



Shale resources and opportunities, Beetaloo Sub-basin,
Northern Territory

Australia PETROLEUM

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Beetaloo Sub-basin, NT



- Mesoproterozoic sub-basin within highly prospective Paleo-Mesoprot greater McArthur Basin

- Vast geologically continuous shale gas sub-basin
- 100's of Tcf of gas in place
- 1st horizontal hydraulically fractured well successfully flowed gas
- Potential for multiple dry gas, wet gas & liquids plays

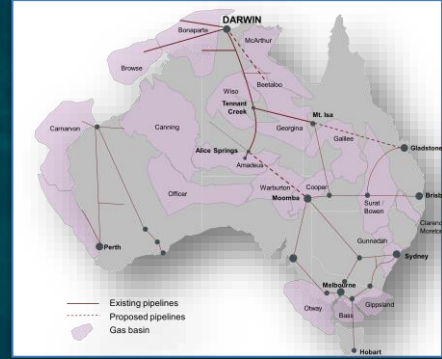


Proximity to markets



Offshore markets

- closest LNG hub to SE Asia:
Ichthys LNG Project (initial capacity of 8.4 Mtpa LNG) + Darwin LNG (design capacity of 3.7 Mtpa LNG)



Onshore markets

- Improved pipeline infrastructure - now linked to domestic east coast markets

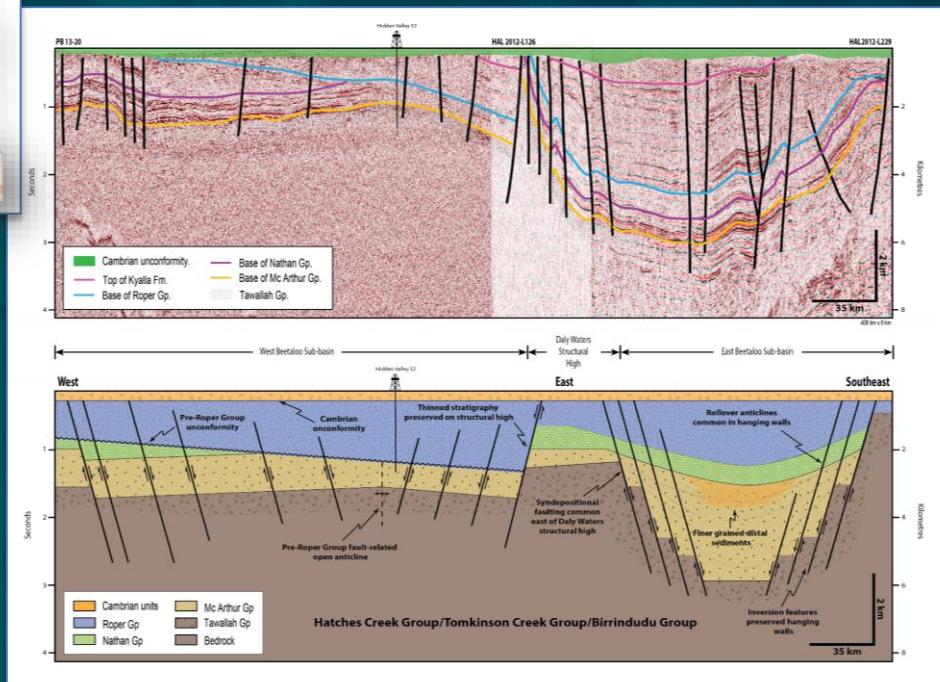
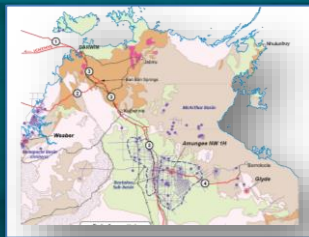


Ichthys LNG project - Darwin

Prospective basin architecture



- Integration of exploration seismic & well data to constrain subsurface prospective stratigraphy and basin forming structures (NTGS)
- > 300km Mesoprot Roper Group (Velkerri Fm, Kyalla Fm) and Palaeoprot McArthur Group (Barney Crk Fm)



Schematic E-W composite cross section through Beetaloo Sub-basin

Prospective formations



Velkerri Formation

- technically most mature
- dry to wet gas cont over > 80 km
- 3 organic rich shale intervals
- ave TOC 3-4%
- Hydraulically stimulated - extended flow rates of 0.8-1.2 MMscf/d
- Amungee NW-1H 2C contingent resource 6.6 TCF

