



Methanol Australia Limited

INTRODUCTION

Methanol Australia Limited (MEO) is a company with very clear objectives – to become a leading producer of LNG and methanol from its proposed gas-to-liquid projects on Tassie Shoal.

The Company has historically identified gas resources that can be commercialized through innovative approaches and the application of conventional technologies of converting gas to transportable liquids for delivery to markets at competitive prices.

MEO will strategically secure partners as required to complement the Company's capabilities in pursuit of the objectives. For example Air Products which is a Fortune 500 corporation was secured in 2004 as a 50% partner in MEO's Tassie Shoal Methanol Project (TSMP).

A SHORT HISTORY

MEO grew out of its original guise as a dedicated exploration company, Timor Sea Petroleum NL which was awarded exploration permits NT/P47 & 48 in 1996. Subsequent drilling confirmed that Evans Shoal was one of the largest discovered gas fields in Australia.

The second Evans Shoal well was drilled in 1997 confirming a large commercial gas field. The gas was dry and had a 27% carbon dioxide (CO₂) content, which with traditional thinking made commercialisation very difficult. MEO realized this composition made the gas ideal for conversion to methanol.

Evans Shoal gasfield is in Australian waters approximately 280 kilometres north-west of Darwin, Northern Territory.

The Company's interest in Evans Shoal was acquired by Santos Limited in 2001, and the Company continued to develop the Tassie Shoal projects under its new name, Methanol Australia.



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As a part of the corporate restructuring for the ownership transfer of the interest in Evans Shoal gasfield, Santos held a 14.5% interest in MEO. Santos also subscribed for 2.5 million additional new shares to increase this interest to 16.9%. MEO had decided to focus on being an offshore, mid-stream gas-to-liquids processing company, initially producing methanol. MEO anticipated reaching a commercial gas purchase agreement with Santos and its joint venture partners in NT/P48 (Shell and Osaka Gas) for Evans Shoal gas.

The Tassie Shoal Methanol Project (TSMP) centres on a concept to produce the methanol off-shore on Tassie Shoal, situated approximately 12 kilometres from the Evans Shoal gas field. The plant would be located in only 14m of seawater

This will be achieved by the processing plant being installed on a concrete island or Gravity Base Structure (GBS) which would be constructed in a reputable Southeast Asian construction yard, thereby avoiding the higher Australian construction costs.

The completed facility is floated out of the yard, towed to site and grounded in the shallow waters of Tassie Shoal. The project would be executed in virtually two identical stages with the second methanol plant being initiated as market conditions justify, currently anticipated to follow three to four years after the first plant. Obviously, the second plant will benefit from the infrastructure already installed for the first plant.

The Timor Sea Liquefied Natural Gas Project (TSLNGP) was later developed using similar construction concepts. It is proposed that the TSLNGP would be located adjacent to the TSMP, taking advantage of many synergies between the two projects.

Both the methanol and LNG projects have been granted full environmental approvals by the Commonwealth Government of Australia. These approvals are current until 2052.

In order to secure and accelerate resolution of gas supply to the projects, MEO is aggressively pursuing both appraisal and exploration of its wholly owned Exploration Permit, NT/P68. This permit has the potential for significant



Methanol Australia Limited commercial gas resources, which could be suitable for either, or both the methanol and LNG projects.

THE PROJECTS IN DETAIL

The Tassie Shoal Methanol Project (TSMP)

The Tassie Shoal Methanol Project (TSMP) is a 50/50 joint development with Air Products and Chemical Inc. Air Products is a large industrial gases and energy company based in the USA and listed as number 280 on the Fortune 500 list. (www.airproducts.com)

The TSMP would convert natural gas with a high CO₂ content into methanol.

Methanol, which is widely used as an industrial base chemical with many uses e.g as a feedstock for producing formaldehyde and acetic acid, is also regarded as a 'fuel of the future'. Many gas turbine manufacturers have machines rated for methanol fuel to generate electricity. Methanol fuel cell powered vehicles exhibit high energy conversion efficiencies and are low in emissions when compared with conventional fuels. They are low in reactive hydrocarbons (which form smog), in toxic compounds (such as sulphur), and produce much less nitrogen oxides and many of the world's major vehicle manufacturers consider methanol to be an ideal hydrogen carrier for fuel cell vehicles. Methanol is also added directly to petrol as an octane enhancer. A future large consumer for methanol is MTO or methanol to Olefins, which convert methanol to ethylene and propylene.

The development of the TSMP project is based on the staged construction of two world scale natural gas reforming and methanol production plants. They would be located offshore in Australian waters on concrete gravity base structures which act like an artificial island. These structures are to be grounded on Tassie Shoal which is an area of shallow water some 275 kilometres northwest of Darwin.

The methanol production plants will convert the high CO₂ gas into approximately 5,000 tonnes of chemical grade methanol per day (99.85% pure methanol).



