

# Buru Energy Tight Gas Stimulation TGS14 Project

INVESTOR  
ALERT  
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**AUSTRALIAN  
CONSERVATION  
FOUNDATION**

**Projects:** Laurel Formation Tight Gas

**Proponents:** Buru Energy

**Industry:** Unconventional Tight Gas / Oil and Condensates

**Finance:** AUD \$30.8m

**Partners:** Mitsubishi Corporation, Coogee Chemicals, Rey Resources

*Operating loss after tax increased from AUD \$31.6m (end 2014) to AUD \$40.4m (end 2015).*

*Shareholders equity declined by AUD \$40m over the past year.*

*Buru Energy 2015 annual report Share price 52 week high: AUD 0.63 52 week low: AUD 0.19*

## What are the implications and risks for investors?

### Key developments covered in this alert:

1. Public opposition to shale gas and fracking leading up to the 2017 Western Australia state election
2. Alcoa pulled out of Buru Energy projects, Mitsubishi preparing to write down assets;
3. Delays on the Tight Gas Stimulation (TGS) program;
4. Community concerns about the environmental assessment and approvals process;
5. Potential impacts on National Heritage listed values;
6. The future of the fossil fuel industry following the Paris climate agreement; and
7. Other issues relating to risk of shale gas projects, including well integrity, seismic activity, surface water pollution and a lack of data and transparency.

**Is it time to reconsider and invest in the growing renewable energy sector?**

**This investor alert is intended to provide information on emerging financial, environmental, social and governance risks for the Buru Energy unconventional shale gas project in Western Australia's Kimberley region and Canning Basin. It is for information only and not financial advice.**

## Multi-level opposition to shale gas

**Local level:** A Yawuru family protest camp, established in September 2014 on the entrance road to Yulleroo well sites, continues. This is likely to be bolstered with protest activity by local community groups throughout the 2016 dry season.<sup>1</sup>

**Regional level:** The recently formed WA anti-fracking alliance Frack Free Future is organising workshops and forums against proposed fracking programs.<sup>2</sup>

Two WA Labor MPs are calling for a ban on fracking, in the South West after increased community concern about the practice<sup>3</sup>

**National level:** National awareness programs are being organised to highlight potential impact of shale gas development on the National Heritage listed values of the region.<sup>4</sup>

Victoria<sup>5</sup> and Tasmania<sup>6</sup> have moratoriums on hydraulic fracturing. The ALP has recently committed to add shale gas fracking to the EPBC Act's Water Trigger.<sup>7</sup>

South Australia found 82.3% of the community are concerned about the threats of shale gas fracking to water supplies and farming lands<sup>8</sup>

**International:** The signing of the Paris Agreement has changed global direction in energy.

The following states and countries have bans or moratoriums on hydraulic fracturing: In the US: Maryland, New York, California, Colorado, Texas, Pennsylvania, Pittsburgh, Washington, Hawaii, Ohio; also Germany<sup>9</sup>, Scotland, Wales, Canada, France, Luxembourg, Romania, Netherlands, Spain and Bulgaria.<sup>10</sup>

WA farmers and community group have formed an alliance with farmers from Wyoming in the US,<sup>11</sup> warning other communities by publicising their negative experiences with shale gas fracking.

## 1. Public opposition to shale gas and fracking leading up to the 2017 Western Australia state election

There is growing community opposition to the fracking in the Kimberley. A 2014 survey<sup>12</sup> conducted by the WA Department of Mines and Petroleum demonstrated strong concern at local and state levels. A 2016 survey reported that 78 per cent of respondents in Geraldton, 74 per cent in Forrestfield and 73 per cent in Perth's western suburbs did not support fracking.<sup>13</sup>

In July 2014, a majority of Yawuru native title holders resolved that the Yawuru not agree to fracking on their country.<sup>14</sup>

Buru Energy Executive Director Eric Streitberg said in December 2013, the company "will not engage in hydraulic fracturing – or fracking – in the environmentally sensitive Kimberley region until community concerns have been allayed."<sup>15</sup>

However, in Buru Energy's 2016 AGM – Operations Update,<sup>16</sup> Mr Streitberg said Buru is 'currently negotiating fracking protocol with Traditional Owners' despite the strong Yawuru public statement that they do not agree to fracking on their country.<sup>17</sup>

Public concern and opposition to hydraulic fracturing has also remained at high levels in Western Australia despite government actions to allay concerns.<sup>18</sup> This will likely be a major environmental issue in the lead up to the 2017 Western Australia election. Recent polling suggests the 2017 WA election is set to be a close race.<sup>19</sup>

