

Submission to the Viva Energy import terminal

*A changing demand environment makes the
Viva import terminal unnecessary.*

Executive Summary

The global environment for Natural Gas and LNG has changed significantly since Viva Energy published its Gas Terminal Project EES for its Geelong LNG import facility:

- There has been a war in Ukraine that has destabilised the global LNG market forcing up the price of LNG. The structural shift in the global LNG market that the Ukraine war has precipitated will last for the next 3-4 years.
- AEMO has published its Gas Statement of Opportunities that shows that gas demand in Victoria is materially shrinking in a rapid fashion.
- The Victorian government has forged ahead with policies to reduce gas demand.
- Exxon Mobil has announced it has granted final investment decision to the Kipper gas field in the Bass Strait, a project that materially changes the demand and supply dynamics for Victoria. The Victorian market has gone from a potential shortfall in the mid 2020's to a material surplus.

Viva points to demand from the electricity sector for gas powered generation in its EES. Gas powered electricity generation is a relatively minor source of demand. In 2021 Gas Powered generation accounted for just 11 PJ of demand, only 5% of Victoria's total gas demand. In a renewable rich electricity grid it is unlikely that gas demand will increase.

The approval of more gas infrastructure is entirely inconsistent with the Federal and Victorian State government commitments to Net Zero by 2050 according to the International Energy Agency and the United Nations Environment Program.

LNG is higher emissions than domestically sourced gas. Producing more emissions is not in line with the Paris accord on Net Zero by 2050 which entails producing less emissions.

Viva Energy's proposed Geelong import terminal will not lower prices for Australian consumers.

Viva Energy's LNG import terminal at Geelong, EES project justification has been overtaken by recent events.

The project should be rejected on the grounds of lack of demand, gas surpluses in the domestic market, cheaper domestically sourced gas, and inconsistency with stated policies on Net Zero by both the Federal and Victorian governments.

The war in Ukraine has changed global LNG pricing dynamics for the foreseeable future

Russian gas has been in short supply in Europe as Russia sought to exercise pressure on the European Community. To supply their needs Europe turned to importing LNG.

The global LNG market is finely balanced as the vast majority of LNG is sold on long term contracts. To build more capacity is a 3-4 year lead time at best.

Global shortfalls meant prices rose to eye-watering levels. The Dutch TTF, the benchmark hub for gas prices in Europe, went from under €5/megawatt hour (MWh) in mid-2020 to nearly €20/MWh early 2021. This week on 5 April prices closed at €110/MWh, equivalent to US\$ 35/mmbtu.

Currently gas trades on the spot market in Victoria for US\$ 9.11/mmbtu making importing gas an economic impossibility.

Figure 1: The Ukraine war has put a bomb under gas prices



Gas import terminals rely on being able to source cheap LNG on the global market. Global prices are likely to remain strong as Europe displaces Russian gas with LNG imports. Europe is essentially the global price setter and is paying a high price to offset Putin's gas.

