

Inquiry and Advisory Committee for the Viva Energy Gas Terminal Project - Supplementary  
Environmental Effects Statement  
Planning Panels Victoria  
1 Spring Street  
Melbourne VIC 3000

Submitted online via [Engage.vic](https://engage.vic)

24 October 2024

## **Geelong Sustainability Submission to the Viva Energy Gas Terminal Project Supplementary EES Inquiry**

Dear Inquiry and Advisory Committee,

Thank you for the opportunity to make a submission on behalf of Geelong Sustainability to the Viva Energy Gas Terminal Project Supplementary EES Inquiry and Advisory Committee.

Our community's opposition to the proposed Viva Energy Gas Import Terminal Project is steadfast and resolute. It is frustrating that we have to contest this project once again after our collective rejection in the initial EES. Over 2,000 submissions were made against Viva's project, including voices from Geelong Grammar School, North Shore Residents Association, environment groups, school students, fishing enthusiasts, and many other community organisations and individuals. Our community's deep-seated opposition remains unwavering; we have stood united against this project before and we will continue to do so. The Minister for Planning, Sonya Kilkenny, must act decisively to halt this project once and for all.

[Geelong Sustainability](https://geelongsustainability.org.au) is a not-for-profit community organisation and registered charity that supports residents of Geelong and surrounding regions to be more sustainable in their everyday lives. Since our establishment in 2007, Geelong Sustainability has become the region's leading sustainability group with extensive networks in community, government and business throughout Geelong and the Barwon region. We are recognised for our evidence-based innovative projects, which educate and support our community's transition to a net zero, circular economy.

We have 240 financial members, over 50 active volunteers, and a broader supporter base of 20,000 newsletter and social media subscribers. Since our inception, we have delivered grant projects totaling over \$1.4M, and facilitated \$9.3M of renewable energy investment in the community which has helped mitigate over 120,000 Tonnes of cumulative CO2 emissions.



Geelong Sustainability Group Inc.  
ABN: 85 007 177 238  
PO Box 258, Geelong VIC 3220

E-mail: [info@geelongsustainability.org.au](mailto:info@geelongsustainability.org.au)  
Phone: 1300 133 702  
Website: [geelongsustainability.org.au](https://geelongsustainability.org.au)

## Overview

Viva Energy's proposal to build a Gas Import Terminal in Corio Bay poses significant risks. Its proximity to residential homes is dangerously close, compromising the safety and security of our neighbourhoods. The presence of enormous LNG tankers would tarnish the tourism reputation of our beautiful, iconic bay. This development is fundamentally incompatible with Corio Bay's character and purpose.

The supplementary EES statements have not allayed our concerns; if anything, they have amplified them. Key shortcomings in Viva's supplementary EES must be acknowledged. The marine studies have been poorly conducted, with the consultant largely disregarding peer reviewer feedback. The cultural heritage impacts on Aboriginal sites remain unaddressed, making it unreasonable for the Minister to approve this project. Viva has failed to provide the Cultural Values Assessment (CVA) as directed in recommendation 12.

Safety, navigation, and security concerns further underscore why this project is unsuitable. The proposed site is too close to residential properties, and the Corio Bay shipping channel is not designed to accommodate large LNG carriers safely. Rival LNG import terminal proponent Vopak has highlighted the depth and breadth challenges of the channel, likely requiring transit only at high tide and safe anchorage being many kilometres away.

Furthermore, there has been no meaningful engagement with Ports Victoria regarding security and exclusion zones. Dredging requirements are likely to be far greater than initially projected, posing additional environmental risks. The gas and climate implications of this project, coupled with insufficient work on alternatives, render Viva's proposal unacceptable.

It is therefore imperative that this project is halted permanently. Our community has voiced its opposition clearly and repeatedly. We call upon the Minister for Planning to protect our environment, our safety, and our bay by rejecting this flawed proposal once and for all.

The following sections of our submission provide an in-depth explanation of each of our main concerns:

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| 1. Visual Concerns                             | 6. Failure to Provide Cultural Values Assessment |
| 2. Safety Concerns                             | 7. Air Quality Concerns                          |
| 3. Inadequate Marine Studies                   | 8. Climate Change Impacts                        |
| 4. Peer Review Findings and Unreviewed Changes | 9. Energy Security                               |
| 5. Dredging Concerns                           |  |

## 1. Visual Concerns

The proposed Viva Energy Gas Import Terminal poses a significant threat to the visual landscape of our beautiful bay. If this project proceeds, it will involve the installation of a floating storage and regasification unit (FSRU) moored at Refinery Pier, along with the continuous movement of enormous gas tanker ships through our bay. These LNG carrier ships, each over 300 metres in length and 50 metres in height, are comparable to the length of Cunningham Pier and the height of the giant sky wheel at Eastern Beach.

Allowing Viva to parade these risky gas tanker ships through our bay, dangerously close to our waterfront and residential areas, is unacceptable. This project would not only mar the natural beauty of our bay but also threaten Geelong's appeal as a tourism destination. Local businesses, many of which rely on the stunning waterfront views, would be adversely impacted by the constant presence of these massive vessels.

The gas tanker ships, visible from the highly popular Waterfront area—a recreational hub and major highlight of Geelong—raise significant concerns for both tourism and the local economy. Viva Energy has stated that an average of one LNG ship every ten days will transit our bay, with even more frequent traffic in winter. This translates to up to 45 LNG carriers each year at Refinery Pier, potentially increasing the shipping traffic by 7.5%.

