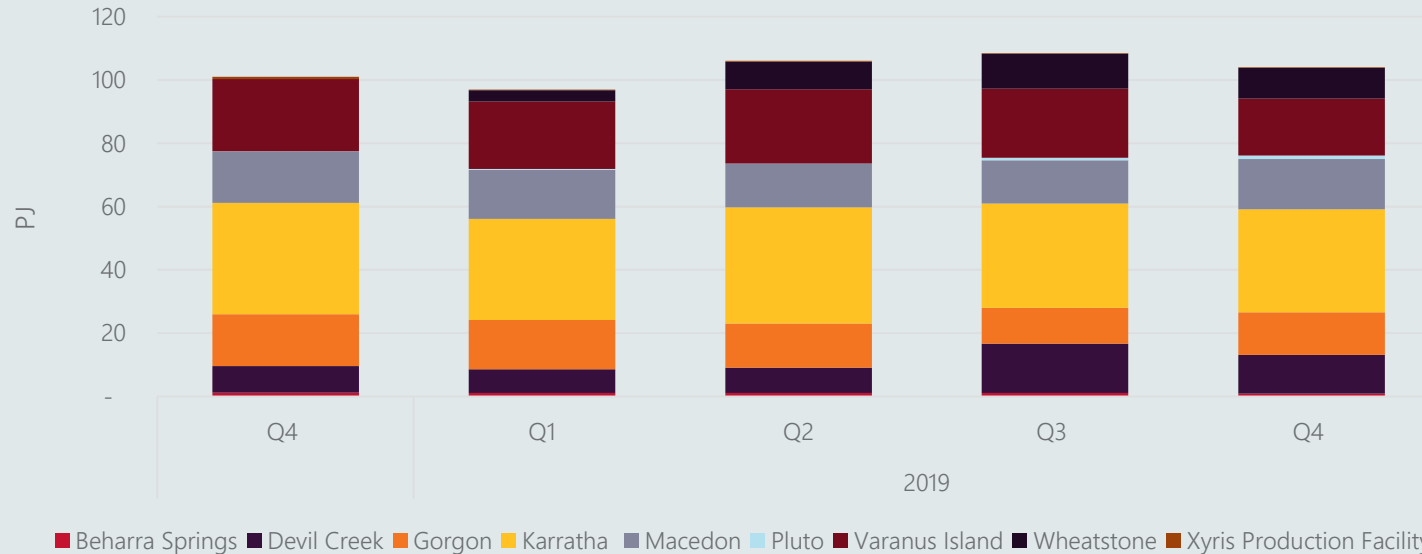
Gas

Q4 2019 v Q3 2019

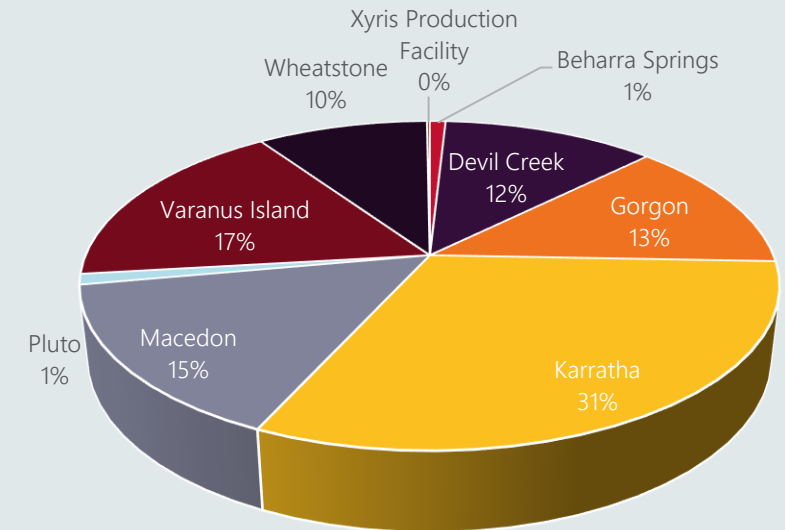
Gas supply decreased by 4% to 104 PJ compared to Q3 2019.

- This was largely due to a reduction in production from Devil Creek, Varanus Island and Wheatstone.

Western Australia quarterly gas production by facility



WA gas supply by production facility



This resulted in Macedon displacing Devil Creek as the third largest gas Production Facility in Western Australia, behind Karratha and Varanus Island

Questions and Feedback

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