The Western Australian Labor Party has advanced two policies that will potentially end hydraulic fracturing in the state.<sup>20</sup> If it wins the next state election, WA Labor has committed to a freeze on all

fracking operations and exploration until it holds a public inquiry into the industry to examine fracking's effect on groundwater, public health and contribution to climate change.<sup>21</sup>

The WA Coalition is split on the issue of hydraulic fracturing, with several National Party members calling for stronger veto rights for farmers over extraction companies.<sup>22</sup>

Questions for investors:

1. Does Buru Energy intend to frack on Yawuru country without consent?
2. What would be the consequences to the company's social licence standing if Buru did proceed, especially in light of Mr Streitberg's earlier statement?
3. How will the uncertain policy environment increase risk and undermine the future viability of Buru Energy's shale gas fracking in the Canning Basin?

## 2. Alcoa has pulled out of Buru Energy projects, Mitsubishi preparing to write down assets

Alcoa announced the termination of its gas sales agreement with Buru Energy.<sup>23</sup> Buru's largest partner, Mitsubishi, is predicting a \$5 billion loss and is looking to write down under performing options.<sup>24</sup>

With final investment decision dates postponed and delays in exploration and production,<sup>25</sup> Buru is set to pay Alcoa AUD\$40 million over the next three years to repay Alcoa's prepayment from a 2007 agreement for a 500-petajoule gas supply.<sup>26</sup> Alcoa has secured alternative domestic gas supplies after Buru repeatedly extended its final investment decision date.<sup>27</sup>

It was confirmed at the Buru 2016 AGM on 28 April 2016 that the Mitsubishi funding agreement of \$27.5 million was reset.<sup>28</sup> Clarification is needed as to whether this is a reworking of the 2013 agreement with Mitsubishi Corporation to provide up to \$27.5 million funding as a contribution to Buru Energy's share of costs for the development of the Ungani Field.<sup>29</sup> This is not able to be determined from available public information.

Question for investors:

1. Is Mitsubishi committed to the Buru Energy gas project?
2. Has Mitsubishi committed any further funding or support to Buru Energy or just recommitted its 2013 funding?
3. With the termination of the Alcoa gas sale agreement does Buru Energy have any other gas buyers?

## 3. Delays to Tight Gas Stimulation program (TGS 14)

Buru Energy proposed to undertake testing for shale gas in the Canning Basin Laurel Formation using hydraulic fracturing at four exploration well sites (Yulleroo 3, Yulleroo 4, Valhalla North 1, and Asgard 1) during the dry season of 2014.<sup>30</sup> The testing operations proposed to determine if prospective gas flows may be achieved and to characterise the quality and quantity of the resultant hydrocarbon flows.<sup>31</sup> Due to high costs, approvals processes, climatic conditions and other reasons, Asgard 1 and Valhalla North 1 were not fracked until late 2015, two years after the intended commencement date.<sup>32</sup>

A Buru ASX Release from 18 April 2016,<sup>33</sup> gives an independent assessment by DeGolyer and MacNaughton of Valhalla North 1 and Asgard 1 and reports good flow rates. The assessment does not contain information on the number of wells required, the number of fracking operations needed, and the infrastructure and capital expenditure costs. These would be important factors for investors to consider in forming a view on the commercial viability of the project.

Yulleroo 3 and Yulleroo 4 remain untested for prospective gas flows, and questions have been raised about the structural integrity and cement bond issues at Yulleroo 4.<sup>34</sup> There is concern that such structural issues will delay testing further and add considerable costs to repairing the well for hydraulic fracturing.<sup>35</sup> The Buru ASX Announcement, *2016 AGM - Operations Update*<sup>36</sup> mentions future plans for hydraulic fracturing in Yulleroo 3 or 4 are still on hold due to no agreement with Traditional Owners and no definite timeline for a future works program.

To date there has been no Traditional Owner consent for the Yulleroo wells to be hydraulically fracked and a Traditional Owner-led camp has been established, maintained and supported on the access track to Buru's wells to monitor operations. It has been operating continuously since September 2014.<sup>37</sup>

The 2014 State Agreement<sup>38</sup> raises further matters concerning the project timeline and sheds light on several unmet deadlines. For example, it reports that Buru failed to meet the deadline to market Domgas by 31 March 2016. Legislation to amend the State Agreement was passed through Parliament to push all deadlines out for another two years.<sup>39</sup> Buru's two stated reasons for not reaching the agreed deadlines were climatic conditions and Native Title negotiations (cited in Extract from Hansard [COUNCIL – Tuesday, 23 February 2016] p556a-560a).