The FSRU vessel, up to 300 metres in length and 50 metres in breadth, with a capacity to store approximately 170,000 cubic metres of LNG, will receive LNG from visiting carriers and store it in cryogenic storage tanks at about -160°C. The presence of these LNG carriers and the FSRU will be an eyesore on our iconic bay, prominently visible from tourism hotspots. This visual blight threatens to diminish the natural charm of our bay and undermine the economic vitality of our community.

## 2. Safety Concerns

Safety is a major concern for the proposed Viva Energy Gas Import Terminal, given its proximity to residential areas and schools. The LNG carriers would transit our busy, tourist-focused bay, coming dangerously close to recreational fishers and boaters. Any incident involving these vessels would pose a significant risk to public safety.

The proposed facility is within a few kilometres of schools and communities, including Corio, Norlane, and Geelong Grammar School, raising serious safety concerns. Gas pipelines, which are prone to leaks, would also be developed as part of this project, further increasing the risk.

LNG carriers transport Liquid Natural Gas at -160°C. A hull breach could result in rapid regasification and explosion risks. Studies, such as those conducted by Scandia National Laboratories, identify hazard zones of concern up to 3.5 kilometres from an incident, placing users of the bay, homes, and schools at significant risk.

In the event of an explosion or major incident, the proximity of this project to residents and schools is alarming. Additionally, LNG carriers may be attractive targets for terrorism, adding another layer of risk to this already concerning project.

These safety issues highlight the potential dangers associated with the Viva Energy Gas Import Terminal and underscore the need for thorough scrutiny and consideration of alternative solutions.

## **Community Safety Concerns**

The proposed Viva Energy Gas Import Terminal in Corio Bay presents significant safety risks to the North Shore residential community. The following points outline the key concerns regarding community safety:

### **Proximity to Residential Areas**

The LNG import terminal is alarmingly close to the North Shore residential area, with shipping routes for LNG tankers passing within 220 metres of homes. This proximity poses substantial safety risks, including the potential for catastrophic incidents involving ship collisions, groundings, or intentional attacks.

### **Impact on Recreational Activities**

The expansion of maritime exclusion zones around the Refinery Jetty will double the area, impacting access to Corio Bay for fishing and boating, which are important recreational activities for the local community. The lack of clear markings for these exclusion zones further increases the risk to recreational users.

### **Complexity and Safety of Port Operations**

The introduction of LNG carriers (LNGCs) to Corio Bay, which is already experiencing increased ship traffic due to various port expansion projects, significantly raises the complexity and safety risks of port operations. LNGCs are much larger than any ships currently entering Corio Bay, and their draft requirements can only be met at high tides, adding to the operational challenges.

## **Depth and Navigational Constraints for LNGCs in Geelong's Shallow Channel**

The shipping channel in Corio Bay presents several challenges for the operation of LNGCs, particularly due to its insufficient depth. A typical LNG tanker is approximately 300 metres long and 43 metres wide, with a draft extending 12 metres underwater. The Geelong Channel, however, is only 11.9 metres deep at high tide and 10.6 metres at low tide, making it too shallow for these vessels under normal conditions. This means that the channel would require significant dredging to accommodate LNGCs safely. The combination of the narrow channel width and varying depths leaves minimal room for emergency manoeuvres or safe navigation, especially during low tide, which increases the risk of grounding or other navigational hazards.

## **Sandia National Laboratories Findings**

The findings of Sandia National Laboratories, which conducted comprehensive safety and hazard assessments of LNG transport, highlight the potential for severe public safety hazards from thermal radiation and flammable vapour clouds, with hazard zones extending up to 3,500 metres from a spill site. Viva Energy has not adequately addressed these findings in their risk assessments.

## **Emergency Egress and Anchorage Issues**

In the event of an emergency, the only paths for an LNGC's safe anchorage are via the Corio and Hopetoun channels, which are narrow and shallow. The nearest safe anchorage is 30 kilometres away at Point Richards, requiring stricken vessels to pass within 220 metres of North Shore homes. This lack of adequate emergency egress and anchorage options poses significant risks.

## **Environmental and Safety Incidents**

Several past incidents involving Viva Energy, including chemical spills and safety accidents, raise concerns about the company's commitment to safety and environmental protection. These incidents underscore the potential risks associated with the proposed LNG terminal.

## **Compounding Risks: Overlay of Refinery and LNG Hazard Zones in Corio Bay**

The overlay of hazard zones from the proposed LNG import terminal and the existing refinery in Corio Bay raises significant safety concerns. Both facilities have their own distinct risk profiles, but when their hazard zones overlap, the potential for catastrophic consequences increases dramatically. The LNG terminal's hazard zones, including the high-risk areas defined by Sandia Labs, can reach as far as 3,500 metres, overlapping with the refinery's risk zones. This proximity exacerbates the dangers in the event of an accident, as a release from either facility could trigger or worsen incidents at the other, leading to cascading failures. Such an

overlap places nearby communities, infrastructure, and ecosystems at greater risk, highlighting the incompatibility of siting both facilities so close together.

### **Alternative Locations**

There are many viable, affordable, and safer alternatives for LNG receiving terminals that do not pose the same risks to the community. Viva Energy's pursuit of the cheapest terminal option, rather than the safest, is criticised.

### **Conclusion**

The concerns raised above highlight significant risks associated with the proposed Viva Energy Gas Import Terminal. These points emphasise the need for a thorough reassessment of the project's safety, environmental impact, and suitability for the proposed location. Geelong Sustainability urges the Inquiry and Advisory Committee to require Viva Energy to address these deficiencies comprehensively before proceeding with the project. The submission advocates for the consideration of safer alternative locations that do not jeopardise the safety and well-being of the North Shore community and the broader Geelong area.

