

Maturation of an HPHT Tight Gas Fields in North Oman

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ABSTRACT

Oman's rapid domestic demand growth for gas, primarily for power generation, significant LNG sales contracts, and the petrochemical industry, will be met in the near future with a decline in conventional gas production. The supply shortfall may be met by Tight and Unconventional Gas, with its large volumes and long-term potential. To secure mid-long term supply Petroleum Development Oman (PDO) is executing an appraisal programme in North Oman focussing on the Amin Fahud Basin Tight Gas sandstones with porosities ranging from 3 to 10% and (ambient) permeabilities from 0.001 to 1 mD

Target reservoirs pose significant technical challenges summarised in being deep (4500-5000 m / 15,000-16,500 ft) and have high reservoir temperatures (170 to 180°C / 300 to 360F) and the rocks are tectonically stressed which manifests itself in high fracture gradients above the overburden stress. On top of all this, longer term well production will be impacted by relatively high CGRs and associated water production. To commercialise these reservoirs an integrated ring-fenced team is tasked to unlock these reservoirs potential. Key commercialisation factors include; ultimate recovery per well, reduction of well costs, early gas monetization and setting a clear Urban Plan early on during the appraisal stage.

The presence of infrastructure, notably the nearby Yibal gas processing plant, and the proven presence of sweet spots make this cluster a prime candidate to provide the second wave of production following conventional reservoirs and a possible working model for future tight and unconventional gas developments.

This presentation summarises results to-date, highlights the key elements of the roadmap towards success and key enablers towards an economically commercial viable development.