Kyalla Fm & Hayfield Ss

- technically less mature
- ave TOC 1-3%

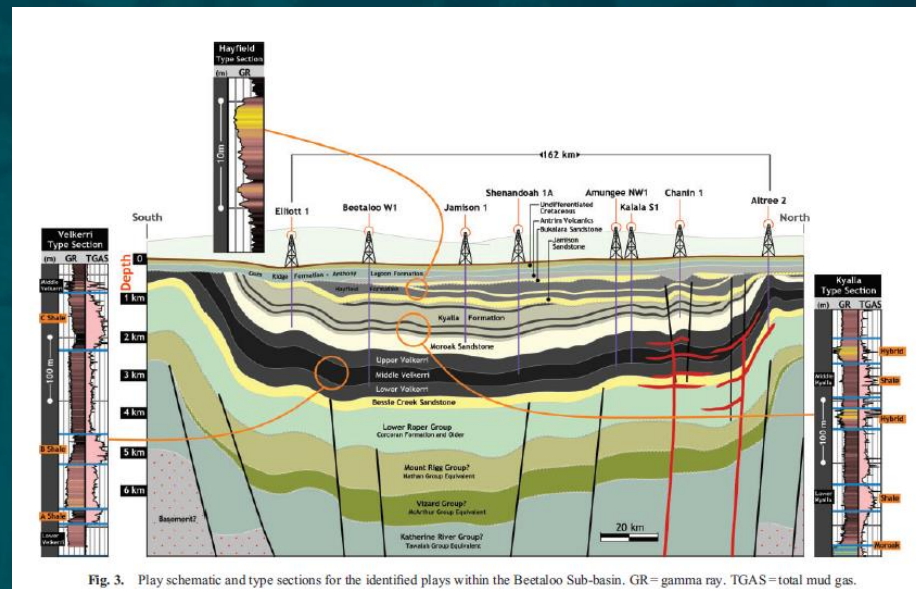


Fig. 3. Play schematic and type sections for the identified plays within the Beetaloo Sub-basin. GR = gamma ray. TGAS = total mud gas.

Côté et al, 2018. The APPEA Journal 2018, 58, 799-804
<https://doi.org/10.1071/AJ17040>

