

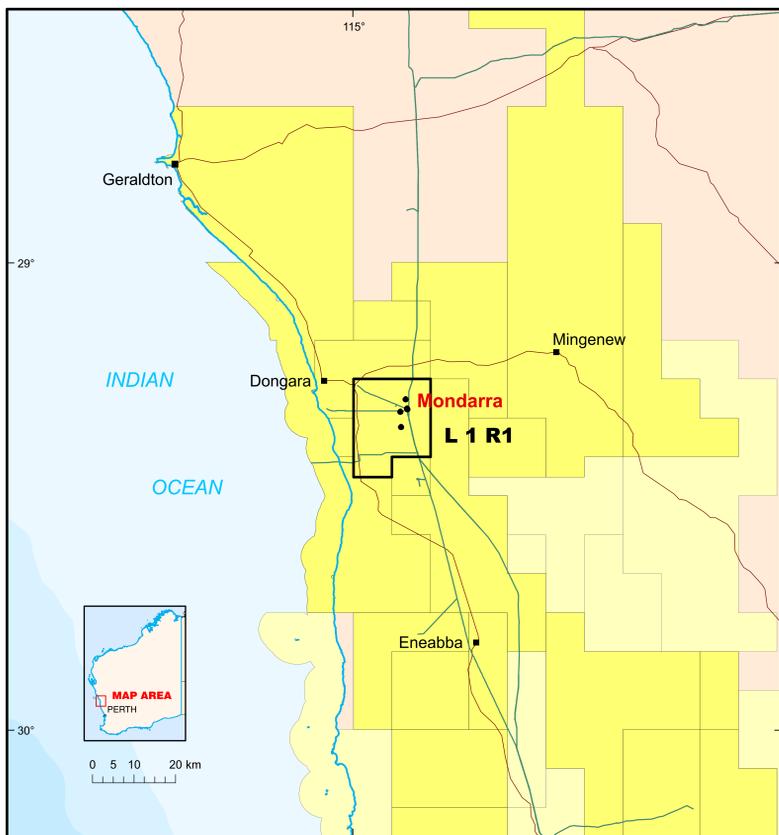
UNDERGROUND GAS STORAGE MONDARRA

CASE STUDY: MONDARRA GAS STORAGE

MONDARRA UNDERGROUND GAS STORAGE IN WA

The Mondarra gasfield was discovered in 1968 in the northern Perth Basin. The field commenced production in 1972 and was converted into a UGS in 1994. APA Group acquired the Mondarra Underground Gas Storage Facility in 2004 and committed to expanding the storage capacity of the facility to 15 PJ. Today, the facility has the capacity to deliver gas at 150 TJ/day and inject at 70 TJ/day. Mondarra played a significant role in supplying natural gas to WA during the Varanus Island explosion incident in 2008.

APA and DMP have been working collaboratively to ensure that risks associated with gas storage operations are monitored and managed to the best possible standards.



OBJECTIVE OF UNDERGROUND GAS STORAGE

Underground Natural Gas Storage (UGS) utilises depleted hydrocarbon reservoirs where geology is suitable and location is selected strategically based on infrastructure.

UGS plays an efficient process in the gas delivery system to balance and manage the fluctuations in gas demands against the supply of natural gas.

There are several factors that contribute to the volatility of natural gas demands such as: weather conditions, emergency shutdowns in gas production, the requirement to manage extra produced gas volume from peak production and fluctuations in gas export.

UGS plays critical role in filling the gap between supply and demand within these peak demand periods for engineering and economic advantages.

TECHNICAL ASPECTS OF UGS

The reservoir suitability for storage requires a study of reservoir integrity, well integrity, reservoir geomechanics, aquifer impacts and fluid chemistry. The minimum requirements for an UGS prospect are:

1. Structural trapping mechanism to ensure effective gas containment within the reservoir
2. Good reservoir properties (porous and permeable sand formation) to ensure suitable injectivity and deliverability to store and deliver sufficient quantities of gas
3. Proper depth to allow the storage to take place under pressure
4. Strategic location to pipelines and other infrastructure

Depleted hydrocarbon reservoirs are candidates for UGS as their reservoir integrity has been tested over a period of time by hydrocarbon containment. In addition, these reservoirs have engineering and geology data available to carry out proper prospect evaluation.

Gas delivery system with underground gas storage facility to balance the natural gas demand against gas supply



Production Field



LNG Export



Processing Facility



Local Gas Market



Production Field



Underground Gas Storage