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The NT/P68 permit is anticipated to contain potential gas resources with a range of CO₂ levels from very low to relatively high, some of which will be ideal for gas for the TSMP.

It also remains possible that some of the gas supply may eventually come from the nearby Evans Shoal gas field (probably the best if not only commercial use for this gas) of which Santos has a 40% stake, or from other fields owned by third parties. However, MEO is unlikely to enter into third party gas supply contracts until it has completed the appraisal and exploration activities in NT/P68.

Gas from either Evans Shoal or from NT/P68 would be piped to the TSMP via an undersea pipeline. In the case of Evans shoal this is only 12 kilometres away.

The estimated total capital cost for the first plant is A\$1.2B.

The Timor Sea LNG Project (TSLNGP)

MEO is continuing with its plans to produce Liquid Natural Gas (LNG) offshore.

LNG is the liquid form of natural gas. It currently accounts for nearly a quarter of all energy consumption and can be used for cooking, heating and power generation. With global warming becoming a major issue, gas fired power stations are significantly more environmentally friendly than those fired by coal.

Natural Gas is liquefied to reduce its volume (1/600th) and make long distance transport of gas economic.

The project is currently 100% owned by MEO. The design utilises the Arup Energy Production ACE self installing (?) platform for the LNG processing plant and a concrete GBS design for the LNG storage tank. This concept is similar to the concept being used by ConocoPhillips for the Compass Port LNG Re-gas project in the Gulf of Mexico. The proposed LNG plant would be located adjacent to the methanol production facilities on Tassie Shoal.

This arrangement will offer many convergence and operational advantages for the two projects since they are able to share infrastructure, logistic support systems as well as providing some significant synergies in process and utilities.



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The TSLNGP will principally target the rapidly expanding market for LNG in North East Asia. Its location is expected to provide a highly competitive, low sovereign risk supply option to this market due to the reduced freight costs when compared to its LNG competitors in the Middle East.

Environmental Approvals

Both the Tassie Shoal Methanol and the Timor Sea LNG Project have been granted full environmental approvals by the Australian Federal Government.

The TSMP was granted a fifty (50) year environmental approval on December 23, 2002 by the Commonwealth. This allows MEO to construct, install, commission and operate two methanol plants on Tassie Shoal.

Environmental approval for the TSLNGP was granted by the Commonwealth on May 5, 2004. This approval is current until 2052.

To date, the TSLNGP is the only new Australian greenfield LNG project to have received its environmental approvals.

Technical Details - Processing Facilities

TSMP

Construction of the world's first offshore gas reforming and methanol production plants will involve major engineering firms located in several countries. Companies already involved in the design and studies to date include Aker Kvaerner, WorleyParsons Limited, Davy Process Technology UK (DPT), Arup Energy, Fluor Australia, AirProducts etc.

Each GBS for the methanol project and will weight approximately 175,000 tonnes, with footprint dimensions of 180 x 98 m. They will provide a highly stable and secure base for the gas processing, production facilities and methanol storage. The topside plant weights approximately 30,000 tonnes.



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A GBS of similar dimensions is nearing completion in Spain. This GBS is being constructed for the Exxon Adriatic LNG Re-gas project.

Each plant has a production capacity of approximately 5,000 tonnes per day. When the second is commissioned it would raise the total annual methanol production of 3.5 million tones.

The plants will utilise advanced gas reforming technology incorporating pre-reforming and twin conventional Steam Methane Reforming (SMR) Furnaces design by DPT. The remainder of the process plant, including the synthesis and distillation sections and utilities are laid out on the deck of the GBS very similar to an onshore plant. The internal cells in the GBS provide space for methanol storage in conventional carbon steel tanks.

Importantly, the GBS's will be positioned close to potential sources of gas.

The methanol GBS will be bridge linked to a separate accommodation and control platform.

TSLNGP

The proposed LNG project production module would be located adjacent to the methanol GBS.

The LNG module has been designed by WorleyParsons Limited utilising dual mixed refrigerant (DMR) technology from Air Products. Air Products supplies LNG conversion technology and heat exchangers for 80% of the worlds LNG production. Air Products technology is very reliable and efficient.

The LNG module is a free standing structure, supported by its own steel substructure which will also be located on Tassie Shoal. The substructure has been designed by Arup Energy, the ProductionACE self installing platform. This platform design has already been used a number of times by the upstream industry.



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The project also proposes to build a single conventional nickel steel LNG tank on top of concrete gravity base substructure where the LNG will be stored prior to shipment.

The plant will have an annual production of approximately 3 Million tonnes.

Export Potential

The entire production from both gas projects – the Tassie Shoal Methanol project (TSMP) and the Timor Sea LNG Project (TSLNGP), will be exported.

The demand for product is primarily Northeast Asia, largely fed by China, which is currently demonstrating the strongest sustained growth in the world and is forecast to continue well into the next decade.

