



EMPEROR ENERGY
LIMITED

1st December 2021

ASX Market Announcements
20 Bridge Street
Sydney NSW 2000

Market Update December 2021

Key Points

- **The Australian Government on 26th November 2021 has confirmed the ongoing importance of gas in the Australian economy via release of the 2021 National Gas Infrastructure Plan**
- **Gas remains a critical energy source in the energy mix to ensure reliability of the electricity grid as the use of intermittent renewable energy sources expands**
- **Emperor Energy maintains focus on achieving first gas sales from Judith Gas Field in 2027**
- **Conversations continue with potential Exploration Partners to fund Judith-2 Appraisal Well**
- **Recently acquired 3D Seismic data and AVO analysis further de-risks the Judith-2 target**
- **Emperor Energy is ready to commence Judith-2 Well permitting and approval process**
- **Judith-2 considered the most advanced and best prepared drilling target in the Offshore Gippsland Basin**
- **Australian Energy Market Operator (AEMO) forecasts early decline in production from southern gas fields (Longford Gas Plant)**
- **AEMO predicts East Coast gas supply shortfall to occur unless LNG imports commence in 2023**
- **AEMO forecasts Victorian gas pricing at \$10/GJ (in 2020 AUD\$ terms) by 2028**
- **Projected production rates see annual revenue from the Judith Gas Field exceeding \$A300M at \$10/GJ pricing**

1. Judith Gas Project Objectives

Emperor Energy's key focus is the development of the Judith Gas Project located 40km offshore from the Orbost Gas Plant in the Gippsland Basin, Victoria. The project objective is to establish a sales gas capacity of 80TJ per day equivalent to 28PJ per year over a minimum production period of 15 years.

The project requires drilling of a successful Judith-2 appraisal well in early 2023 to prove Gas Reserves and subsequently provide economic justification for gas field and processing plant development leading to targeted commercial production of sales gas in 2027.

Emperor Energy has systematically analysed all available data from the Judith 1 Well (drilled in 1989) to define a very large Prospective Resource and smaller Contingent Resource. AVO Analysis of recently acquired 3D Seismic data shows direct hydrocarbon indicators extending throughout the entire Judith Structure adding further confidence to the resource scale.

A project pre-feasibility study completed by gas pipeline company APA during 2020 provides a clear understanding of the infrastructure path and cost required to achieve commercial production.



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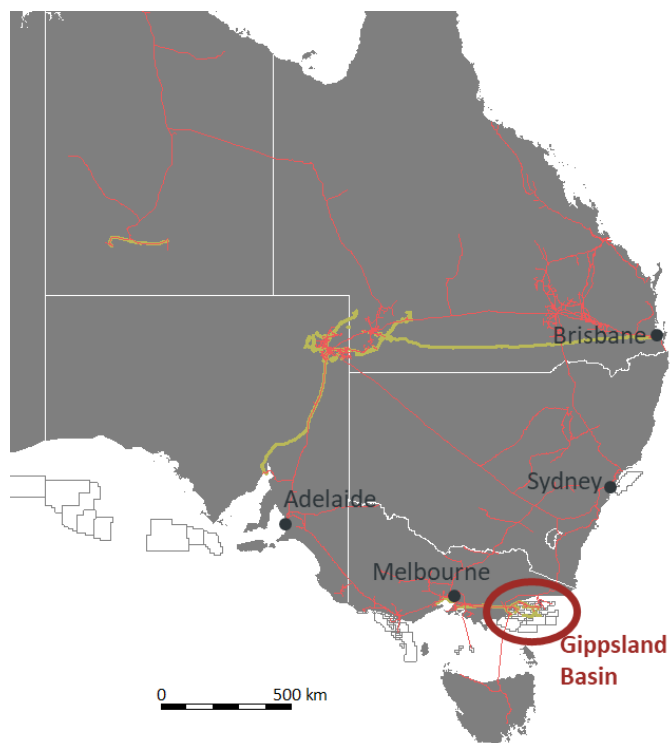


