**Norwest Energy** 

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# Announcement to ASX

31 January 2020

# **DECEMBER 2019 QUARTERLY ACTIVITIES REPORT**

### **QUARTERLY HIGHLIGHTS**

- Norwest Energy funded to drill Lockyer Deep-1 exploration well
- Increased prospective resources and geological chance of success for Lockyer Deep-1
- Bruce Clement appointed to Board of Directors

Perth Basin focused oil and gas exploration company Norwest Energy NL ("Norwest Energy" or the "Company") is pleased to report on its activities for the quarter ending 31 December 2019.

## **Exploration Permits EP 368 & EP 426 (20% & 22.22%)**

Further to Strike Energy's 1.19 Tcf (2C contingent resource) West Erregulla-2 gas discovery of August 2019, Beach Energy announced a further Permian gas discovery at Beharra Springs Deep-1 in October 2019 (see Figure 1 for locations). Beach subsequently confirmed a flow rate of up to 46 MMscfd from the high quality Kingia sandstone reservoir, constrained by tubing.

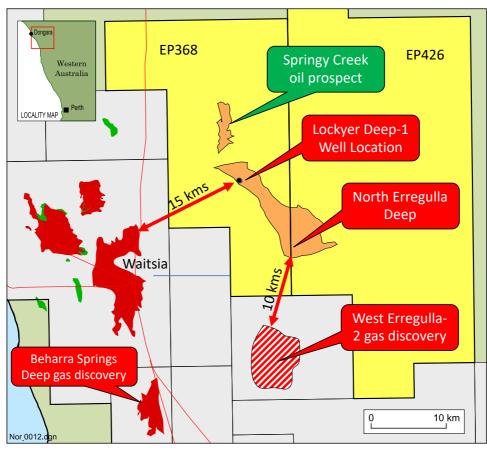


Figure 1: Proximity of Major Gas Discoveries to Norwest Energy's Lockyer Deep-1 Well Location

Prior to the Beharra Springs Deep result Norwest Energy's estimate of Geological Chance of Success (GCoS) for Lockyer Deep-1 was 29%. However, the discovery of a significant gas accumulation within the Kingia Formation at Beharra Springs Deep has substantially increased this estimate due to structural similarities between the discovery and prospect.

Figure 2 shows representative E-W trending seismic lines across the Beharra Springs Deep discovery and the Lockyer Deep/North Erregulla Deep prospect. The features are essentially "mirror images", being three-way-dip-closed structures reliant on sealing by major N/S trending bounding faults to establish a trap for migrating gas. Importantly for Lockyer Deep no gas-water contact was encountered within Beharra Springs Deep-1, indicating that the structure may be "full to spill" and that the easterly bounding fault provides a fully competent seal to the trap. This seal is provided by favourable juxtaposition of the formations across the fault and/or the fault sealing due to "clay gouge".

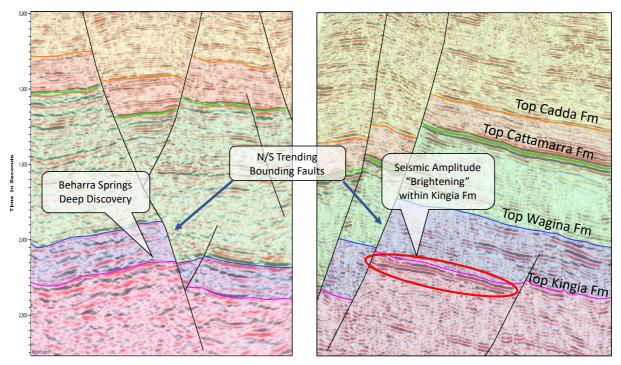


Figure 2: Seismic Examples Across Beharra Springs Deep and Lockyer Deep

Increased confidence in the presence of fault-seal has led Norwest Energy to increase its estimate of GCoS for Lockyer Deep-1 to 38%. Importantly, a number of seismic lines exhibit increased updip seismic amplitudes within the target sequence. Such amplitudes are commonly associated with the presence of hydrocarbons, particularly gas as is evident at West Erregulla-2. Figure 2 shows clear amplitude "brightening" below the Top Kingia Formation seismic marker and this example supports the High Case prospective resource for a combined Lockyer Deep-North Erregulla Deep structure, with amplitudes evident to a depth of approximately 4,100 metres.