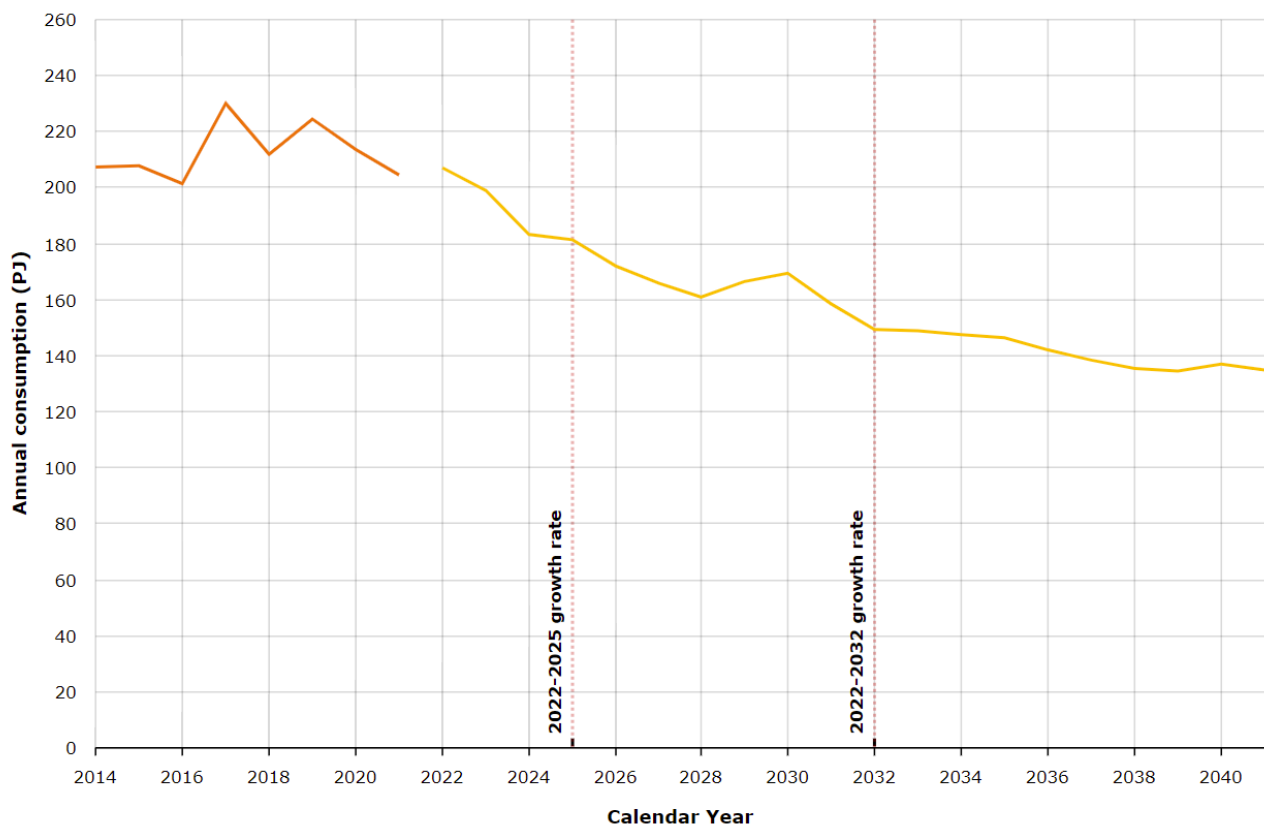
Viva energy simply cannot compete with the extraordinary prices paid by the Europeans, transport costs notwithstanding.

Gas is a dying industry in Victorian domestic market

Forecasts by AEMO show large and sustained falls in demand

Under the AEMO step change scenario annual gas consumption in Victoria falls from 205PJ in 2021 to 169PJ in 2030 a fall of 17%.

Figure 2: AEMO's forecasts for Victoria's annual gas consumption under the Step Change Scenario



Source: [AEMO Forecasting Data Portal](#)

AEMO models a number of different scenarios for its annual forecasting document the Gas Statement of Opportunities 2022.

IEEFA has used the Step Change Scenario as the most likely outcome for the market. AEMO defines its Step Change Scenario as

- **Step Change** is a future with a rapid transition towards net zero emissions economy wide. This includes significant levels of electrification (consumers shifting from gas to electricity) early on, as the electricity sector decarbonises with increasing renewable energy penetration and retiring coal generation. ¹

The broader energy industry has also identified the Step Change scenario as the one that is most likely for Australia. In the Gas Statement of Opportunities 2022 AEMO states:

In consultation for the 2022 Integrated Systems Plan (ISP), stakeholders identified *Step Change* as the scenario they considered the most likely pathway for Australia's energy sector. For the gas sector, *Step Change* projects tangible and rapid reductions in gas consumption, particularly as consumers electrify their energy needs. ²

IEEFA's view has only been reinforced with the release of the Victorian governments Gas Substitution Roadmap – Stakeholder forum in February 2022. The Gas Substitution Roadmap has tangible plans to reduce gas consumption in Victoria materially by 2030.