Questions for investors:

1. To make this project commercially viable, how many wells are required and how many fracking operations are needed at what infrastructure and capital expenditure costs?
2. To what extent is the lack of necessary infrastructure (such as the 600km pipeline) a critical impediment to the project being profitable?
3. What are the structural issues with Yulleroo 4, how are these to be rectified and what will be the associated cost?
4. If the Yawuru provide no consent and Buru proceeds to develop shale gas on their country without this consent, what are the reputational impacts for the company, especially if it seeks to negotiate consent with other Traditional Owners in the future?
5. What are Buru's contingencies to address climatic conditions and their impact on operations in the Canning Basin?

#### **4. Community concerns about the environmental assessment and approvals process**

The initial EPA Public Advice (2014) on the Buru TGS proposal recommended that the potential impacts associated with the proposal can be further evaluated, regulated and mitigated by the WA Department of Mines and Petroleum (DMP).<sup>40</sup>

ACF believes the Buru TGS proposal must, at a minimum, be subject to a full and thorough assessment by the WA Environment Protection Authority (EPA), to the level of Public

Environmental Review (PER), including a thorough bioregional assessment of potential cumulative environmental damage from unconventional gas production.

The EPA has delegated some regulatory powers to the DMP<sup>41</sup> and to date has not completed an assessment of the Buru Energy Environment Plan.<sup>42</sup> The Department is an active proponent of shale gas projects.<sup>43</sup> This raises serious concerns about the level of independence the DMP can bring to the task of evaluating and monitoring the environmental impacts of the project.

Without the WA EPA conducting an assessment and regulating this emerging and controversial industry, there is concern that public confidence in protection of the natural environment will be inadequate.<sup>44</sup>

Questions for investors:

1. How much additional risk is being generated for the Buru Energy TGS program if there are serious community concerns about the independence and integrity of the environmental assessment and approvals process?
2. What is the reputational risk for the company if the regulatory process is shown to have flaws?

## 5. Potential impact on National Heritage listing values

The Federal Environment Minister announced the National Heritage Listing of the West Kimberley on 31 August 2011. This listing provides the region with national public recognition for its outstanding cultural and natural heritage values.<sup>45</sup>

Central to this listing is the culturally rich Fitzroy River, which has floodplains that stretch for more than 100 kilometres into the Canning Basin in a catchment that occupies 93,829 square kilometres. The ground and surface waters of the catchment are interconnected and many remote desert water holes have strong cultural significance and provide vital habitat refuges for wildlife.

Asgard 1 and Valhalla North 1 are situated within the floodplains of the National Heritage-listed Fitzroy River while Yulleroo 3 and Yulleroo 4 sit within the floodplains of the Roebuck Bay, which is also National Heritage-listed and included in the Ramsar Convention of Wetlands of International Importance.<sup>46</sup> The WA Government has proposed Roebuck Bay be included in a new Marine Park.<sup>47</sup> In ACF's view, the Fitzroy River and Roebuck Bay are important to local sustainable industries such as pearling<sup>48</sup> and tourism<sup>49</sup> which support the Kimberley economy.

Question for investors:

What are the additional risks for the project given the high profile of the heritage values of the Fitzroy River and Roebuck Bay and the associated protection this entails under the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)?

## 6. The future of the fossil fuel industry following the Paris climate agreement

At the Paris climate conference in December 2015 nearly 200 countries agreed to new goals and a process to reduce emissions and limit global warming.<sup>50</sup>

The goals were two-fold:

- Limit global warming well below 2 degrees above pre-industrial levels and pursue best efforts to limit warming to 1.5 degrees; and
- Achieve net zero global emissions in the second half of this century.<sup>51</sup>

If the Australian government is to implement this commitment, and based on current greenhouse gas projections, ACF believes this would preclude the approval of new fossil fuel projects and require the phasing out of existing fossil fuel projects.

Questions for investors:

How are the long term risks for this project increased in the wake of Australia's commitment to climate change targets under the Paris climate agreement?