Multiple potential plays



Origin Energy (2018) identified multiple stacked potential plays

Velkerri Shale dry gas



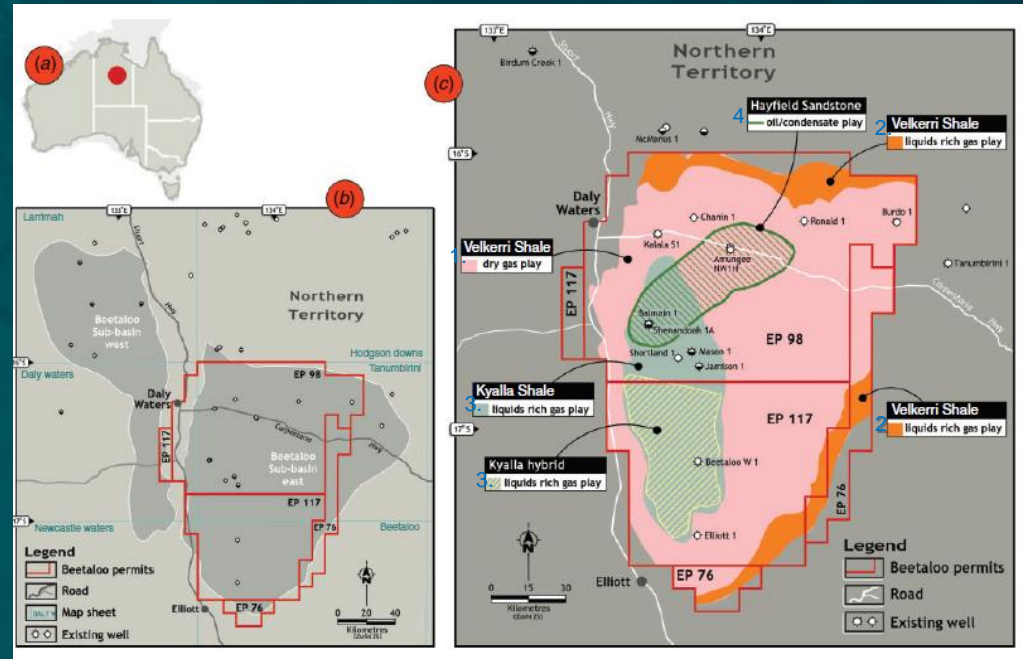
Velkerri Shale liquids rich gas



Kyalla Shale & hybrid lithology liquids rich gas

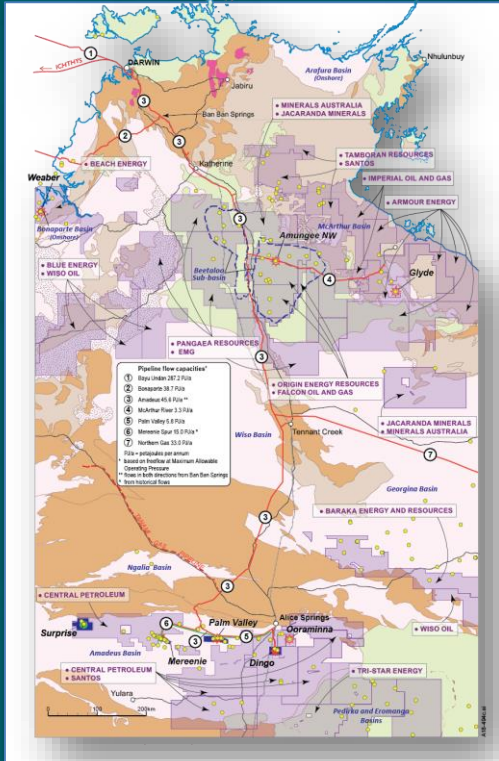


Hayfield Sandstone oil/condensate



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Exploration within Beetaloo



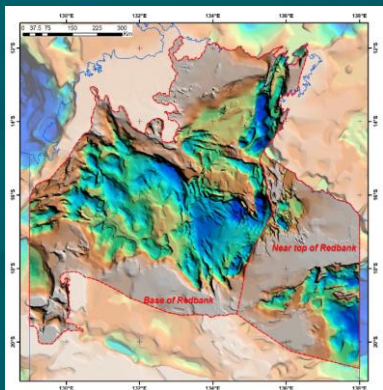
- Granted exploration tenure held by Santos/Tamboran JV, Origin/Falcon JV, Pangaea Resources; application tenure held by Inpex
- Published forward work programs for Origin/Falcon JV in 2019 include exploration & appraisal program to evaluate identified potential of liquids rich gas fairways in both Kyalla and Velkerri shales

Regulation and development



- Scientific Inquiry into Hydraulic Fracturing Final Report delivered March 2018
- all recommendations from Inquiry accepted & moratorium on hydraulic fracturing lifted April 2018
- Information on recommendations can be found at: www.hydraulicfracturing.nt.gov.au
- Exploration in the Beetaloo Sub-basin expected to recommence in 2019.

Further Information



NORTHERN TERRITORY GEOLOGICAL SURVEY

NTGS RECORD 2017-002
Unconventional petroleum resources of the Roper Group, McArthur Basin

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NORTHERN TERRITORY GEOLOGICAL SURVEY

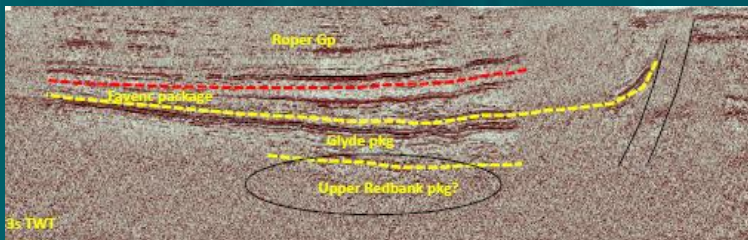
NTGS RECORD 2017-003
Late and middle Volcanic Resource Assessment: Beetaloo, Beetaloo, OT Downs, and Broadmere Sub-basins
NTGS Project No. AG-1020

Weatherford Laboratories

- interpretation ready Kingdom seismic project over Beetaloo Sub-basin, Frogtech SEEBASE update over greater McArthur Basin
- Discover and download geoscience information at:

www.minerals.nt.gov.au/ntgs

- Regulatory information can be accessed through www.minerals.nt.gov.au



Thank you!



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