Norwest Energy's estimate of prospective resources for the Lockyer Deep/North Erregulla Deep prospect increased during the reporting period, as announced on 28 October 2019 and summarised in Table 1 below for the Kingia and High Cliff targets, combined.

	Gross Bcf (100%)		NWE Share Bcf (20%)			
	Low	Mid	High	Low	Mid	High
Lockyer Deep	36	459	1122	7	92	224
North Erregulla Deep	131			22		

Table 1: Lockyer Deep/North Erregulla Deep Prospective Resources

Additional potential may exist within the Wagina Formation as encountered at West Erregulla-2 and as produces at Beharra Springs, however Norwest Energy does not attribute prospective resources to the Wagina at this time, due to a lower GCoS.

The Operator has secured land access to the Lockyer Deep-1 well location for preparation and construction of the well pad, through a Drilling Land Access Agreement on standard terms with the landowner. The prognosed depth for the Top Kingia target is approximately 3,900 metres TVDSS, i.e. significantly shallower than at West Erregulla-2 and at a similar depth to Waitsia and Beharra

Springs Deep. The Operator is in discussion with various third parties in order to contract a suitable drilling rig to drill during the first half of 2020. Norwest Energy is aware that at least two suitable rigs are likely to be operating in the onshore Perth Basin this year, and is confident that a rig slot will be available to the EP368 Joint Venture.

# L14 Production Permit (6.278%)

Subsequent to the end of the reporting period and as announced on 16 January 2020, the sale of Norwest Energy's interest in the L14 production permit was completed, with the Company receiving the \$630,000 balance of payment from purchased RCMA Australia Pty Ltd (RCMA.

# **EP413 Exploration Permit (Operator, 27.945%)**

In December 2019 Norwest Energy received approval from the Department of Mines, Industry Regulation & Safety (DMIRS) for a further twelve-month suspension and extension of the permit, on the basis that the State's implementation plan to facilitate hydraulic fracture stimulation remains a work in progress. This provides additional time to evaluate the permit's prospectivity in light of the recent significant Permian gas discoveries to the east, while continuing discussions with a number of interested third parties.

# TP/15 Xanadu Oil Appraisal (Operator, 25%)

As reported on 24 October 2019 Norwest Energy completed interpretation of the Xanadu 3D TZ seismic volume and integration of the data into the Xanadu subsurface model.

The 40km<sup>2</sup> Xanadu 3D Transition Zone seismic survey was completed in July 2019 and was designed to fully delineate the 2017 Xanadu-1 oil discovery, focusing on the northern updip region, and the southern downdip region extending out to the western flank of the structure. Xanadu was drilled based on very limited 2D seismic coverage, insufficient to provide the high-resolution subsurface model required to guide future appraisal drilling.

The Xanadu structural model has been substantially revised based upon the 3D seismic data. In particular, the fault geometry that defines the updip structure has changed such that the updip area to the north of the Xanadu-1 well intersection is reduced and commerciality of the updip resource is therefore likely to be marginal. Further engineering and commercial studies are required in this regard, before contingent resources can be determined and a decision made on whether future appraisal is justified.

The area downdip of the Xanadu-1 well offers greater resource potential within the upper "A" sand and is presently regarded as being relatively high risk, based on an interpretation of downhole pressure data. In order to determine whether appraisal drilling of the downdip area is warranted, Norwest Energy will undertake further analysis to integrate the revised structural model with downhole data acquired from Xanadu-1 to determine whether the chance of success for downdip appraisal drilling might be increased.