Victorian Government plans for significantly less gas

The Victorian Government has already released significant budget measures³ to improve energy efficiency and lower power bills totalling \$797m including:

- \$335m to replace old wood, electric or gas fired heaters with new energy efficient heaters. The most energy efficient heaters are electric heat pumps for hot water and heating.
- \$112m to seal windows and doors and upgrade heating, cooling and hot water in 35,000 public housing projects
- New minimum efficiency standards for rental properties
- Move to 7 star efficiency standards for new homes

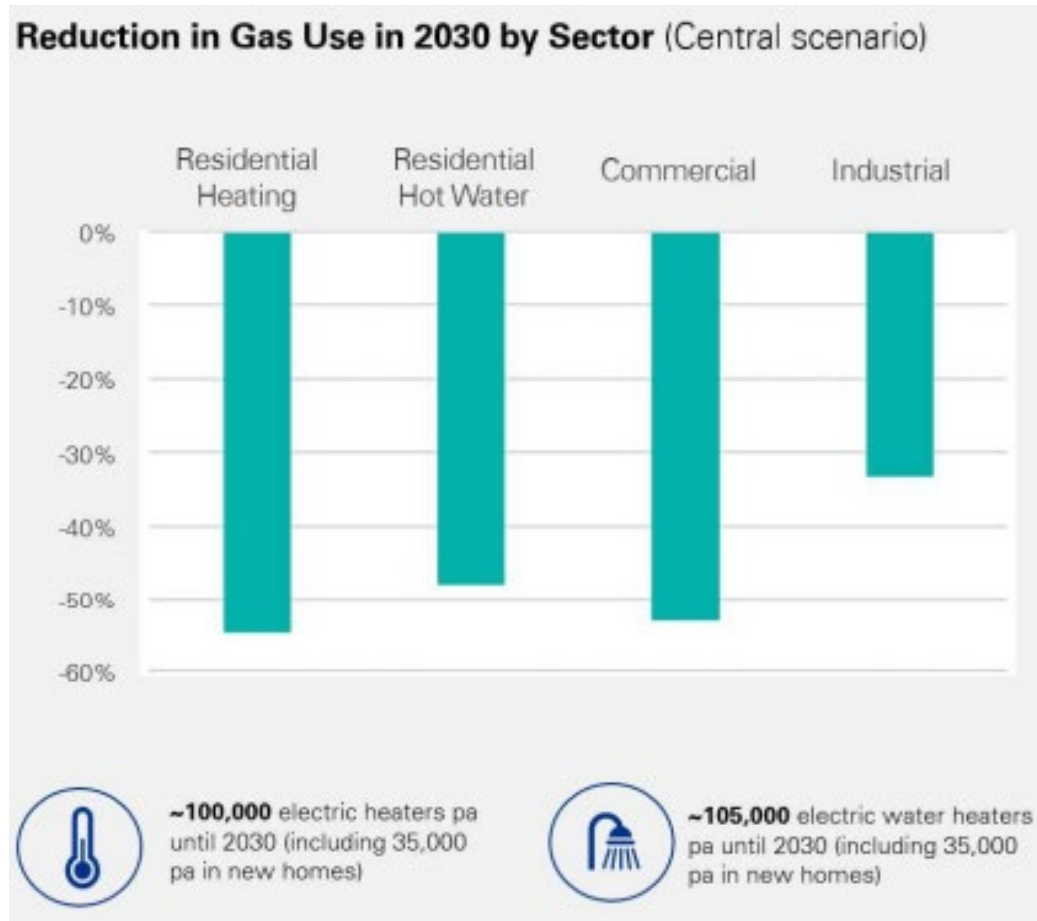
The effect of the government's program is to lower demand for all energy including gas.

¹ AEMO – [Gas Statement of Opportunities 2022](#) – Page 15

² AEMO – [Gas Statement of Opportunities 2022](#) – Page 16

³ Victorian State Government – [Helping Victorians pay their power bills](#) – 17 November 2020

Figure 3: Victoria's Gas substitution Roadmap- Stakeholder Forum sees big falls in gas consumption by 2030



Source: Victoria's Gas Substitution Roadmap – Stakeholder Forum - February 2022 – Page 12

The Victorian Government has stated that the reductions in gas usage by 2030 are transforming the Energy Sector. Residential heating usage of gas falls by over 50%, residential hot water usage by just under 50%, commercial usage by over 50% and Industrial usage by over 30%.

