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# **Canning Superbasin - Unconventional Resource Assessment**

Buru Energy Limited ("**Buru**" or "**Company**") is pleased to advise that its unconventional resource assessment of the Company's Canning Superbasin permits has identified significant potential for unconventional oil and gas in four of the key unconventional plays across its acreage.

Independent consultants, Netherland Sewell and Associates Inc. ("NSAI"), have now completed an independent hydrocarbon in-place evaluation and preliminary prospective resources assessment of two of these unconventional plays, the Laurel Formation and the Noonkanbah Formation. Buru has undertaken an analysis of the remaining two plays, the Frasnian and the Nita-Goldwyer.

### **Highlights**

- The four key unconventional plays identified have combined mid range unrisked gross in-place volumes of 362 trillion cubic feet ("TCF") of gas and 50 billion barrels of oil ("BBO").
- The four key plays have mid range gross prospective recoverable resources of 66 TCF of gas and 4 billion barrels of oil.
- The most prospective play identified is the Laurel Formation tight gas play which has
  a mid range gross prospective recoverable resource of 50 TCF of gas. Based on
  results from the Yulleroo-2 flow back and regional indications, Buru considers this
  play will also have a high level of associated liquids, which has the potential to add
  significant value to the play.
- The Laurel Formation play will be evaluated as part of the 2011 exploration program in at least the Valhalla-2, Paradise Deepening and Lawford-1 wells.
- The assessment undertaken by Buru and NSAI confirms the conclusions by the United States Energy Information Agency ("EIA") in its April 2011 report that the Canning Superbasin is Australia's most prospective area for unconventional hydrocarbons.

#### **Resource Assessment**

The estimated in-place and recoverable volumes for the four key plays as determined by Buru and NSAI are summarised in the following table:

Unconventional Resource Play	Gross Unrisked Undiscovered In- place Volume			Gross Unrisked Preliminary Prospective Resources			Units	Source of Estimate
	Low	Mid	High	Low	Mid	High		
Anderson-Laurel Tight Gas	79	251	643	8	50	257	TCF	NSAI
Noonkanbah Shale Gas	8	15	25	0.4	2	8	TCF	NSAI
Devonian (Frasnian) Tight Gas	6	36	72	1	5	18	TCF	Buru
Nita-Goldwyer Tight/Shale Gas	8	60	165	1	9	25	TCF	Buru
Nita-Goldwyer Tight/Shale Oil	10	50	80	1	4	8	BBO	Buru
Buru Acreage Unconventional Gas*	101	362	905	10	66	308	TCF	
Buru Acreage Unconventional Oil	10	50	80	1	4	8	BBO	

<sup>\*</sup>Totals are the arithmetic sum of multiple probability distributions and may not add because of rounding.

Prospective resources are not reserves, but are undiscovered resources that indicate exploration opportunities which require wells to be drilled to confirm the presence of in-place hydrocarbon resources and the ability to recover such resources in a commercially viable manner.

At this early stage of these unconventional plays, the limited nature of the data available makes direct comparison with established North American shale and tight gas producing basins difficult. However, current commercially successful North American unconventional plays were used as analogs for reservoir quality evaluation and recovery factor estimates.

All developed North American unconventional plays are appreciably different from each other and have required significant time, information gathering and analysis, and capital investment prior to commercial development. Although unconventional reservoirs may contain large quantities of hydrocarbons, reservoir productivity will determine whether the recovery of hydrocarbons is technically feasible and commercially viable, depending on specific conditions of each reservoir, and extraction costs.

Despite the early stages of the evaluation, the recognition of the Canning Superbasin by external parties, (including the EIA) as having the largest potential for unconventional resources of any onshore Australian basin, is a strong endorsement of Buru's acreage position and strategy.

#### **Current Equity Position**

Buru currently has title to 100% of the equity in unconventional resources in its permits. Mitsubishi Corporation ("**MC**") has the option to earn 50% of Buru's equity in the unconventional resources in its permits by funding 80% of an agreed A\$50 million unconventional resource exploration program in 2012. If MC does not elect to fund the 2012

unconventional resources exploration program by 30 November 2011, Buru will retain all rights to the unconventional resources contained in its permits in the Canning Superbasin.