## **3. Inadequate Marine Studies**

The current Environmental Effects Statement (EES) and supplementary studies conducted by Viva Energy fall short in several critical areas, including baseline monitoring, detailed assessment of chlorine plumes, and the impact on seagrass. The baseline monitoring conducted has been insufficient, as the marine surveys have not been carried out over a full annual cycle, failing to account for the life cycles and seasonal variability of different species. This incomplete data collection undermines the reliability of the environmental impact assessments. Additionally, the studies provide inadequate details on the extent and concentration of chlorine plumes resulting from the refinery's discharges, making it difficult to assess the true environmental impact on marine life and water quality. Chlorine and its by-products can be harmful to marine ecosystems, and without detailed plume data, the potential risks to the marine environment remain unclear.

The monitoring of dredging impacts on seagrass has not been done adequately. Seagrass plays a crucial role in nutrient cycling, particularly nitrogen sourced from microbes associated with seagrass roots. The insufficient assessment of dredging impacts on seagrass, especially considering that seagrass leaves tend to stay within the bay even when detached by storms or grazing birds, raises significant concerns. Furthermore, the scientific studies presented are highly subjective and do not adequately show existing environmental values and impacts. The

field surveys were either poorly designed or insufficient in number, leading to an inaccurate representation of baseline knowledge and, consequently, environmental impact.

Given the critical role of seagrass in the bay's ecology, accurate measurement is essential. The distribution of seagrass has not been adequately mapped, and some analyses use a 'generic' seagrass category rather than identifying individual species, which biases the outcomes and fails to capture the specific ecological dynamics of Corio Bay. The environmental conditions in Corio Bay differ significantly from broader Port Phillip Bay, and these differences have not been adequately accounted for in the studies. The areas impacted by the project face east and are sheltered from prevailing winds and waves, whereas the reference sites face southwest and are exposed, leading to potentially skewed results.

## **Conclusion**

In conclusion, the supplementary marine studies conducted by Viva Energy are insufficient in several critical areas. Comprehensive, year-round monitoring and more detailed, objective scientific assessments are necessary to accurately understand and mitigate the environmental impacts on Corio Bay. The studies' subjectivity and poor design further undermine their reliability, highlighting the need for more rigorous and thorough environmental assessments.

## **4. Peer Review Findings and Unreviewed Changes**

The peer review conducted by Stantec of Viva Energy's marine environment studies (Attachment I Peer Review Report B) identified several unaddressed gaps and key issues, including the need for improved resolution in hydrodynamic models, rerunning discharge and sediment transport models, and additional investigation into the effects of chlorination by-products on marine ecosystems. It also called for further assessments on the impact of dredging on seagrass.

Importantly, the peer review highlighted numerous concerns and ongoing issues which persisted at the conclusion of the peer review.

"It is Stantec's recommendation that without further details on the statistical measures used in the analysis we are unable to confirm whether the assessment adequately addresses recommendations 1d, 7c and 8b of the Ministers Direction's."

Changes made to the studies by the project proponents following the peer review have not undergone further peer evaluation, raising concerns about the thoroughness and accuracy of the final assessments.



## Hydrodynamics and Modelling

**Inadequate Wind Data:** The SEES does not sufficiently demonstrate that the most appropriate wind data was used in the hydrodynamic model. The peer review highlighted a lack of time series comparisons between measured and modelled currents, which is crucial for validating the model's accuracy. Additionally, the measured temperature profiles appeared noisy and unrealistic, suggesting potential errors in data collection or processing. This raises concerns about the reliability of the model's predictions regarding the environmental impact of the project.

**Model Calibration:** While a peer review of the model calibration was undertaken, the SEES lacks sufficient information to confirm the model's adequacy. Specific issues include the absence of time series comparisons and the presentation of noisy temperature profiles. These deficiencies undermine confidence in the model's ability to accurately predict the environmental impacts of the project.

## Marine Biology and Ecology

**Statistical Analysis:** The SEES lacks detail and definition in the statistical methods used for analysing biological data. The peer review noted that the results in section 3.5 of Technical Report A - V2 lack the appropriate level of analytical detail and associated explanation required for a modern environmental impact assessment. The dismissal of requests for information on the confidence limits of some quoted values further exemplifies this issue. Without further details on the statistical measures used, it is difficult to confirm whether the assessment adequately addresses the relevant recommendations.

**Seagrass Mapping:** The updated seagrass mapping in the SEES does not adequately address seasonal variability and lacks a comprehensive baseline for monitoring during and after the project. This is a significant oversight, as understanding seasonal changes is crucial for assessing the long-term impacts of the project on seagrass health and distribution.

## Wastewater Discharge Modelling

**Revised Inputs:** Although the reruns of the wastewater discharge modelling with revised inputs provided a better understanding of the potential environmental effects, the nearfield modelling still requires further refinement. The peer review indicated that the SEES does not fully address the matters raised in previous reviews, particularly concerning the dispersion of marine discharges from the FSRU.

## Entrainment and Sediment Transport Modelling



**Further Work Needed:** The entrainment and sediment transport modelling in the SEES require additional work to refine inputs and better understand the potential impacts. The peer review recommended rerunning the modelling with revised inputs based on a refined hydrodynamic model. This includes considering the effects of the FSRU on currents and ensuring that the modelling accurately represents the largest expected proportions of fine and very fine materials.