Further untapped prospective resource potential lies within and adjacent to the 3D seismic area, to the north of the Xanadu horst and in a structural culmination situated to the west of the downdip area (West Xanadu), on the edge of the 3D survey area. Acquisition of low cost 2D seismic data to mature this feature for drilling will be considered by the Joint Venture. Additional prospective resource potential is also evident within the deeper Kinga/High Cliff Formations, and further work is required to quantify the prospective resources.

The quality and coverage of the new 3D seismic data has provided a far clearer understanding of the structuring surrounding the Xanadu-1 well and supports the Joint Venture decision to acquire the survey before proceeding with appraisal drilling.

## **Corporate**

During the reporting period Norwest Energy completed a capital raising comprised of a placement to sophisticated and institutional investors and a Share Purchase Plan to existing, eligible shareholders; raising a total of approximately \$4.4 million before costs. The monies raised from the Placement and SPP will be used to fund the following:

 Drilling costs associated with Norwest Energy's 20% interest of exploration drilling in permit EP 368 in the Perth Basin;

- Planning and preparation for operations to meet future work commitments within EP 368 and EP 426:
- Desktop studies on Norwest Energy's other Perth Basin interests including the Xanadu oil discovery;
- Partial repayment of the Sundowner International Convertible Loan Facility; and
- General working capital.

Mr Bruce Clement joined the Board of Directors as Non-Executive Director effective 17 December 2019. Bruce has 40 years' oil & gas industry experience having held engineering, senior management and board positions with a variety of companies including ExxonMobil, Ampolex, Roc Oil, AWE and Santos. He has extensive experience and knowledge of the Perth Basin, previously managing development of the Cliff Head oil field for Roc Oil and, more recently, overseeing the discovery of the Waitsia gas field as CEO of AWE. His experience of the Perth Basin encompasses exploration, development and production operations over some 20 years.

#### Financia |

Cash and cash equivalents at 31 December 2019 were \$2,526,000 – since supplemented (mid January 2020) by completion of Tranche 2 of the placement and receipt of the L14 sale proceeds (an additional \$1,762,236 in total). Forecast expenditure for the current quarter is \$1,113,000 – which includes repayment of \$750,000 towards the convertible note debt facility with Sundowner International Ltd.

# **ASX Listing Rule 5.3.3: Tenement Details**

In accordance with ASX Listing Rule 5.3.3 the following table details Norwest Energy's interests in its oil and gas permits:

Tenement reference and location	Interest at beginning of quarter	Interest at end of quarter	
TP/15	25%	25%	
Western Australia			
EP368	20%	20%	
Western Australia			
EP426	22.22%	22.22%	
Western Australia			
L14*	6.278%	6.278%	
Western Australia			
EP413	27.945%	27.945%	
Western Australia			

<sup>\*</sup> Subject to the reporting period, Norwest Energy transferred its interest in L14 to RCMA Pty Ltd

# Notes regarding prospective resources:

- 1. Prospective Resources are the estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) and relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a chance of development. Further exploration, appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.
- 2. The estimates of Prospective Resources included in this announcement have been prepared in accordance with the definitions and guidelines set forth in the 2007 Petroleum Resources Management System (PRMS) approved by the Society of Petroleum Engineers (SPE). The PRMS defines prospective resources as those quantities of petroleum which are estimated, as of a given date, to be potentially recoverable from undiscovered accumulations.
- 3. Gross Prospective Resources are 100% of the on-block volumes estimated to be recoverable from the prospect in the event that a discovery is made and subsequently developed. The Prospective Resources have been estimated deterministically.
- 5. The volumes reported are "unrisked" in the sense that the Geological Chance of Success (GCoS) factor has not been applied to the designated volumes.
- 6. The Prospective Resources reported within this ASX announcement have been estimated by Mr Dean Powell of Powell Seismic Services. Mr Powell has over 40 years of experience as a Geoscientist within the Oil & Gas Industry and is a member of Society of Exploration Geophysicists, Society of Petroleum Engineers and the Petroleum Exploration Society of Australia. Mr Powell has consented to the contents of this announcement being released to the ASX.

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