The Victorian plans are for much greater cuts in gas consumption (over 30% to over 50% falls in gas consumption depending on the sector by 2030) than the total reduction of 17% by 2030 foreseen in the AEMO Gas Statement of Opportunities 2020 (Step Change Scenario).

The Death Spiral in domestic demand

IEEFA views the Victorian governments forecasts of demand in its Gas substitution roadmap as very conservative as they fail to fully account for the death spiral.

Victorian gas consumption is dominated by Residential and Commercial consumption. In 2021, according to AEMO,⁴ 63% of all gas consumed in Victoria was consumed by the Residential and Commercial sector.

Network costs generally make up around 33% of the residential gas bills in Victoria.⁵ This is a fixed charge. The less gas consumers there are the higher the cost of distribution becomes on each bill remaining. As customers leave the network the percentage of a consumer's bill that is network costs rises and customer bills rise. It is a self-reinforcing cycle. The higher the bills rise the more customers desert gas as a fuel and the more bills rise.

Under current Victorian government policies a death spiral has already started in Victoria and gas' demise as a fuel in the household and commercial sectors is assured under current policy settings.

Exxon Mobil announces large new Bass Strait Development

On 17 March 2022 Exxon Mobil announced final investment decision for the development of the Kipper gas field in the Gippsland Basin, located in the Bass Strait, Victoria. The \$400m development will deliver 30 PJ of gas in 2023 and over 40 PJ of gas per annum from 2024 -27. ⁶

Exxon's Kipper project will produce the equivalent of 15% of Victoria's expected demand in 2023 under AEMO's step change scenario and 26% of Victoria's forecast demand in 2027.

Clearly a project of such significance will materially affect the supply demand dynamics of the Victorian gas market and ensure that any projected shortfalls that were forecast in AEMO's Gas Statement of Opportunities 2022 will be comfortably met and exceeded. The Victorian market has gone from a potential deficit in the mid 2020's to a surplus.

In the short term for winter 2022 and 2023 the Victorian government needs to accelerate the pace of its gas substitution road map. The Viva import terminal will take 18 months to construct. It is not even approved yet or a final investment decision taken. It will not be ready in time for winter 2023 and will therefore have no impact on the Victorian market prior to Exxon Mobil's Kipper gas field starting production. After Kipper starts production there is no shortfall in the Victorian market out to 2027.

⁴ AEMO – [National Electricity and Gas Forecasting portal](#)

⁵ Australian Energy Regulator – [AER approves distribution tariffs for Victoria and Albury gas customers](#)

⁶ Exxon Mobil – [Esso Australia to expand gas development in the Gippsland Basin](#) – 17 March 2022

The diminishing role of Natural gas in the electricity system

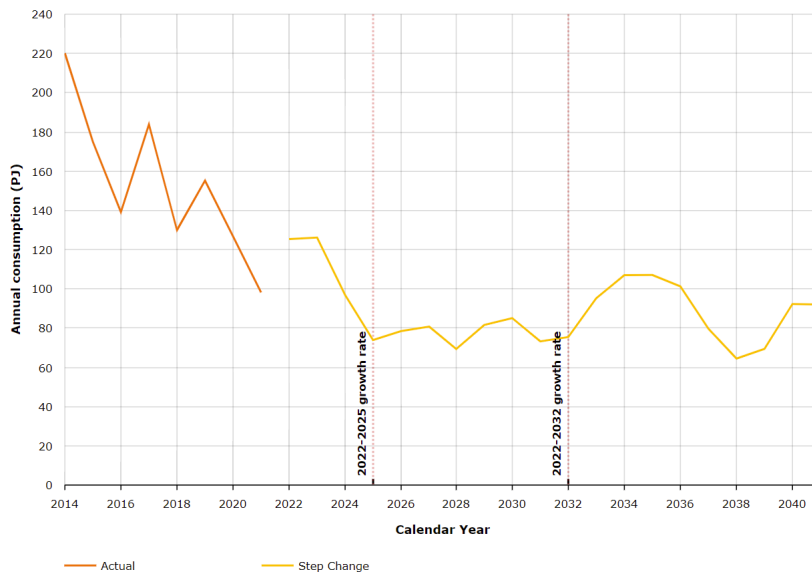
Viva cites the role of Natural gas in the electricity system as a key justification for its project:

“The Australian Government has released a National Gas Infrastructure Plan (NGIP) (Australian Government, 2021). The Plan identifies that gas supports the reliability and security of Australia’s electricity system and plays a critical role in complementing increased uptake of renewable energy technologies”⁷

Whilst IEEFA does not dispute the critical role of gas-powered generation in the electricity system its demand for gas is shrinking. It is a relatively minor source of demand. In 2021 Gas Powered generation accounted for just 11 PJ of demand, only 5% of Victoria’s total gas demand.

Victoria is part of the interconnected National Electricity market. Whilst renewables have grown to now account for over 32% of generation in the National Electricity Market, Gas usage in gas powered generation nationally has fallen from 220 PJ in 2014 to 98 PJ in 2021⁸ a fall of 55%. The outlook going forward in the AEMO Step Change scenario is pretty flat.

Figure 4: Gas usage for gas powered generation in Australia



Source: AEMO – National Electricity and Gas forecasting portal

⁷ Viva Energy- EES Chapter 2 Project Rationale – Page 2-3

⁸ AEMO – National Electricity and Gas forecasting portal

There is no need for more gas to support electricity generation. Gas is only used a niche application in the power system for peak energy generation. It is getting usurped by batteries for short peaks and will only be able to compete in longer duration peaking conditions where it will directly compete with Snowy Hydro 2.

Greenhouse Gas Emissions

Dimensioning the problem

Methane is the primary constituent of natural gas. Its emission reduction is vital to curbing the worst effects of climate change. It makes up at least one-quarter⁹ of all greenhouse gases.

The importance of methane in global warming has been emphasised globally by the separate pledge on methane emissions organised by the United Nations (UN) environment program. The goal of a joint agreement signed in November 2021 by the European Union (EU) and the United States (US) to cut global methane emissions by 30% by 2030 marked a crucial step in tackling climate change.¹⁰ Australia did not sign the methane reduction pledge.

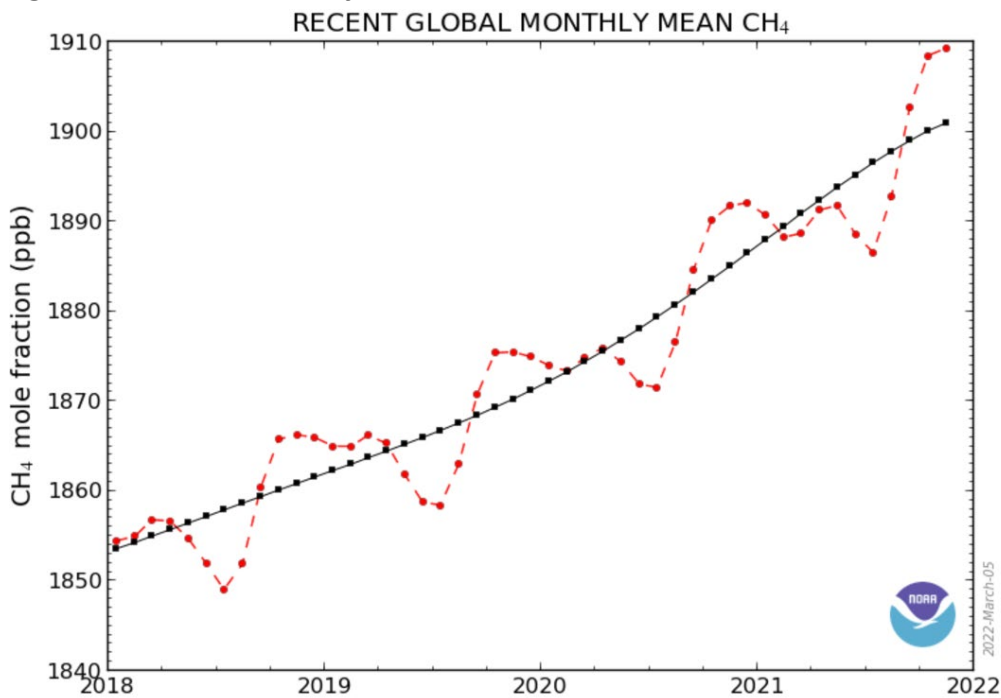
Globally, methane emissions are rising strongly. The gas industry is driving this expansion in emissions through increased production. In 2020, despite the COVID-19-induced recession, methane emissions grew at the fastest rate since records began in 1983.¹¹