## **Dredging Impacts on Seagrass**

**Assessment Gaps:** The assessment of dredging impacts on seagrass in the SEES is lacking in detail. The peer review highlighted the need for further assessment based on revised sediment transport modelling and updated seagrass mapping. The current assessment does not provide a comprehensive understanding of the potential impacts on seagrass, particularly in areas close to the proposed dredging operation.

## **General Recommendations**

**Improved Statistical Methods:** The peer review recommended that the statistical analysis of monitoring results in the SEES be more clearly explained. Additional comparisons between model predictions and measured data should be included to quantify the model's calibration metrics. This would enhance the reliability and transparency of the environmental impact assessment.

**Further Investigations:** The peer review suggested additional targeted investigations to confirm the likely project impacts, particularly concerning chlorine discharges and their effects on marine life. These investigations are necessary to ensure that all potential environmental risks are thoroughly assessed and mitigated.

## **Conclusion**

The deficiencies and serious concerns identified in the peer review of Viva Energy's SEES make it clear that this project should not proceed. These issues highlight significant gaps in the analysis, and without a more comprehensive and rigorous review, the environmental impacts of the gas import terminal cannot be adequately understood or mitigated. We strongly urge the IAC to reject this project, given these unresolved deficiencies, and insist on a further peer review before any consideration of moving forward.

## 5. Dredging Concerns

The proposed Viva Energy Gas Import Terminal in Corio Bay requires significantly more dredging than initially outlined in Viva Energy's EES and SEES documents. Typical LNG tankers are approximately 300 metres long, 43 metres wide, and have a draft of 12 metres. The current depth of the Geelong Channel is 11.9 metres with the tide and 10.6 metres without, which is insufficient for these large vessels. This discrepancy indicates that extensive dredging is needed to ensure safe passage and berthing of LNG tankers.

Without proper navigational risk assessments and stakeholder confirmation that LNG carriers can safely transit Corio Bay, industry standard channel dimensions must be assumed. Therefore, Corio Bay channels need significant dredging to reach at least 13 metres in depth and potentially up to 250 metres in width. This extensive dredging, over a 30-kilometre transit, involves many millions of cubic metres, lasting many months—far more than Viva's proposed 490,000 cubic metres over 8 weeks.

Any additional dredging would invalidate Viva's EES and SEES, as the true environmental effects have not been adequately modelled. The potential impacts on the marine ecosystem, water quality, and local marine life are significant. Viva's assessments lack credibility and fail to account for the full environmental implications. Noise, vibration, and sediment disturbance from prolonged dredging would disrupt local fishing, tourism, and recreational activities, leading to economic losses for the community.

### Potential Scale of Dredging

The scale of dredging required could be much larger than estimated, and may be in the order of 10 to 100 times greater. Given the dimensions of a typical LNG tanker, the channel will need to be deepened and possibly widened to accommodate these vessels safely. This extensive dredging could have significant environmental impacts, including marine habitat disruption, increased turbidity, and potential contamination from disturbed sediments.

### Comparison with Vopak's Assessment

Rival LNG company Vopak previously rejected Corio Bay as a location for a gas import terminal due to concerns about significant dredging required and the associated marine impacts. Vopak's decision underscores the potential environmental challenges and risks that extensive dredging in Corio Bay would entail.

## Inconsistencies with Victorian Dredging Guidelines

The monitoring and management of dredging impacts in Viva Energy's proposal appear inconsistent with the Victorian Dredging Guidelines. These guidelines emphasise the importance of minimising environmental impacts, protecting marine habitats, and ensuring thorough monitoring and mitigation measures. Key concerns include:

- **Inadequate Baseline Data:** The proposal lacks comprehensive baseline data on the existing marine environment, crucial for assessing the full impact of dredging activities.
- **Insufficient Monitoring:** The proposed monitoring measures are not robust enough to detect and mitigate the potential adverse effects of dredging on marine ecosystems.
- **Lack of Mitigation Strategies:** There is a lack of detailed mitigation strategies to address potential environmental impacts of dredging, such as increased turbidity, habitat destruction, and sediment contamination.

## Environmental and Community Impacts

The extensive dredging required for the LNG terminal could have far-reaching environmental and community impacts:

- **Marine Habitat Disruption:** Dredging can destroy or significantly alter marine habitats, affecting biodiversity and the health of marine ecosystems.
- **Water Quality Degradation:** Increased turbidity and the release of contaminants from disturbed sediments can degrade water quality, impacting marine life and potentially human health.
- **Noise and Vibration:** Dredging operations generate significant noise and vibration, which can disturb marine life and nearby communities.
- **Community Concerns:** The local community, particularly in North Shore, has expressed concerns about the safety and environmental impacts of the project. Increased ship traffic and associated risks further exacerbate these concerns.

## Conclusion

In conclusion, the proposed dredging for the Viva Energy Gas Import Terminal in Corio Bay presents significant environmental and community risks. The scale of dredging required is likely to be much larger than estimated, and the monitoring and mitigation measures proposed are insufficient to address the potential impacts. Given these concerns, the project should not be allowed to proceed.

## 6. Failure to Provide Cultural Values Assessment

The proposed Viva Energy Gas Import Terminal project has failed to comply with the Minister for Planning's Directions regarding the Cultural Values Assessment (CVA). This failure is significant and undermines the project's ability to proceed without a thorough understanding of the potential impacts on Aboriginal cultural heritage. The following points outline the key issues and argue that the project cannot be approved due to this non-compliance.

