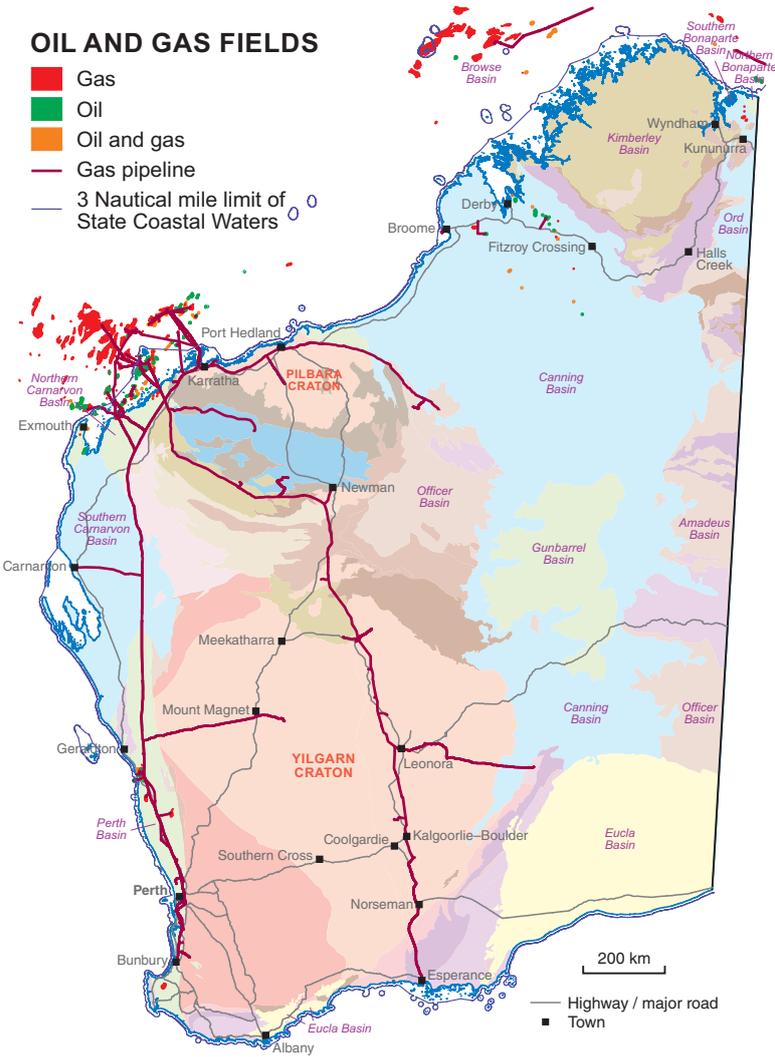




# INVESTMENT OPPORTUNITIES PETROLEUM

## OIL AND GAS FIELDS

- Gas
- Oil
- Oil and gas
- Gas pipeline
- 3 Nautical mile limit of State Coastal Waters



## Hydrocarbon production from Western Australian onshore and State Waters fields in 2018

Oil	348 332 kL	(2.2 MMbbl)
Condensate	540 kL	(0.003 MMbbl)
Gas	291 697 k/m <sup>3</sup>	(18.3 Bcf)

## Exciting onshore potential

### Perth Basin

After some 50 years of exploration, the basin's largest commercial gas discovery (Waitsia) was made in 2014 while appraising the Senecio Gas Field. This opened up a new Permian sandstone play. A record flow of 90 million standard cubic feet per day (MMSCFD) was subsequently obtained from the Kingia Sandstone. (Source: AWE)

### Canning Basin

Pre-drill, Ungani 1 was a gas in sandstone prospect. However, in 2011, 37 degrees API oil flowed on DST at rates of up to 1647 barrels per day (bpd) on a 32/64" choke from Devonian–Carboniferous dolomite (Source: Buru Energy). Subsequently, Ungani became a commercial oil producer.

**Note:** there are over 130 giant and super-giant oil and gas fields with similar Paleozoic source and reservoir rocks similar to the Canning Basin.