Figure 1: Gippsland Basin Location

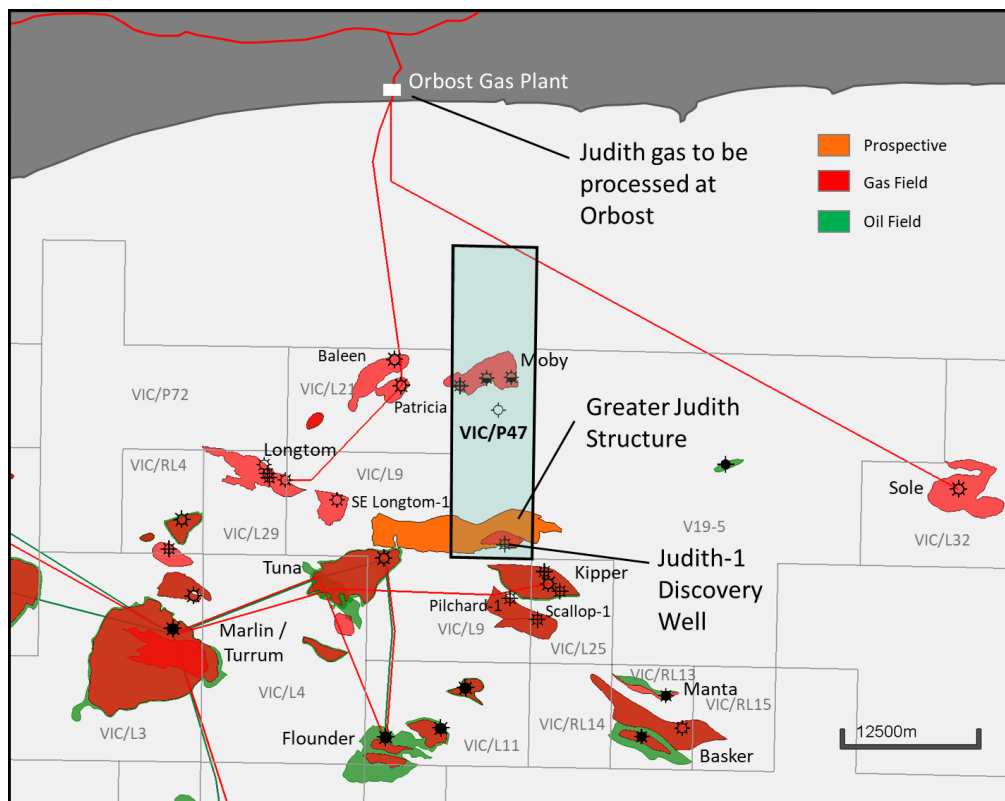


Figure 2: Judith Gas Field Location in Gippsland Basin and proximity to Orbest Gas Plant



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2. Progress on Securing an Exploration Partner

Fundamental to the development of the project is the securing of an exploration partner to fund the appraisal well. Emperor Energy has been actively working to secure a partner. The in-depth discussions and negotiations held with potential partners have provided Emperor Energy with a solid understanding of the funding arrangements likely to be reached with potential partners.

The recently acquired 3D seismic data across the Judith Gas Field has significantly reduced exploration risk and has re-rated the Judith-2 Well from exploration to appraisal well status in the Judith Gas Sands that have been previously penetrated by the Judith-1 Well.

The underlying Longtom Gas Sands that have previously been in production at the nearby Longtom Gas Field remain as an upside exploration target in the Judith Gas Field.

Emperor Energy has now received the final and fully reprocessed version of the new seismic data. This is now being incorporated into the project marketing process and is attracting additional interest as discussions with potential Farm-In Partners continue.

3. Preparations underway to be Drill Ready at Judith

Emperor Energy is also now preparing to engage well management consultants AGR to commence the application process to secure necessary approvals to drill the Judith-2 Well from the relevant government authorities. AGR carried out initial well design studies for Emperor Energy in 2020 and has now scoped out the approval process in detail.

This approval process is expected to commence in early 2022 and be completed by year end.

Following peer review from exploration experts with significant Gippsland Basin experience, Emperor Energy is now of the opinion that the Judith-2 Well is the best advanced and most prepared gas target in the offshore Gippsland Basin complete with a clearly defined infrastructure route to the lucrative Australian East Coast Gas Market.

The 100% Emperor Energy owned Vic/P47 Exploration Permit containing the Judith structure is in very good standing with the National Offshore Petroleum Titles Authority (NOPTA) with more than adequate permit term remaining to complete the Judith-2 Well.

4. Gas is Strategically Important to Australia - AEMO Gas Supply and Demand Forecasts

The Australian Energy Market Operator (AEMO) provides an annual Gas Statement of Opportunities (GSOO), that forecasts gas demand, and uses information from gas producers about reserves and forecast production, to project the supply-demand balance and potential gaps under a range of plausible scenarios for eastern and south-eastern Australian gas systems through to 2040.

The two key points taken from the 2021 GSOO are:

- A scarcity of southern gas supply risks appears ahead of winter 2023 due to more rapid decline in producers' forecasts of maximum daily production from legacy southern fields supplying to Longford, Victoria. *Source: 2021 AEMO Gas Statement of Opportunity*



- Sufficient gas supply will be maintained provided first gas from the proposed Port Kembla Gas Terminal (PKGT) is delivered ahead of winter 2023. *Source: 2021 AEMO Gas Statement of Opportunity*

The reality of this scenario is that the producing Exxon Mobil fields in the Offshore Gippsland Basin are depleting faster than planned and the South-Eastern Australian gas market will become reliant on imported Liquefied Natural Gas (LNG) being delivered to the PKGT by winter 2023 to avoid an acute shortfall of gas supply.