### Incomplete Cultural Values Assessment

The Cultural Values Assessment (CVA) required by Recommendation 12 of the Minister's Directions is still in preparation. The CVA has not been completed, and the values which may be described remain unknown. This incomplete status means that the potential impacts on intangible cultural values have not been fully identified or assessed.

### Inadequate Interim Measures

The methods put in place to account for the incomplete CVA are inadequate. Viva Energy has proposed a process for ongoing collaboration with the Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) to assess potential impacts on intangible cultural values. However, this process is insufficient for several reasons:

- **Lack of Specificity:** The proposed commitments and mitigation measures are vague and lack specific details on how intangible cultural values will be protected.
- **Uncertain Outcomes:** The reliance on future collaboration and the incorporation of CVA outcomes into the Environmental Management Framework (EMF) does not provide immediate or concrete assurances that cultural values will be adequately protected.
- **Regulatory Gaps:** The CVA is not a mechanism of the Aboriginal Heritage Act 2006, and its outcomes may identify values beyond those associated with Aboriginal Places as defined by the Act. This creates uncertainty about how these broader values will be managed and protected.

### Ministerial Non-Compliance

The failure to complete the CVA and the inadequacy of interim measures mean that Viva Energy has not fully complied with the Minister's Directions. Specifically, Recommendation 12 requires:

- **Identification of Intangible Values:** The CVA should identify intangible values relevant to the project, both onshore and offshore in Corio Bay.

- **Updated Cultural Heritage Management Plan (CHMP):** The CVA outcomes should inform an updated CHMP, which includes necessary mitigation measures to protect identified cultural values.

Without a completed CVA, it is impossible to update the CHMP adequately. This non-compliance with the Minister's Directions is a critical issue that must be addressed before the project can proceed.

## Unknown Cultural Values

The cultural values that may be impacted by the project are still unknown. This lack of information poses a significant risk to Aboriginal cultural heritage. The potential for unknown values to be affected means that the project's impacts cannot be fully assessed or mitigated. This uncertainty is unacceptable and highlights the need for a completed CVA before any approval can be granted.

## Conclusion

Given the failure to provide a completed Cultural Values Assessment and the inadequacy of the interim measures proposed by Viva Energy, the project cannot be approved. The Minister for Planning must require full compliance with Recommendation 12, including the completion of the CVA and the incorporation of its outcomes into an updated CHMP. The protection of cultural values is paramount, and the project must not proceed without ensuring these values are safeguarded.

## 7. Air Quality Concerns

There is no safe threshold for air pollution exposure, a fact supported by numerous epidemiological studies. Even low levels of air pollutants can have significant health impacts, particularly on vulnerable populations such as children, the elderly, and those with pre-existing health conditions. This is a critical concern in the context of the proposed Viva Energy Gas Import Terminal, which could contribute to various forms of air pollution.

### Greenhouse Gas Emissions and Methane Leakage

The burning of gas at the terminal will result in the emission of greenhouse gases, contributing to climate change. Additionally, there is a risk of methane leakage, which is a potent greenhouse gas with a global warming potential many times greater than carbon

dioxide. Methane leakage can occur during the extraction, transportation, and processing of natural gas, and even small leaks can have significant environmental impacts.

## **Volatile Organic Compounds (VOCs)**

We are particularly concerned about the emission of Volatile Organic Compounds (VOCs) from the terminal. VOCs can react with other pollutants in the atmosphere to form secondary air pollutants, such as ground-level ozone and particulate matter, which are harmful to human health. The formation of these secondary pollutants can exacerbate respiratory and cardiovascular diseases and contribute to premature mortality.

## **Inadequate Air Quality Monitoring**

The current air quality monitoring station is located in South Geelong, which may not accurately capture the variations in air quality around North Shore. This is problematic because air pollution levels can vary significantly over short distances, especially in areas close to industrial activities. Without accurate and localised air quality monitoring, it is difficult to assess the true impact of the terminal on the surrounding community.

## **Conclusion**

Given the significant air pollution risks posed by the proposed Viva Energy Gas Import Terminal, and the fact that there is no safe threshold for air pollution exposure, this project must not be allowed to proceed. The potential for greenhouse gas emissions, methane leakage, and VOCs demand thorough assessment and mitigation. Enhanced air quality monitoring is essential to accurately reflect conditions in North Shore and other affected areas. The health and well-being of the community hinge on a comprehensive and precautionary approach to managing air pollution from this project. Our community's safety and health must come first, and as such, this project should be unequivocally rejected.

## **8. Climate Change Impacts**

The urgency of the climate threat demands a thorough and proactive evaluation of this project's impact on local climate targets and its broader implications. Continued investment in fossil fuel infrastructure, like the proposed import terminal, undermines climate action by potentially relocating, rather than reducing, gas production. Given evidence of higher fugitive emissions from Australian sites and comparative life cycle assessments, the project's true climate impact is likely underestimated and could be significantly higher than official

estimates. Such a project stands in direct contradiction to the imperative for meaningful climate action.

## Considering climate impact

The IAC's (2022) Integrated Assessment acknowledges that the majority of submissions received in 2022 were opposed to the terminal, with most referencing climate impacts, including emissions from the use of the imported gas.<sup>1</sup>

The assessment acknowledged this project's gas would 'make Victoria's GHG emissions reduction targets 'harder to achieve'—but concluded that without 'evidence' that the target *couldn't* be achieved in conjunction with the terminal, then it would not 'conclude the Project would *preclude*' local, state and national emissions reduction targets, 'or that it would be contrary to the CC Act'.<sup>2</sup>

However, the project's threat to Victoria's climate targets requires a proactive and realistic assessment, rather than the appeal to technicalities. Given the urgency of a meaningful climate response, it's important to consider the project's climate impact in real terms, including but not limited to its impact on jurisdictional targets.