The regional demand for methanol is approaching 12 million tonnes per annum, with consumption growing at 18% per annum in China alone. The need for methanol for Japan, Korea and Taiwan also maintains a steady growth.

Production of methanol in the region has not kept pace with demand. Currently, (and in the foreseeable future), there are few regional methanol projects other than the TSMP being planned.

The shortage of methanol in the region has caused prices to rise steeply with the current price for methanol at US\$550 per tonne, up from US\$200 per tonne four years ago.

The global energy requirement for natural gas and hence LNG is also growing rapidly.

The international LNG trade has grown from virtually nothing in the early '70s to 123 million tonnes in 2004 . The Asia Pacific region accounts for two thirds of the international LNG trade. The global trade for LNG is forecast to treble by 2015.

This growth is driven by an increasing demand for energy and declining domestic natural gas resources in the region.



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Natural gas currently accounts for nearly one quarter of the world's energy consumption and the International Energy Agency has predicted that the demand for LNG will grow at a faster rate than oil. It estimates that it will account for 28% of world wide energy use by 2025.

At present, LNG is seeing delivered pricing as high as \$800 per tonne.

LNG would be loaded into the LNG tankers moored to an open sea jetty especially designed for some movement. The methanol would be loaded into dedicated tankers via a Calm Buoy or single point mooring (SMP) assembly. The relatively benign sea-states in this part of the Timor Sea allow 98% loading availability.

PETROLEUM EXPLORATION PERMIT NT/P68

MEO has a major project underway with the planned drilling of its 100% owned permit (NT/P68) immediately adjacent to the proposed location of its methanol and LNG projects.

The company describes the NT/P68 permit as an "exciting" upstream project with a discovery well and a number of significant prospects for both for gas and possibly condensate.

The permit is over 12,000 square kilometres (2,981,280 acres), is entirely within the Australian international boundary and is one of the largest exploration permits in the Bonaparte Basin.

The company believes that the permit offers considerable scope for the confirmation of commercial quantities of natural gas that could support the future gas demand of the TSMP and TSLNGP.

The Heron-1 well drilled by Arco in 1972 confirmed a 50m fractured carbonate interval in the lower section of the Darwin Formation as a gas bearing zone. It was not production tested by Arco, due to the lack of interest in offshore gas, as opposed to oil at the time.



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The Epenarra structure is a broad, low relief anticline in the gas bearing zone of the Darwin Formation with a mapped closure of approximately 1,200 sq km. The estimated in place 'Contingent Resource' for gas in Epenarra ranges from 2930 BCF (low estimate: P90) to 9400BCF (high estimate: P10) with a mean 'Contingent Resource' of 5620 BCF (P50: most likely).

Technical studies conducted during the year reviewed the nature of the fractured carbonate reservoir, the hydrocarbon source rock likely to charge Epenarra and the gas compositions. The studies included new basin modelling simulations in order to establish the probable condensate to gas ratios for a range of hydrocarbon charge and migration scenarios.

The results of the basin modelling supported the view that Epenarra consists of a Contingent Resource having a gas wetness range of between 120 to 300 barrels of condensate per million standard cubic feet (MMscf) of gas. Further investigations also indicate that the gas quality may contain low carbon dioxide levels. Such gas characteristics would be eminently suitable for LNG production.

Epenarra, along with the other identified prospects in the permit, Heron North, Heron South, Blackwood and Seahawk, collectively, are estimated to have a potential mean gas in place value that could exceed 14 Tcf. The 3 Mtpa LNG plant requires approximately 3 Tcf of gas and the first methanol plant requires approximately 1.3 Tcf of gas to each operate for 20 years.

Based on the most likely Contingent Resource of 5620 BCF and the lowest gas wetness value, Epenarra could contain in-place condensate (light oil levels) of approximately 675 million barrels.

As of 30th October 2006, MEO completed the acquisition of approximately 500 square kilometres of new 3D seismic over the Epenarra structure. The 3D was acquired under budget.

3D seismic data has been acquired to confirm distribution and orientation of faults and fracturing within the 50m gas bearing fractured carbonate zone of the Epenarra prospect intersected by the Heron-1 well. This data will be used to determine the optimum location for the Heron-2 appraisal well.



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MEO commenced the acquisition of 600 line kilometres of 2D infill seismic over the Blackwood structure on 2nd November 2006. The new 2D seismic data will improve the structural mapping of Blackwood and confirm the final location of Blackwood-1.

MEO has secured a new jack-up rig to drill up to three wells next year. Seadrill's West Atlas is currently in construction at the Keppel FELS yard in Singapore and is due for delivery to NT/P68 in August 2007. Drilling of the Heron-2 appraisal well on the Epenarra structure is expected to commence shortly thereafter and has been designed for an extended production test.