Western Australian Opportunity

- STP-EPA-0127 lies 420km to 600km north of Perth
- Permit straddles the Northwest Shelf to Perth gas pipeline
- There is local and regional demand for energy from domestic, mining and industrial users
- There is scope for export, if sufficient reserves are discovered

- The substantive terms of the three Native Title Agreements have been agreed and State Deeds finalising the Exploration Permit are about to be lodged with the DMIRS
Background

- STP-EPA-0127 granted to Palatine Energy Pty Ltd 7th August 2014
- Native Title negotiations commenced once final application area agreed in late 2015
- April 2016 Petrel execute Call Option Deed with Palatine to provide modest funding to allow Native Title negotiations to continue
- Call option for all Palatine Shares for $200K cash or Petrel shares with further $100K of shares payable once approvals in place and work programme commenced
- The permit essentially covers the entire Coolcalalaya Sub-Basin

- With Native Title agreements finalised Petrel anticipates exploration permit to be granted this year
North Perth Basin – STP-EPA-0127

- Final revised application area (blue blocks deleted) is roughly 185km long and about 55km wide and covers approximately 9,000 square kilometres
- Contains up to 9000m of Neo-Proterozoic, Palaeozoic and Mesozoic sediment
- Permit lies at the northern limit of the prospective and partially developed Perth Basin, which has producing fields in similar formations 150km to 200km to the south
- The central-northern part of the Perth Basin produces conventional oil and gas while several tight gas and shale gas fields have been discovered recently just south of the Coolcalalaya Sub-Basin
- AWE Wait sia discovery was the largest conventional onshore gas discovery in Australia in the last 40 years
- Unconventional potential confirmed in Carynginia Shale
- Main exploration targets identified in the Coolcalalaya sub-basin are:
  - Conventional (Waitsia type) Permian sands
  - Permian Unconventional Carynginia shale
  - Devonian Unconventional Gneudna shale
  - Conventional Permo-Carboniferous tilted fault blocks

On final grant, STP-EPA-0127 (2.2m acres) will be largest exploration permit in Perth Basin
North Perth Basin Production

Waitsia-2P Reserves recently increased to 811PJ (gross); 78% higher than AWE’s 2P Waitsia Reserves as at 30 June 2017

Waitsia-2 42m perf. avg. rate of 38.5Mmscf/d
Waitsia-3 42m perf. avg. rate of 49.5Mmscf/d
Waitsia-4 50m perf. avg. rate of 89.6Mmscf/d

Waitsia now ranked in the top 5 largest gas fields ever discovered onshore Australia
Perth Basin in the news

ASX Announcement
23 October 2017

Outstanding results from Waitsia flow test - Waitsia-3 flows gas at 50 MMscf/d from Kingia Sandstone

- Flow testing of the Waitsia-3 appraisal well, onshore Perth Basin, has commenced
- Kingia Sandstone achieves a maximum flow rate of 50 million standard cubic feet per day
- The Kingia Sandstone performance at Waitsia-3 is better than Waitsia-1, reflecting the considerable improvement in pay thickness and reservoir quality

AWE Limited (ASX: AWE), the Operator of Production Licences L1/L2 in the onshore Perth Basin, Western Australia, today announced it had commenced flow testing the Waitsia-3 well to further appraise the conventional Waitsia gas discovery.

The testing program is designed to determine well deliverability from the southern extent of the Waitsia field to collect gas samples for compositional analysis. The zone being flow tested is the Kingia Sandstone, where a 42 metre interval (3,248 metres to 3,290 metres Measured Depth Below Rotary Table) has been perforated.

Well clean-up operations commenced at approximately 17:00 hours AWST (Australian Western Standard Time) on Wednesday 18 October 2017. On Thursday 19 October, at the end of a 7 hour clean up period, the well flowed gas at an instantaneous maximum rate of 50 million standard cubic feet per day (MMscfd) and an average of 49.5 MMscfd on an 80/64 inch choke at ~1,929 psig flowing well head pressure over a 2.6 hour period.

AWE’s CEO and Managing Director, David Biggs, said:

This is another extremely positive result and demonstrates once more the outstanding conventional reservoir properties of the Waitsia field. This result also provides further confidence in the field deliverability as we move toward a Final Investment Decision for Stage 2 of the Waitsia gas project.

The Waitsia-3 well will now be shut in for a brief pressure build-up survey prior to a series of flow tests at various choke settings, rates and well head pressures. Following the Waitsia-3 flow test, AWE will also test the Waitsia-2 and Waitsia-4 wells. The testing program is expected to be completed by the end of November 2017.

Waitsia-3 is located approximately 19.8 kilometres east-south-east of Dongara, Western Australia, and 10.8 kilometres south of Waitsia-1.