The basic parameters of Viva's proposal show its climate impact would be substantial. Consider:

- The emissions cited by Viva for 160PJ of gas delivered via the terminal would equal 12% of Victoria's 2022 emissions<sup>3</sup>, and 34% of our target for 2035<sup>4</sup>.
- Without domestic reservation policies or demand side measures, relying on imported gas from Queensland would require the development of new fields in the 2030s.<sup>5</sup> (International Energy Agency forecasts are consistent in demonstrating that developing

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<sup>1</sup> Planning Panels Victoria (2022) 'Viva Geelong Gas Import Terminal Inquiry and Advisory Committee Report No. 1' [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0020/642431/viva-geelong-gas-import-terminal-iac-main-report.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0020/642431/viva-geelong-gas-import-terminal-iac-main-report.pdf) p205

<sup>2</sup> Planning Panels Victoria (2022) 'Viva Geelong Gas Import Terminal Inquiry and Advisory Committee Report No. 1' [https://www.planning.vic.gov.au/\\_data/assets/pdf\\_file/0020/642431/viva-geelong-gas-import-terminal-iac-main-report.pdf](https://www.planning.vic.gov.au/_data/assets/pdf_file/0020/642431/viva-geelong-gas-import-terminal-iac-main-report.pdf)

<sup>3</sup> The most recent data available for Victoria's emissions is 2021, 80.1 Mt CO<sub>2</sub>e. Victoria Department of Energy, Environment and Climate Action (2023), 'Victorian Greenhouse Gas Emissions Report 2021' <https://www.parliament.vic.gov.au/491aba/globalassets/tables-paper-documents/tables-paper-7849/victorian-greenhouse-gas-emissions-report-2021.pdf>

<sup>4</sup> Victoria Department of Energy, Environment and Climate Action (2023), 'Victoria's 2035 Emissions Reduction Target' [https://www.climatechange.vic.gov.au/\\_data/assets/pdf\\_file/0028/635590/Victorias-2035-Climate-Target\\_Driving-Real-Climate-Action.pdf](https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0028/635590/Victorias-2035-Climate-Target_Driving-Real-Climate-Action.pdf)

<sup>5</sup> AEMO (2024), 'Gas Statement of Opportunities' p 82 [https://aemo.com.au/-/media/files/gas/national\\_planning\\_and\\_forecasting/gsoo/2024/aemo-2024-gas-statement-of-opportunities-gsoo-report.pdf?la=en&hash=4180AD3B977743D028C19254B75997DA](https://aemo.com.au/-/media/files/gas/national_planning_and_forecasting/gsoo/2024/aemo-2024-gas-statement-of-opportunities-gsoo-report.pdf?la=en&hash=4180AD3B977743D028C19254B75997DA)



new gas fields is inconsistent with realising emissions budgets consistent with a chance to limit warming to 1.5 degrees.)<sup>6</sup>

Furthermore, the project's calculated emissions are likely to be an underestimate, as discussed below.

## Emissions likely higher than calculated

International Energy Agency (IEA) data shows measured methane emissions from Australian gas production is much higher than official figures, with analysis finding fugitive emissions from Australian gas to be 92% higher than assumed.<sup>7</sup> Properly accounting for fugitive emissions during production, and in sea transport results in factors much higher than those calculated in line with Australia's National Accounts Factors.

Recent research on the impact of transported LNG stresses the importance of considering the outsized impact of these projects on climate change in the next 20 years, due to fugitive methane emissions—given the importance of these decades in managing a response. Across both 20 and 100 year timeframes, the study finds the effects on climate of transported LNG is 'greater than that for coal'.<sup>8</sup> The study produces an emissions factor for transported US LNG (over the 20-year timeframe) 2.7 times higher than Viva's (100-year) estimate, (adjusting for voyage distance from Queensland to Geelong.)<sup>9</sup> The measured underestimate of fugitive production emissions of Australian gas contributes to this discrepancy.

## Conclusion

The urgency of the climate threat warrants a meaningful and proactive consideration of this project's impact on local climate targets, as well as its real implications beyond these targets.

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<sup>6</sup> Climate Analytics (2024) 'The IEA just published its 2024 World Energy Outlook: what does it say?'

<https://climateanalytics.org/comment/the-iea-just-published-its-2024-world-energy-outlook-what-does-it-say#:~:text=No%20new%20fossil%20fuels%20required,and%20gas%20projects%20are%20required>.

<sup>7</sup> Institute for Energy Economics and Financial Analysis (2023) 'Gross under-reporting of fugitive methane missions has big implications for industry'

[https://ieefa.org/sites/default/files/2023-07/Gross%20under-reporting%20of%20fugitive%20methane%20emissions%20has%20big%20implications%20for%20industry\\_2.pdf](https://ieefa.org/sites/default/files/2023-07/Gross%20under-reporting%20of%20fugitive%20methane%20emissions%20has%20big%20implications%20for%20industry_2.pdf)

<sup>8</sup> Howarth RW. (2024) 'The greenhouse gas footprint of liquefied natural gas (LNG) exported from the United States.' *Energy Sci Eng.* 2024; 1-17. [doi:10.1002/ese3.1934](https://doi.org/10.1002/ese3.1934)

<sup>9</sup> Howarth (2024) calculates an emissions factor of 0.160 kg/MJ CO<sub>2</sub>e (20-year) for LNG transported for the global average voyage length of 38 days (roundtrip). The roundtrip voyage distance from Gladstone to Geelong was taken to be 12 days, a factor of 0.13 compared to the international average. Applying this ratio to the tanker transport component of the Howarths' value gives an emissions factor of 0.157kg/MJ.