⁹ UNEP. [New global methane pledge aims to tackle climate change](#). 21 September 2021.

¹⁰ IEEFA. [Global methane pledge needs action, not transition](#). 5 November 2021.

¹¹ NOAA. [Despite pandemic shutdowns carbon dioxide and methane surged in 2020](#). 7 April 2021.

Figure 5: Global Monthly Mean Methane (CH₄) Levels



Source: NOAA. *Global Monitoring Laboratory*.

The Paris Agreement can be distilled down to one simple fact. To counter extreme weather events increasing around the world, we must reduce greenhouse gas emissions. Emissions of methane must fall, not maintain the current steep rise.

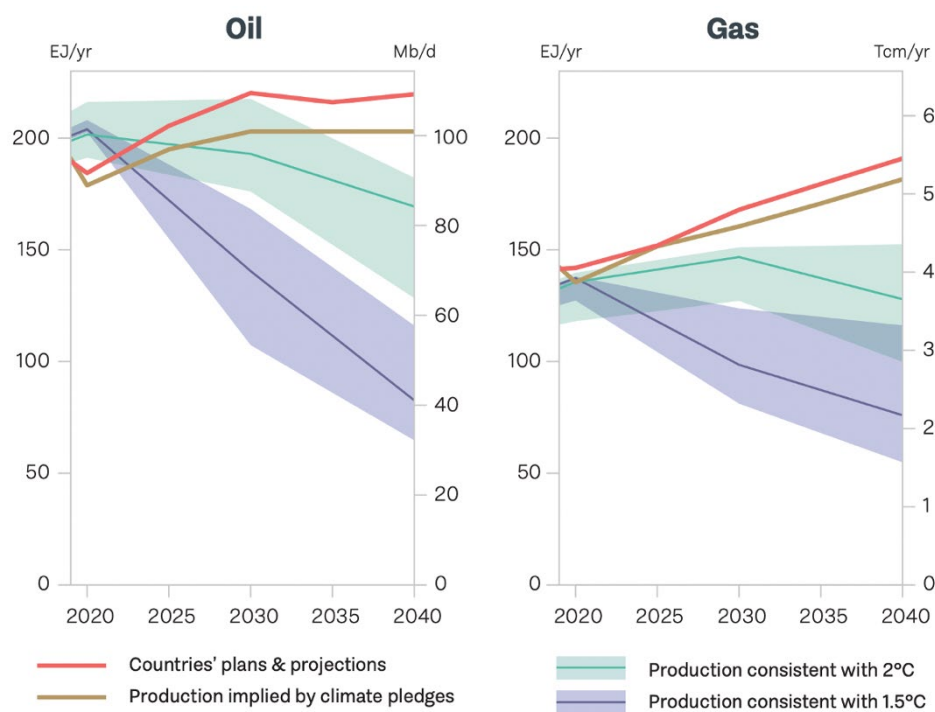
Viva's Geelong LNG import terminal contradicts Net-zero Targets and IEA's Advice

According to the IEA's seminal Net-Zero Report published in 2021, to reach net zero in 2050, no new oil or gas projects are needed beyond those already under development: "No new natural gas fields are needed in the NZE beyond those already under development. Also not needed are many of the liquefied natural gas (LNG) liquefaction facilities currently under construction or at the planning stage. Between 2020 and 2050, natural gas traded as LNG falls by 60% and trade by pipeline falls by 65%."¹²

The UN Production Gap report similarly states that if we are to have a chance at limiting global warming to 1.5°C, gas and oil production must fall from 2020, not rise. The development of new gas infrastructure such as Viva's proposed LNG import terminal at Geelong facilitates increased gas consumption.