## 7. Other key developments

### Well integrity of Buru projects

Buru's Yulleroo wells have experienced documented problems in relation to well integrity,<sup>52</sup> which has been conceded by Buru and DMP.<sup>53</sup> This has also been confirmed by the Minister for Mines in Legislative Council via a Question on notice in the WA Parliament on 19 September 2014.<sup>54</sup>

According to the Yawuru Expert Group, a study found that for at least the lower 1 km of Yulleroo 4 (Y4), the Well Integrity Report confirms that there is not only a poor cement bond of the well, but also channelling. Consequently, if hydraulic fracturing fluids under high pressure were to be applied within this range, there is a strong probability that the fluids would leak up the exterior well skin, not only potentially leaking higher than the formations to be hydraulically fractured, but also causing pressure and fluid loss for the hydraulic fracturing operations.<sup>55</sup>

This study recommended that before any further operations occur in this well, a thorough cement bond test be performed and if required, a further well cement bonding (injection) operation be performed, followed by a further survey, to ensure the well's integrity is sustained prior to any future formation fracturing operations.<sup>56</sup>

Questions for investors:

1. What is the full extent of the integrity issues at Yulleroo 4 and how does this increase risk and what are the associated additional costs?
2. Does this well require remedial works and does Buru Energy intend to proceed with hydraulic fracturing of this well?

### Seismic activity and risks

There is a history of seismic activity in the Canning Basin.<sup>57</sup> Seismic interpretation around Yulleroo 2 indicates a transecting fault with multiple antithetics, which are likely to facilitate rock instability.<sup>58</sup> Yulleroo 2 is very close geographically to Yulleroo 3 and Yulleroo 4. During WA Parliamentary Questions Without Notice (QWON) on 19 February 2013 natural seismic activity around Yulleroo 3 and Yulleroo 4 (EP 436) was acknowledged and the fact that Yulleroo 2 was fracked in 2010 through a natural fault, creating possible pathways for methane CO<sub>2</sub> and/or chemical migration.<sup>59</sup>

Question for investors:

What are the additional risks to the drilling and fracking process caused by natural faults?

## Surface water pollution

Through a question on notice in Parliament on 20 February 2014 the DMP confirmed a retention pond overflowed at Buru well Yulleroo 4<sup>60</sup> following a storm and confirmed that modifications were underway. There is concern this type of after-the-event modification indicates that the industry is under-prepared.

ACF's concerns about hydraulic fracking extend beyond the process of hydraulic fracturing itself to the associated impacts of retention dams, casing integrity, blow backs, sustained casing pressures and any form of hydrocarbon migration whether directly associated with fracking or part of the broader unconventional gas process broadly.<sup>61</sup>

Question for investors:

How are all the risks of shale gas development and hydraulic fracking being taken into account and what are the potential additional cost implications of addressing these?

## A lack of transparency and key data

There is concern around the lack of transparency and availability of relevant key data to properly assess the risks associated with shale gas development and hydraulic fracking. Much of this data is not requested or collected by the DMP including:

- Realistic appraisal of surface spills travelling to receptors including accurate head data;
- Accurate fault maps and location relative to laterals;
- Pressure transients during fracking for modelling; and
- Sustained Casing Pressure data.

It has been reported that information is being withheld from the public under commercial-in-confidence provisions.<sup>62</sup>

Question for investors:

1. What are the increased risks arising from a lack of transparency on data relevant to potential future environmental impacts and decision making?

## Conclusion

ACF believes if Buru Energy proceeds with planned hydraulic fracturing it has the potential to cause serious environmental impacts with implications for surrounding communities. The Broome aquifer in which these wells and exploration permit (EP 436) is situated is Broome's only drinking water source. The wells are in an area of wetlands and lakes which in turn form part of the Roebuck Plains floodplain.

There are risks associated with this project – for the environment and for investors.

Questions for investors:

1. How will changes in climate policy post the Paris agreement, local Traditional Owner concerns and the potential impacts on the National Heritage listed values of the region increase the risk and the viability of the Buru Energy TGS project?
2. Given the fall in the price of fossil fuels globally, are investment decisions of the company based on a global economic climate that no longer exists?
3. Are there greater and much less risky investment opportunities for investors in the growth of the renewable energy sector?

Questions for institutional investors who are signatories to the UN Principles of Responsible Investment:

1. How can unconventional gas extraction and processing be delivered in a responsible manner consistent with your stated corporate values?
2. How can Buru Energy expect to effectively manage environmental sensitivities around a green field development in the Fitzroy River and Roebuck Bay floodplains in light of the National Heritage Listed cultural and environmental values in relation to ground and surface water and tropical storm events?
3. How is Buru protecting the interests of shareholders and stakeholders by managing these risks?

## Contacts

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<sup>62</sup> <https://au.news.yahoo.com/thewest/wa/a/30681329/state-secrets-what-the-government-isn-t-keen-to-tell-you/>