This also implies that gas prices in the South-Eastern Australian gas market will then be inextricably linked to and therefore determined by LNG import prices in a global commodity market.

5. Forward Gas Pricing

AEMO have provided price predictions for the South-East Australian gas market in the 2021 GSOO. The projected Melbourne industrial pricing is shown in the graph below.

The Central Case of this pricing indicates gas prices to reach \$10/GJ (in 2020 AUD\$ terms) by 2028.

The Step Change Case which accounts for incorporating stronger action on climate change sees this price at \$9.50/GJ (in 2020 AUD\$ terms) by 2028.

At this pricing, the projected sales gas volumes from the Judith Gas Project in conjunction with associated condensate (liquids) would see the annual revenue from the Judith Gas Field project exceeding \$A300M per year. *Note: Revenue based on gas sales at AUD\$10/GJ from well production rates of 80mmscf/day as projected in dynamic modelling completed by Emperor Energy in 2020 and then included in Judith Gas Field Infrastructure Pre-Feasibility Study 2021.*

Internal economic analysis of the Judith Gas project carried out by Emperor Energy's consultants using costings from the infrastructure pre-feasibility study carried out by APA, in conjunction with estimated field development capital costs and overall operating costs, sees both of these pricing scenarios providing very attractive project Internal Rates of Return.

Figure 7 Melbourne Large Industrial Non-Oil Indexed Prices Scenario Comparison (\$A2020/GJ)

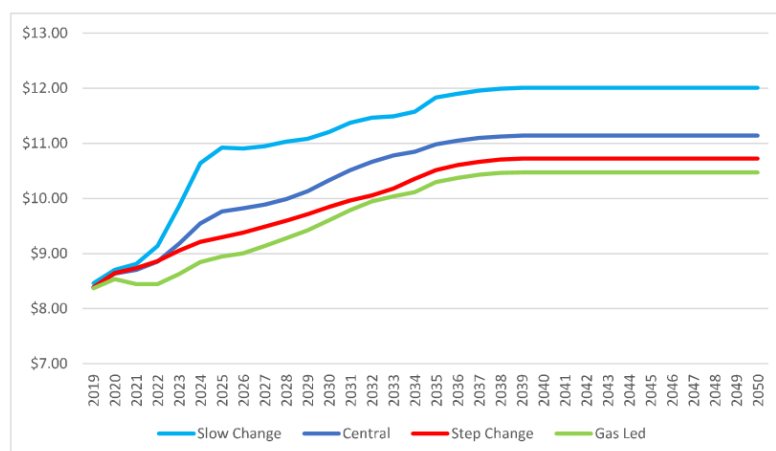


Figure 3: Melbourne Large Industrial Non-Oil Indexed Prices Scenario Comparison (\$A2020/GJ)

Source: 2021 AEMO Gas Statement of Opportunity



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6. The Role of Gas in Today's Energy Transitions

The International Energy Agency (IEA) states that the clearest case for switching from coal to gas comes when there is the possibility to use existing infrastructure to provide the same energy services but with lower emissions. *Source IEA 2019 Report: The Role of Gas in Today's Energy Transition*

Given the time it takes to build up new renewables and to implement energy efficiency improvements, this also represents a potential quick win for emissions reductions. *Source IEA 2019 Report: The Role of Gas in Today's Energy Transition*

While there is a wide variation across different sources of coal and gas, an estimated 98% of gas consumed today has a lower lifecycle emissions intensity than coal when used for power or heat. This analysis takes into account both CO₂ and methane emissions and shows that, on average, coal-to-gas switching reduces emissions by 50% when producing electricity and by 33% when providing heat.

Source IEA 2019 Report: The Role of Gas in Today's Energy Transition

7. Australian Government is backing the Gas Industry

The Australian Government has made it very clear that gas will play an integral role in reducing overall carbon emissions in Australian as the energy sector transitions towards renewable sources and away from Coal Fired Electricity generation. Gas will play a key role in maintaining system reliability by providing dispatchable generation to underpin the transition to intermittent renewable energy sources.