¹² IEA. *Net Zero by 2050. A RoadMap for the Global Energy Sector*. 2021.

Figure 6: Oil and Gas Production Scenario Analysis – 2021



Source: *Production Gap Report. 2021.*

This is in line with recent research¹³ by the University of Manchester emphasising that there is no capacity in the carbon budget for opening up new production facilities of any kind, whether coal mines, oil wells or gas terminals.

¹³ The University of Manchester Research. *Phaseout Pathways for Fossil Fuel Production Within Paris-compliant Carbon Budgets. 2022.*

Gas import terminals are intrinsically high greenhouse gas emitting facilities

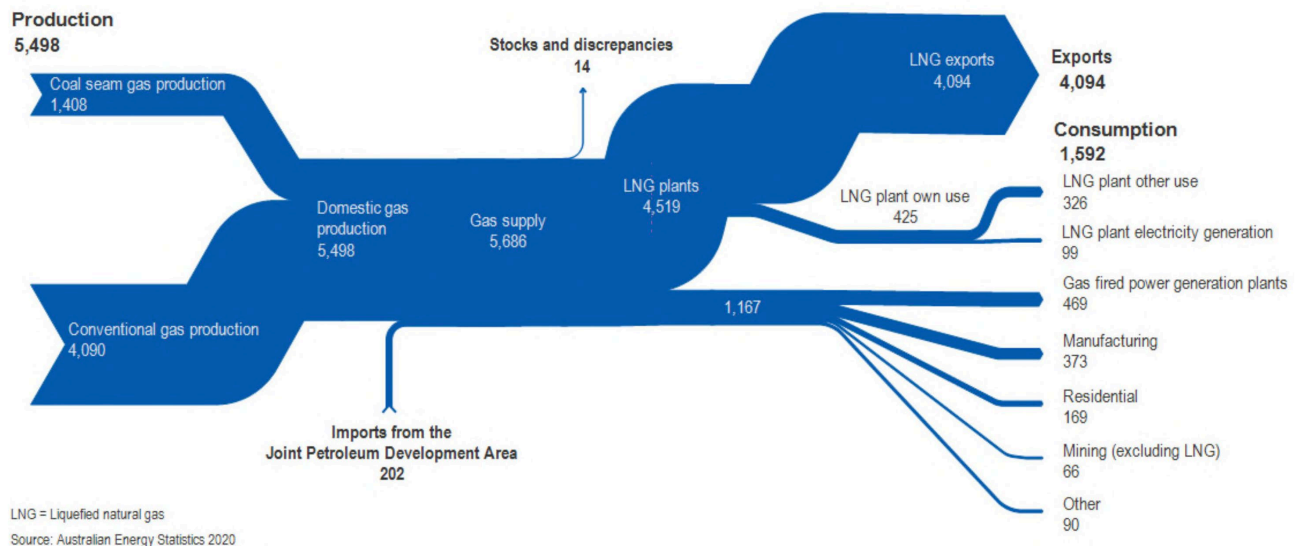
Viva's gas import terminal will import LNG into Australia or source LNG from Australian LNG terminals.

Australian sourced LNG is high emissions

1. Production of LNG is emissions intensive

LNG production is intrinsically high emissions. To produce LNG gas must be cooled to -160°C an energy intensive process. According to the Department of Industry, Science, Energy and Resources, over 9% of the gas entering an LNG production facility is consumed to produce LNG in Australia.