'The best remaining frontier prospects lie in older basins with a high preservation potential such as intracratonic basins with evaporite seals.' Duncan S Macgregor, BP, 1996

Western Australia is Australia's largest producer of hydrocarbons, and in November 2018 Australia became the world's largest exporter of liquefied natural gas (LNG). The rapidly expanding oil and gas industry is the State's fastest-growing sector, with a value of more than \$35 billion in 2019. With a range of plays in the Mesozoic, Paleozoic and Neoproterozoic, it is one of the few places in the world where potential remains for larger discoveries. Most of Australia's reserves growth has been in offshore Western Australia.

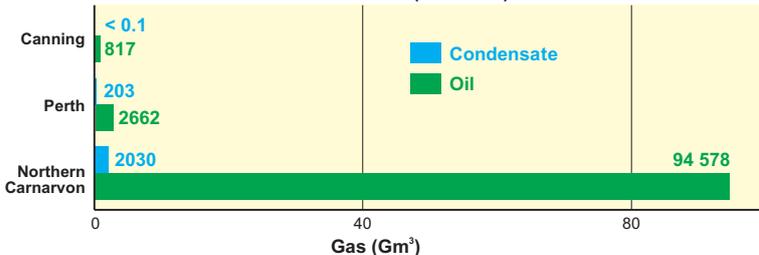


Drilling in the northern Perth Basin

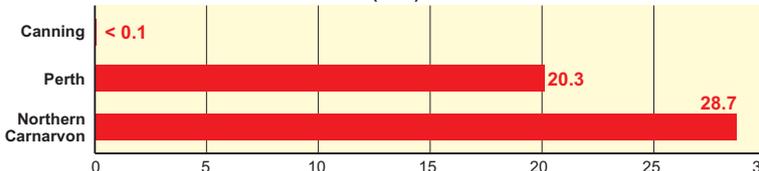
Courtesy Empire Oil and Gas

## Cumulative State hydrocarbon production by basin to 2018

Condensate and oil (x 1000 kL)



Gas (Gm<sup>3</sup>)



3D seismic survey, northern Perth Basin

Courtesy ARC Energy



## Internationally competitive

Western Australia ranks among the best areas in the world for petroleum new ventures:

- For some years, international new ventures surveys have rated Australia in the top five nations in attractiveness for petroleum exploration. The majority of exploration in Australia is in Western Australia.
- Exploration success, growth in reserves and in production (particularly from the North West Shelf), a skilled workforce, and the favourable and low-risk business environment play a big part in such recognition.

## Room for new entrants

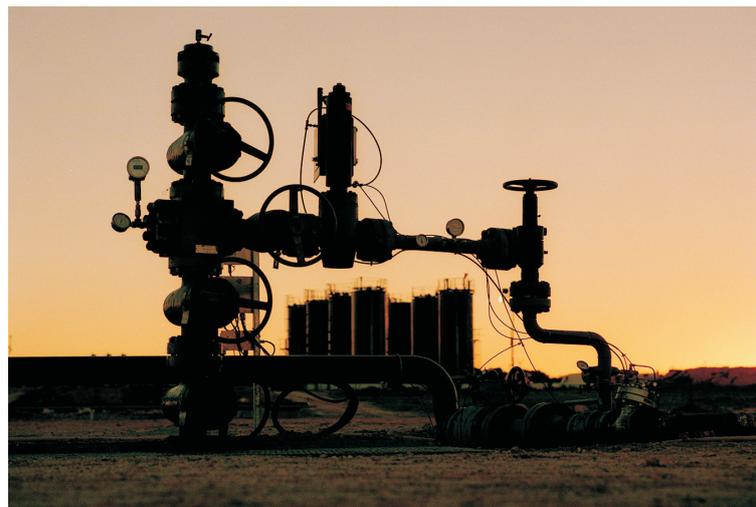
Opportunities for newcomers are available in Western Australia. Much of the onshore and offshore areas of the State remain underexplored, and new commercial plays have been discovered in the Perth and Canning basins.

Many exploration opportunities exist, from offshore and onshore frontier plays to lower cost, lower risk prospects near existing infrastructure.

## Acreege release

For Western Australian onshore and State Waters areas, the system of acreage gazettal inviting applications for petroleum exploration acreage identifies precise permit configurations and releases them for competitive bids, up to twice per year. Bids are normally based on a work program.

Refer to : [www.dmp.wa.gov.au/acreege\\_release](http://www.dmp.wa.gov.au/acreege_release)



Hovea well head

Courtesy Arc Energy

## Geoscience information

The Geological Survey of Western Australia (GSWA) and Geoscience Australia (GA) provide geological and geophysical maps, reports, and digital datasets. They also have large archives of exploration results from exploration company title holders.