#### **Background**

Buru has, over the last year, conducted an extensive review of the unconventional oil and gas potential of the Canning Superbasin including tight rock analysis of core and cuttings samples conducted by Terratek, together with detailed geological mapping and seismic interpretation. This work has identified several unconventional play types which have significant hydrocarbon potential. Data from the Yulleroo-2 reservoir stimulation and flow test was also of assistance in this analysis.

Buru requested NSAI to conduct an audit of Buru's hydrocarbon potential evaluation over exploration permits in the Canning Basin, including both Buru's internal work and the petrophysical, geochemical, and basin analysis work undertaken by Buru's consultants. The results of Buru's technical evaluation are summarised below, as well as relevant comments from NSAI's report. The estimates of prospective resources set out above have been generated based on this work, including the review by NSAI.

### **Canning Superbasin Unconventional Play Characteristics and Extent**

The source rocks for the conventional petroleum systems of the Canning Superbasin provide the primary targets for unconventional hydrocarbon recovery, either directly from the shales or from interbedded tight sandstones and carbonates.

The key intervals have been defined using the following criteria:

- organic richness;
- areal extent within the oil and gas window;
- favourable drilling depths;
- reservoir potential; and
- hydrocarbon shows.

Buru's evaluation has identified the following formations as potential unconventional reservoir targets for which there is sufficient data to estimate in-place hydrocarbon volumes, listed from stratigraphically youngest to oldest.

- **Noonkanbah Formation** contains moderately thick shales with high organic richness but is buried deep enough to generate gas only within limited areas.
- Lower Anderson and Laurel Formations contain interbedded tight sand, limestone, and shale, and are the reservoirs and source rocks for the Yulleroo accumulation and for the gas found in the Valhalla-1 well. The interbedded tight sands are considered the primary reservoir facies with interstitial porosity capable of holding significant volumes of hydrocarbons. Although the shales have relatively low organic content where penetrated, and are not considered to be of high quality shale

reservoir potential in the facies where they have been encountered, they are widespread, thick, and currently in the oil and gas generation windows.

- Nita and Goldwyer Formations Buru's analysis has concluded that the Goldwyer Shales and overlying Nita carbonates hold significant potential for both gas and oil, but considerably more data and analysis is needed to quantify this potential. Gas and oil have been produced from the Nita limestones in the Pictor-1 well on the eastern flank of the Fitzroy Trough. Within a large portion of Buru's exploration permits the Nita-Goldwyer interval is in the oil generation window and therefore believed to be oil bearing.
- Devonian (Frasnian) clastics these units are believed to be the source for some
  of the oils on the northern flank of the Fitzroy Trough, where they reach considerable
  thicknesses and appear to be capable of generating large volumes of both gas and
  oil. Further data gathering and analysis is also required for this section to properly
  estimate the potential in-place oil volumes.

#### **NSAI** Review

Netherland, Sewell & Associates, Inc. is a worldwide leader of petroleum property analysis and delivers fully integrated engineering, geological, geophysical, petrophysical, and economic solutions for all facets of the upstream energy industry.

NSAI have completed a screening level independent third party assessment of two of Buru's key unconventional plays, the Laurel Formation clastics and the Noonkanbah Formation shales.

#### **Laurel Clastics**

The Carboniferous aged Laurel clastics flowed gas and condensate in Yulleroo-2 in late 2010 after reservoir stimulation. NSAI estimate the in-place gas volumes for these tight clastics across the basin to range from 12 billion cubic feet of gas per square kilometer ("BCF/sq km") to 136 BCF/sq km with a best estimate of 63 BCF/sq km. NSAI highlighted the following positive evidence regarding the potential of the Lower Anderson-Laurel tight gas play:

- The Yulleroo-1 and 2 wells flowed gas to surface from interbedded tight gas sands indicating generation and migration of hydrocarbons within the Fitzroy Trough.
- Oil and gas shows while drilling the Anderson and Laurel Formations in Valhalla-1 and several other wells in the Fitzroy Trough indicate consistent hydrocarbon generation within the Fitzroy Trough area with hydrocarbon storage capacity and gas content.
- Average core porosity measurements are on par with commercially successful tight sand reservoirs in North America.
- Clastic reservoir facies encased within interbedded shales provide the potential source of hydrocarbons and an effective regional seal.