Figure 7: Over 9% of gas is consumed in the LNG process



Source: Department of Industry, Science, Energy and Resources – Australian Energy Statistics 2020 – Page 9

2. Shipping of LNG produces more emissions

The Shipping process produces more emissions according to Professor Robert Howarth of Cornell University:

“LNG is kept in liquid form by allowing some methane to “boil off,” resulting in evaporative cooling. In a typical voyage, 2 to 6% of the LNG is lost as gaseous methane due to this boil off. Usually, the methane is used as fuel to help power the ship, but it seems highly likely that some is emitted to the atmosphere, although I am aware of no data on this emission,” Howarth said.¹⁴

An Emissions constrained world

The Victorian Government has clear greenhouse gas emissions targets. It is aiming for emissions reductions of 45- 50% by 2030 according to Victoria’s Gas Substitution Roadmap- Stakeholder Forum.¹⁵ Sourcing emissions intensive LNG from Western Australia, the Northern Territory or North Queensland is entirely inconsistent with any emissions reductions targets adopted by any government in Australia.

Overseas sourced LNG suffers the same high emissions problems

Overseas sourced LNG has similarly high emissions as the processes of liquefaction and shipping are essentially the same except for the fact that shipping distances are further.

In a lifecycle greenhouse gas emissions study out of the USA¹⁶ LNG was found to be little better than coal for greenhouse gas emissions in many cases.

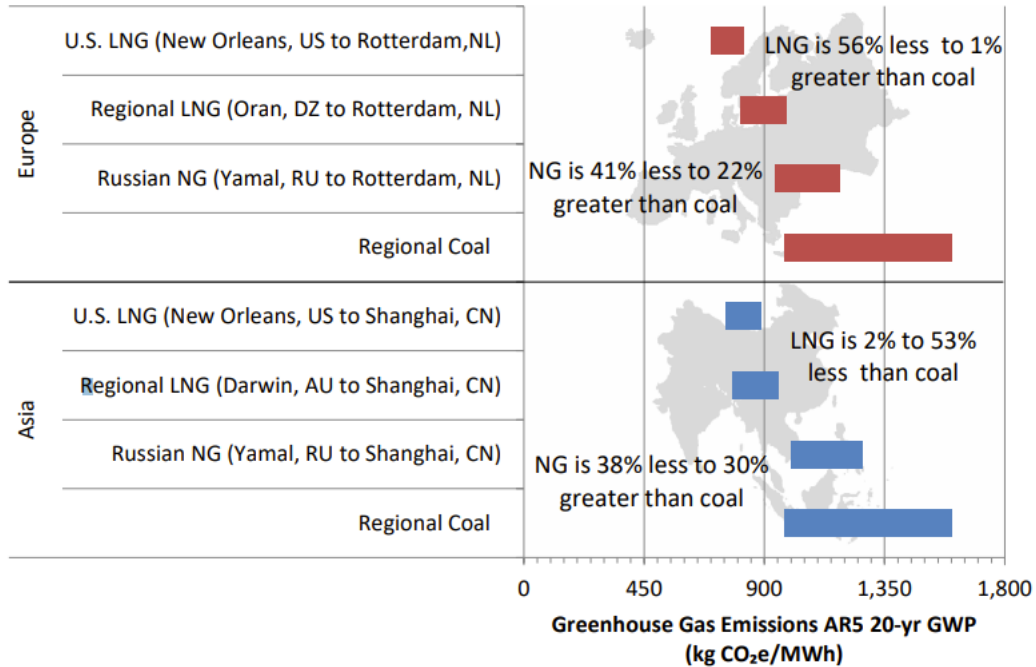
¹⁴ Testimony of Robert W. Howarth, Ph.D. Cornell University, Ithaca, NY 14853 USA before the Joint Committee on Climate Action House of Oireachtas, Ireland. 9 October 2019. Page 2

¹⁵ Victoria’s Gas Substitution Roadmap – Stakeholder Forum - February 2022 – Page 3

¹⁶ National Energy Technology Laboratory – [Life Cycle Greenhouse Gas perspective on exporting Liquefied Natural Gas from the United States 2019 update](#)

Figure 8: Lifecycle Greenhouse Gas Perspective on exporting LNG from the US

Exhibit 6-7. 20-yr GWP Comparison of Coal and Natural Gas Power in Europe and Asia



Source: National Energy Technology Laboratory – Life Cycle Greenhouse Gas perspective on exporting Liquefied Natural Gas from the United States 2019 update Page 25

About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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