Viva calculates an emissions factor of 0.062 kg/MJ (100 years, for gas from Queensland). (ie. Viva cites ~9.99 Mt for an annual import volume of 160 PJ).

Continued investment in fossil fuel infrastructure is an obstacle to climate action—without demand side measures (discussed below), the import terminal is unlikely to avoid new gas production, but relocate it.

The calculated emissions associated with these projects are likely an underestimate, given the evidence that fugitive emissions from Australian production sites are much higher than accounted for. An assessment of the lifecycle emissions from comparable projects in the US indicates the climate impact of gas from this project may be 2.7 times as high as official estimates, when considered within the relevant 20-year timeframe.

The imperative for meaningful climate action is inconsistent with the development of this project.

## 9. Energy Security

Victoria's forecasted gas supply inadequacies are best addressed through demand-side measures rather than new gas projects. These interventions promise cheaper energy, lower emissions, reduced consumer risk, and greater supply certainty. As gas demand declines and supply uncertainties loom, deliberate measures to increase the pace of transition away from gas are critical.

### **Demand side measures are preferred to address shortfall**

Victoria's forecast gas supply adequacy draws on forecasts<sup>10</sup> that don't assess demand-side opportunities. It's essential that decision makers prioritise demand-side opportunities, and implement these in the near term, given their potential to provide:

- Cheaper energy for Victorian's through the transition,
- Lower emissions,
- Lower risk for consumers, and
- Greater supply certainty,

than new gas projects, and import terminals.

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<sup>10</sup> Victoria's gas forecasts draw mainly on AEMO's Gas Statement of Opportunities, and Victorian Gas Planning Report, which in turn draw on scenarios developed through the Integrated System Plan (ISP). While ISP scenarios include forecasts for electrification, this process does not accommodate the potential for active and targeted demand side interventions to address forecast supply shortfalls.

Gas demand is falling rapidly in Victoria, due to the cost advantage of electric alternatives. Victorian commercial and residential gas use fell 13% between 2022 and 2023.<sup>11</sup> Available data for 2024 indicates this trend continued in Q2 2024, despite an unusually cold June.<sup>12</sup> The 24 months of data available on voluntary abolishments shows steady growth in gas disconnections.<sup>13</sup> This data reflects Geelong Sustainability's experience, where the strong uptake of our Electric Homes program in 2023 has continued at the same robust pace in 2024.

Gas supply from Victoria's traditional sources is also declining. Forecasts for the potential that demand may outstrip supply in some years carry a high uncertainty. In this context, there is a great potential for deliberate and targeted measures to increase certainty around the pace of the transition away from gas, in a way that conserves gas for priority users.

## **Independent analysis of demand side opportunities**

Analysis from Institute for Energy Economics and Financial Analysis (IEEFA) showed that cost-effective interventions to lower gas demand could fully address anticipated supply shortages at the same time as cutting costs for consumers.<sup>14</sup> Most of the shortfall would be made up by ensuring residential gas heaters were swapped for efficient heat pumps at end-of-life—a zero-cost measure that would return substantial benefits to end users. The analysis finds that replacing gas appliances with efficient electric alternatives at end of life would deliver \$1,200 in annual energy cost savings to the average Victorian home—while avoiding \$876 million in locked-in lifetime costs per year.

This work demonstrates the potential for demand side measures—a detailed formal analysis of opportunities is urgently needed to reduce uncertainty and its associated costs for the Victorian energy system.

## **The uncertainties of Viva's proposal**

The IAC acknowledges that the proposal is an unreliable solution to Victoria's energy security gaps, citing uncertainty around 'securing a FSRU, securing gas import contracts and contracts with retailers... and LNG carriers being able to safely navigate to and berth alongside the

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<sup>11</sup> AEMO (2024) Victorian Gas Planning Update

[https://wa.aemo.com.au/-/media/files/gas/national\\_planning\\_and\\_forecasting/vgpr/2024/2024-victorian-gas-planning-report-update.pdf?la=en](https://wa.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2024/2024-victorian-gas-planning-report-update.pdf?la=en)

<sup>12</sup> AEMO (2024), 'Quarterly Energy Dynamics Q2 2024' p54

<https://aemo.com.au/-/media/files/major-publications/qed/2024/qed-q2-2024.pdf>

<sup>13</sup> AER (2024) 'Gas Quarterly Disconnection rate reporting'

<https://www.aer.gov.au/publications/reports/performance/gas-quarterly-disconnection-reporting>

<sup>14</sup> IEEFA (2024) 'No shortage of solutions to supply gap'

[https://ieefa.org/sites/default/files/2024-04/No%20shortage%20of%20solutions%20to%20gas%20supply%20gap\\_Apr24.pdf](https://ieefa.org/sites/default/files/2024-04/No%20shortage%20of%20solutions%20to%20gas%20supply%20gap_Apr24.pdf)

FSRU.’ These questions have not been resolved, despite the time elapsed since the first application.