Much of this information can be obtained free of charge via the internet, or at very low cost.

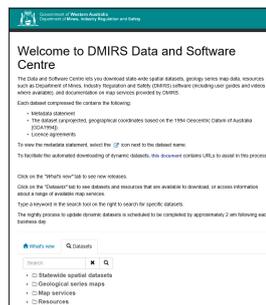
## Data and Software centre

The Data and Software Centre is a facility that allows you to download spatial datasets relating to geology, mining and petroleum titles, geochemistry and other geoscience information.

WA petroleum information includes:

- Pipelines
- Petroleum titles
- Wells
- Acreage releases
- Oil and gas fields
- 3D seismic polygons

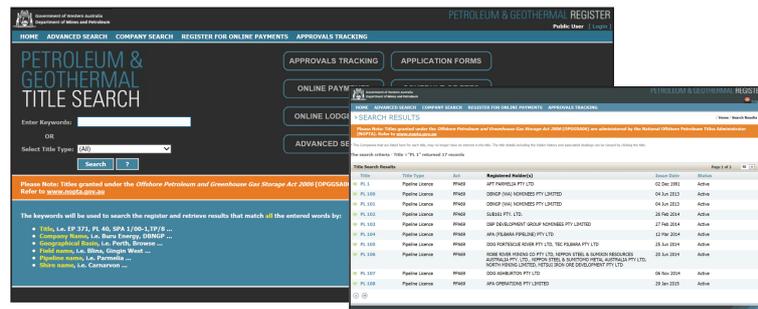
Refer to: [www.dmp.wa.gov.au/datacentre](http://www.dmp.wa.gov.au/datacentre)



## PGR

The Petroleum and Geothermal Register (PGR) system is an 'easy-to-use' system, which provides information relating to petroleum and geothermal titles and allows for lodgement of online applications and payment of fees.

Refer to: [www.dmp.wa.gov.au/pgr](http://www.dmp.wa.gov.au/pgr)



## WAPIMS

Western Australian Petroleum and Geothermal Information Management System (WAPIMS) is a petroleum exploration database containing data on wells, geophysical surveys, titles, and other related exploration and production data. The system also contains the Core Library (Perth and Kalgoorlie) database.

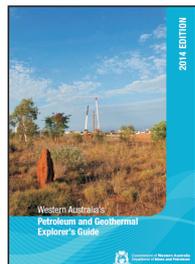
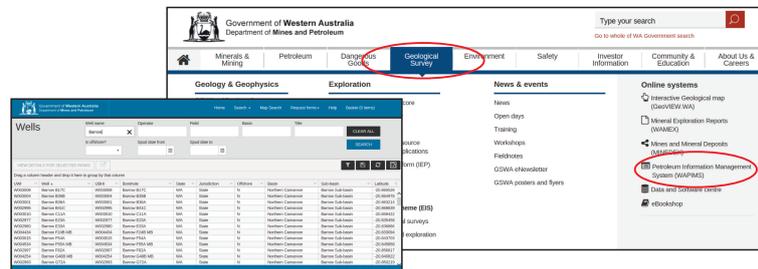
Refer to: [www.dmp.wa.gov.au/wapims](http://www.dmp.wa.gov.au/wapims)

## Maps and publications

DMIRS produces many maps and publications providing information to the petroleum industry.

Refer to: [www.dmp.wa.gov.au/ebookshop](http://www.dmp.wa.gov.au/ebookshop)

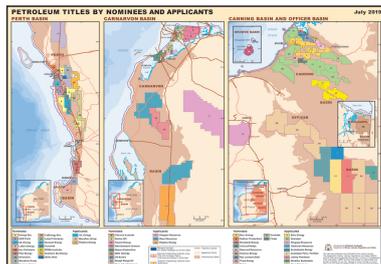
*Get it Online*



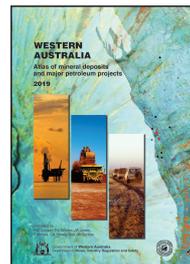
Petroleum and geothermal explorer's guide



Petroleum titles map



Petroleum titles by nominees and applicants



Atlas of mineral deposits and petroleum fields



Major resource projects map



Producing oil fields