In the 2021 Annual Electricity Statement of Opportunities, AEMO states that “In New South Wales, the commitment of new generation capacity, including the Gas Fired 750 MW Kurri Kurri Power Station which is expected to be operational in December 2023, has closed the forecast reliability gap that had previously been identified in 2023-24 following the retirement of Liddell Power Station.” *Source: 2021 AEMO Electricity Statement of Opportunity*

In its assessment of electricity system reliability from 2026 to 2031 AEMO states “Reliability is forecast to deteriorate over this period in New South Wales and Victoria. Major drivers of this deterioration are:

- The retirement of Yallourn Power Station (1,450 MW) in Victoria in July 2028
- The retirement of Vales Point Power Station (1,320 MW) in New South Wales in 2029-30
- The retirement of one unit (720 MW) of Eraring Power Station in New South Wales in 2030-31
- Expected increases in forced outage rates of coal-fired generators over time
- Forecast increases in consumer demand towards the end of the decade

Source: 2021 AEMO Electricity Statement of Opportunity

On 26th November 2021 the Australian Government released its 2021 National Gas Infrastructure Plan (2021 NGIP) stating:

“The 2021 National Gas Infrastructure Plan (2021 NGIP) presents a sequenced blueprint for the development of the east coast gas market over the next 20 years.”



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“The 2021 NGIP takes a longer term view of development out to 2041 and recognises that new challenges and opportunities are emerging in the east coast gas market. Gas supplies are likely to fall short of domestic and export demand by the end of the decade if further action to unlock supply and deliver key infrastructure is not taken by industry.”

“The threat of shortfall in the mid-2020s remains a significant consideration. In the short term, the findings of this plan are consistent with solutions presented in the Interim NGIP. That is, supply should be maximised from existing basins in the north and in the south, an import terminal should be built and additional storage capacity should be developed to prevent annual and daily shortfalls. “

“Modelling for this plan has identified the following short-term supply options:

- New onshore supply: Bowen-Surat and Cooper Eromanga basins by 2023.
- New offshore supply: Bass, Otway and Gippsland basins”

Source: 2021 National Gas Infrastructure Plan

Emperor Energy considers the Judith Gas Project in the Offshore Gippsland Basin is perfectly positioned to fulfill a role in securing gas supply to the East Coast of Australia through to 2041.

We thank shareholders and our team for their ongoing support and welcome any questions they may have.

This announcement has been authorised for release to the market by the Board of Directors of Emperor Energy Limited

Yours faithfully

Carl Dumbrell

Company Secretary

Ph +61 402 277 282

carl@emperorenergy.com.au



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Corporate Directory

Board of Directors

Carl Dumbrell
Phil McNamara
Nigel Harvey

Company Secretary

Carl Dumbrell

Geological Consultant

Geoff Geary

Project & Business Development Consultant

Malcolm King

Registered office & Principle place of business

Level 4, 55 York Street
Sydney NSW 2000

Mailing Address

GPO Box 5360
Sydney NSW 2001

Auditors

ICP Assurance Services
Suite 1204, 227 Elizabeth Street
Sydney NSW 2000

Lawyers

Hopgood Ganim
Level 27, Allendale Square
77 St Georges Tce, Perth WA 6000

Share Registry

Automic Pty Ltd ACN 152 260 814 Trading as Automic Registry Services

Level 5, 126 Phillip Street
Sydney NSW 2000

Phone: 1300 288 664 Overseas callers: +61 2 9698 5414 Email: hello@automicgroup.com.au



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Top 20 Shareholders – ASX: EMP

Position	Holder Name	Holding	%
1	Citicorp Nominees Pty Limited	21,264,682	11.39%
2	BNP Paribas Nominees Pty Ltd	12,611,574	6.75%
3	Carl Dumbrell & Controlled Holdings	10,109,936	5.41%
4	Slade Technologies Pty Ltd	7,000,000	3.75%
5	Phil McNamara & Controlled Holdings	6,190,396	3.31%
6	Nigel Harvey & Controlled Holdings	5,406,645	2.89%
7	Gotha Street Capital Pty Ltd	5,268,137	2.82%
8	Scintilla Strategic Investments Limited	4,800,000	2.57%
9	HSBC Custody Nominees (Australia) Limited	4,701,336	2.52%
10	Pharoth San & Kaden San	3,814,891	2.04%
11	Zen88 Pty Limited	3,684,553	1.97%
12	Hix Corp Pty Ltd	3,530,000	1.89%
13	Sama Zarah Pty Ltd	3,257,000	1.74%
14	Daniel J Peters	3,064,197	1.64%
15	LittleJohn Embrey Engineering Pty Ltd	3,000,000	1.61%
16	Benjamin Gordon Price	2,389,797	1.28%
17	Craig Graeme Chapman	2,333,333	1.25%
18	Malcolm Ross King	2,084,756	1.12%
19	Eric Frank Frescher	1,863,045	1.00%
20	Buduci Fond Pty Ltd	1,748,746	0.94%