#### **Noonkanbah Formation**

NSAI have also reviewed the Permian aged Noonkanbah Formation shale potential and estimate the in-place gas volumes to range from 6 BCF/sq km to 111 BCF/sq km with a best estimate of 39 BCF/sq km. NSAI highlighted the following positive evidence regarding the potential of the Noonkanbah Formation shale play:

- Minor gas shows have been observed within the Noonkanbah Formation at depths above the present day oil-generation window.
- Gas-filled porosity measurements on shale core samples from the Fairwell-1 well compare favourably with successful shale plays in North America.
- Total Organic Carbon ("TOC") values in more than 30 wells across the Canning Superbasin range up to 18% (average 2.2%), similar to successful shale plays in North America.
- Source rock thickness and quality are expected to improve in the deeper sub-basins where thermal maturity is greatest.

In addition NSAI have completed a preliminary review of Buru's Nita-Goldwyer play evaluation and agree with Buru's interpretation that the Goldwyer Shale is in the oil generation window over most of Buru's acreage and the gas generation window in the more deeply buried areas of the Fitzroy and Kidson Troughs. NSAI have not reviewed the Devonian (Frasnian) tight gas and shale gas play.

#### Forward Plan for Buru's Canning Superbasin Unconventional Plays

The volume estimates set out above will require considerable additional data including vertical and horizontal wells with extended production tests to prove commercial feasibility and convert them to reserve volumes. There has as yet been no commercial production of shale hydrocarbons in Australia, although there is extensive production from tight gas reservoirs in the Cooper Basin.

To address the uncertainty in these highly prospective plays, Buru is undertaking a systematic program to better understand their resource and deliverability potential and prove reserve volumes on its permits, including acquisition of core, log, and sample data in the exploration and appraisal wells being drilled in its 2011 program, and ongoing analysis of unconventional reservoir data in the Superbasin generally.

The analysis of this data and the work done to date on the existing data in the Superbasin will provide the basis for the 2012 unconventional exploration and evaluation program which will be conducted in parallel with the conventional exploration and appraisal program in the Superbasin.

Buru's Executive Director, Mr Eric Streitberg, commented on the results of the review report:

"We are extremely pleased with the results of NSAI's review of the unconventional potential of the Superbasin which validates our views and those of other parties as to the potential of the Superbasin. On the basis of the gas alone, the Canning Superbasin has the potential to be equal to half the reserves of the entire offshore Western Australian gas industry. There is also very considerable potential for oil, condensate and LPG recovery which would add significantly to the value of the gas.

We have put in considerable effort to ensure that the real potential of this very important and potentially very large resource is properly and realistically quantified and understood. It is important for our shareholders, and for Government, that the shale and tight gas resources of the Canning Superbasin are properly recognised and accounted for in the context of both Buru and the energy landscape of Western Australia.

These resources, together with the recently announced contingent gas and oil resources of the Yulleroo Field, and our aggressive 2011 exploration program, give Buru a wide spectrum of opportunities to continue to add value for shareholders."

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#### **Consent**

The statements in this release relating to original gas-in-place and prospective gas resources estimates for the Anderson-Laurel tight gas and Nookanbah shale gas unconventional plays for Buru Energy Limited, are based on an assessment conducted by Netherland, Sewell & Associates, Inc (NSAI). These estimates are included in the transmittal dated May 31, 2011 complied by Mr John G. Hattner, a full time-employee of NSAI. Mr John G. Hattner has consented to the statements based on this information, and to the form and context in which these statements appear.