The Joint Venture partners in L1/L2 are:

AWE Limited (via subsidiaries) (Operator) 50.0%

Origin Energy Limited (via Lattice Energy) 50.0%

ASX Announcement
14 November 2017

Independent review increases Waitsia 2P Reserves by 78% to 811 PJ (gross)

- An independent review by RISC of the Waitsia gas field estimates gross 2P Reserves of 811 PJ, which is 78% higher than AWE’s previous 2P Reserves estimate at 30 June 2017
- The increase reflects the significantly better than expected reservoir quality, thickness and well deliverability outcomes from the recent drilling and testing program
- The independent assessment is closely aligned with AWE’s internal estimates from work completed to date, which will be finalised by year end after incorporating the most recent data from appraisal operations
- The new gross 2P Reserves estimate is more than double the amount of gas required for the Waitsia Stage 2 project, providing additional options for both increased near term field production and significantly longer field life
- Substantial additional upside is demonstrated by the new gross 3P reserve estimate of 1,220 PJ

Mitsui launches $602m takeover for AWE

ROB M STEWART
Dow Jones | 12:45PM January 29, 2010

Japan’s Mitsui has launched a takeover offer for oil and gas producer AWE, trumping rival bids from a Chinese energy company and an Australian mining-services firm.

$602m for 50% interest in Waitsia Project

50 MMscfd/d rekindles interest in Perth Basin
Multiple conventional and unconventional targets

Basin Stratigraphy

COOLCALALAYA

1st Unconventional target

2nd Unconventional target

Waitsia Conventional target

For personal use only
• **Primary exploration target** is Permian conventional and unconventional reservoirs
• **Secondary target** Devonian unconventional and possible conventional Permo-Carboniferous titled fault blocks

Interpretive cross sections based on seismic, gravity data and limited outcrop/shallow drill hole data
Main Conventional Potential

Prior to Waitsia AWE’s Dongarra/Wagina was a discovery in its own right.

Primary Lower Permian Kingia and High Cliff Sandstone targets are equivalent to Waitsia.

Upper Permian Dongarra Sandstone represents a secondary conventional/tight gas target.

Modified after AWE 2018
Unconventional Potential

- US Energy Information Agency (EIA) 2013 global shale gas prospectivity review included the wider Perth Basin - specifically the Permian Carynginia Shale.
- Carynginia has 4% average TOC, Type III kerogen, and is in the gas window.
- Carynginia thickness ranges from 50m to 150m* from north to south.


Carynginia in Arrowsmith-2 tested in 2011 flowed at constrained rate of 3.5Mmscf/d
U.S. Energy Information Administration (EIA) World Shale Gas and Shale Oil Resource Assessment concluded that in the Perth Basin:

“The Permian Carynginia Shale has a resource concentration of 94 Bcf/mi² (1Bm³/km²) within its 2,200-mi² (~6000 km²) dry gas prospective area. It holds a risked gas in-place of 124 Tcf, with a risked, technically recoverable shale gas resource of 25 Tcf.”

www.eia.gov/analysis/studies/worldshalegas/pdf/Australia_2013.pdf
Devonian Gneudna Fm. is absent in most of the Perth Basin but is present in the Coolcalalaya Sub-basin (STP-EPA-0127) and the Merlinleigh Sub-Basin (South Carnarvon Basin) and represents a secondary unconventional target.
Additional Conventional Targets

Potential play in conventional tilted fault blocks, involving Permo-Carboniferous sandstones reservoirs along the western edge of the main trough, and sourced from the Devonian Gneudna Formation.
North Perth Basin Work Programme

- Two years full review of existing well data: outcrop geology; geochem.; physical properties; coring; seismic reprocessing
- Comprehensive stratigraphic drilling to recover fresh shale samples and test hydrocarbon presence
- New 2D seismic acquisition and interpretation
- At least one (stimulated) exploration/appraisal well; and
- Evaluation studies and resource assessment

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Minimum Work Commitment

Staged commitment with year 2 exit point
North Perth Basin - Summary

✓ Company defining acreage position with over 9000km²
✓ Gas generation demonstrated north and south of Permit, with established commercial production south of Permit
✓ Permo-Carboniferous “conventional” targets
  ✓ Waitsia 5th largest gas discovery in Australia
✓ Permian and Devonian “unconventional” targets
  ✓ EIA estimate Caringinina has TCF gas potential
  ✓ Initial vertical well production results south of Permit very encouraging
✓ Permit transected by North West Shelf to Perth Pipeline
✓ Native Title agreements successfully completed
  ✓ Exploration Permit expected to be granted this year
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