

ASX:EEG

Strong Carpentaria-1 Flow Rates

28 June 2021



Level 19, 20 Bond Street
Sydney NSW 2000

Strong Carpentaria-1 Flow Rates

- **Empire's Carpentaria-1 vertical well has flowed gas to surface at rates that exceed expectations including an initial peak rate of >0.5 mmscf / day and an initial stabilized rate of 0.37 mmscf / day over a 72-hour test period and an instantaneous peak rate following a short shut in of >1.6 mmscf / day**
- **As a result, Empire has lodged a Discovery Notice with the Northern Territory Government**
- **Results achieved to date compare favourably to other results across the Beetaloo Sub-basin and indicate that future horizontal development wells in EP187 have the potential to produce at commercial flow rates**

Empire Energy Group Limited ("Empire" or "the Company") is pleased to provide shareholders with an update regarding the ongoing flow testing of the vertical Carpentaria-1 well in Empire's 100% owned and operated EP187 tenement, located onshore Northern Territory in the Beetaloo Sub-basin.

Since the last operational update to shareholders on 17 June 2021, Empire has successfully installed production tubing and completion equipment, and recommenced fluid flowback. Flowback is proceeding well, indicating that the fracture stimulation of the four stages carried out in the Velkerri A, Intra A / B, B and C shales have created a fracture network within those zones which is liberating material volumes of hydrocarbons from the gas-rich target shales. Sonic logging demonstrates that the fracture stimulation stages have been placed safely with the induced fractures contained within the target shale zones.

Empire has not yet processed the data required to assess which of the 4 stimulated zones is providing the greatest contribution to flow rates and the relative gas v liquids composition of each zone. This will be determined by analyzing gas samples in the coming weeks. The most productive zones are likely to be targeted for future horizontal appraisal well drilling.

The volume of fluid being produced to surface is gradually reducing, which indicates that the fracture network that has been created by hydraulic stimulation is being drained of fluids, allowing for gas flow.

The proportion of CO₂ present in the produced gas streams is less than the measurable lower limit of 1%. This is lower than other wells drilled in the Beetaloo Sub-basin which have had CO₂ contributions of 1% to 3%.

The total cost of the fracture stimulation and flow test is expected to be A\$5.25 million, which is below budget. The program is being executed safely with no environmental incidents.

Empire's proven low-cost operating model and low Scope 1 and Scope 2 CO2 emissions are likely to have a material positive impact on the economics of future development activities.

Future Development Potential

The flow rates achieved to date at Carpentaria-1 compare favourably to other wells drilled and flow tested in the Beetaloo Sub-basin, particularly given the reduced development costs Empire expects in future given the shallower depths in which the target shales are present in Empire's Beetaloo Sub-basin properties.

The first flow test of Santos' Tanumbirini-1 vertical well flowed at initial rates of 1.2 mmscf / day settling down to 0.4 mmscf / day¹. The second test, which followed an extended shut-in period, flowed at higher rates. Origin Energy's Kyalla 117 horizontal well flowed at 0.4 - 0.6 mmscf / day over 17 hours² and Origin Energy's Amungee NW-1H horizontal well, which had 11 fracture stimulation stages, flowed at 1.15 mmscf / day over a 57-day test³.

Empire's Carpentaria-1 initial vertical flow rates indicate that the shallower liquids-rich gas window of the Eastern side of the Beetaloo Sub-basin has the potential for commercial hydrocarbon production in future horizontal wells which may have up to 100 fracture initiation points from 20 – 30 fracture stimulation stages, rather than the 4 stages fracture stimulated in the Carpentaria-1 vertical well. Optimization of fracture stimulation design in future horizontal wells is likely to further enhance productivity.

While Carpentaria-1 vertical flow testing operations are ongoing, Empire is continuing preparations for the drilling and completion of its first horizontal appraisal well. That well will be fully funded from Empire's existing cash at bank.

Investor and Analyst Briefing Call

Empire Managing Director Alex Underwood will host an investor and analyst briefing meeting to be conducted at 11am on Wednesday 30th June 2021 to discuss the results and the next steps in Empire's Beetaloo Sub-basin work programs. Due to COVID-19 restrictions in Sydney this meeting will be conducted virtually.

Details of the meeting can be found here:

<https://us06web.zoom.us/j/83109811041>

Telephone: +61 2 8015 6011

Meeting ID: 831 0981 1041

¹ Tamboran Resources Limited announcement 22 October 2020

² Origin Energy Announcement and Falcon Oil & Gas Announcement 19 January 2021

³ Origin Energy Announcement 22 December 2016



Carpentaria-1 flow test

This ASX release has been authorised by the Board of Directors

For queries about this release, please contact:

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APPENDIX 1 – DISCLOSURES UNDER ASX LISTING RULE 5.30

- (a) Carpentaria-1 is an onshore vertical gas well targeting the shales of the Beetaloo Sub-basin
- (b) Carpentaria-1 is located onshore Northern Territory in the Beetaloo Sub-basin in Empire's wholly owned and operated Exploration Permit 187
- (c) Empire holds a 100% working interest in the Carpentaria-1 well
- (d) Not applicable
- (e) Carpentaria-1 has been drilled to target four shale formations across the Middle Velkerri Formation of the Beetaloo Sub-basin (Velkerri A, Intra A / B, B and C shales)
- (f) C Shale: 1127-1133 m MD RT
B Shale: 1350-1351.5 m MD RT & 1364-1426 m MD RT
Intra A/B Shale: 1416-1422 m MD RT
A Shale: 1498-1499, 1511-1512, 1525-1528, 1546-1547 m MD RT
- (g) Production test via three phase separator with gas flared. Test via separator for four days.
- (h) Gas
- (i) Fracture stimulation fluid was recovered during testing, 48% of fracture stimulation fluid recovered at time of reporting
- (j) Gas testing used a 0.75" orifice plate, with the gas flow rate averaging 365 mscf / day for a 72 hour period, and a 1.125" orifice plate for the peak gas flow rate of >1.6 mmscf / day
- (k) Four stage hydraulic fracture stimulation of the Middle Velkerri Formation with perforations detailed in Appendix 1 (f) above
- (l) No measurable quantities of CO₂, H₂S or other non-hydrocarbon gasses were recorded during the test
- (m) Testing will continue for up to 90 days and gas samples will be gathered to analyse zonal contribution and gas specification before finally commencing a pressure build-up test