According to the project’s ideal timeline, it must reach Final Investment Decision (FID) by 2025, in order to come online just before winter 2028 (when structural shortfalls are forecast). Gas infrastructure construction delays are common (with Victoria’s Western Outer Ring Main project, and Port Kembla’s import terminal being recent examples of projects that saw multi-year delays)—and as such, this project does not provide good certainty to gas users. This is especially significant given the demonstrated potential of demand-side alternatives.

It is also worthwhile considering that Victorian consumers would be required to invest in gas transmission infrastructure to accommodate this project—that has been designed to be a temporary and transportable point of supply—which in itself constitutes an unevaluated risk.

## **Energy cost impacts of Viva’s proposal**

The IAC acknowledges that it ‘is not clear whether or to what extent the project can supply affordable gas into the Victorian market.’ It is likely that this project will increase both the retail and network costs of gas for Victorian energy users.

### **Transmission costs and accelerated depreciation (stranding risk costs)**

Victorian gas users will likely bear transmission costs to accommodate this project, and it’s not clear these have been fully assessed when considering this project’s social impact.

Consumers will incur the cost of building the pipeline to connect to the Victorian Transmission system (VTS) (~\$15m)<sup>15</sup>. The cost of new pipelines will be paid back to network owner APA at an accelerated rate, because of the extant stranding risk the Australian Energy Regulator (AER) has acknowledged to be facing all gas network infrastructure.<sup>16</sup> This will raise prices for gas users.

Further transmission projects have been proposed by AEMO to support the terminal, to enable Viva’s peak day supply to be additional to other sources that use the South West Pipeline. These include 44km of new pipeline, and a compressor. The cost of these works are

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<sup>15</sup> APA (2021), ‘Application under Rule 80 of the NGR’

<https://www.aer.gov.au/system/files/APA%20VTS%20-%20Access%20Arrangement%202023-27%20-%20Application%20under%20Rule%2080%20of%20the%20NGR%20-%20December%202021.pdf>

<sup>16</sup> AER (2022) ‘Final Decision APA VTS 2023-27 Access Arrangement’,

<https://www.aer.gov.au/system/files/AER%20-%20Final%20Decision%20-%20APA%20VTS%202023-27%20Access%20Arrangement%20-%20Overview%20-%20December%202022.pdf>

unknown, but will total hundreds of millions of dollars. In the context of accelerated depreciation, this new investment will have an outsized impact on bills.<sup>17</sup>

### **Volatility and price of imported gas**

Developing the LNG export industry had the effect of coupling local Australian gas prices to the international market, which has seen gas prices soar for Australian users over previous decades.<sup>18</sup>

Viva's proposed terminal will increase exposure to global price shocks. At the same time, imported gas will reflect the additional costs associated with construction, processing and shipping.<sup>19</sup>

After forecasting gas price reductions driven by a glut, in 2023, the most recent World Economic Outlook stresses uncertainty, and the vulnerability of gas trade to geo-political disruptions, especially the recent escalation of conflict in the Middle East.<sup>20</sup> International gas market price shocks drove an energy crisis in Victoria in 2022, that threatened affordability and supply adequacy.

Demand side solutions compare favourably with the likely cost impacts of imported gas, given that independent modelling has shown these have the potential to lower energy costs, while relying on imported gas will increase prices.

## **Conclusion**

Independent analysis shows that targeted and practical demand side interventions could fully address forecast shortfalls, and that this is likely to provide more certainty for consumers, lower energy costs, lower risks, and lower emissions.

As such, decision makers should undertake an evaluation of alternative opportunities, and prioritise their implementation over new gas projects. This is an important and relevant consideration in relation to this project's social impact.

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<sup>17</sup> AEMO (2024) 'Victorian Gas Planning Report Update'

[https://wa.aemo.com.au/-/media/files/gas/national\\_planning\\_and\\_forecasting/vgpr/2024/2024-victorian-gas-planning-report-update.pdf?la=en](https://wa.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2024/2024-victorian-gas-planning-report-update.pdf?la=en)

<sup>18</sup> Tim Nelson (2018) 'East-coast Australian gas markets—Overcoming the lumpiness of capital allocation and temporal instability', Economic Analysis and Policy, Volume 59, 2018, Pages 103-112,

<sup>19</sup> Australian Federal Government Department of Industry, Science and Research (2024) Future gas strategy Technical Report p88, 95

<https://www.industry.gov.au/sites/default/files/2024-05/future-gas-strategy-analytical-report.pdf>

<sup>20</sup> IEA (2024) 'World Energy Outlook 2024'

<https://iea.blob.core.windows.net/assets/c036b390-ba9c-4132-870b-ffb455148b63/WorldEnergyOutlook2024.pdf>

## Conclusion

It is imperative that this project is halted permanently. Our community has voiced its opposition clearly and repeatedly. We call upon the Minister for Planning to protect our environment, our safety, and our bay by rejecting this flawed proposal once and for all.

Viva Energy's proposal endangers the safety and security of our neighbourhoods, with its proximity to residential homes and the increased presence of enormous LNG tankers tarnishing the reputation of Corio Bay. The supplementary EES statements have failed to alleviate our concerns, highlighting key shortcomings, such as poorly conducted marine studies, unaddressed cultural heritage impacts, and inadequate safety, navigation, and security measures. The project's extensive dredging requirements and insufficient engagement with key stakeholders further exacerbate these issues.

This submission clearly demonstrates the numerous and clear reasons that the proposed Viva Energy Gas Import Terminal project must be rejected by the IAC and the Planning Minister:

- 1. Visual Concerns:** The project will disrupt our bay's visual landscape and harm local tourism and the economy due to the intrusive presence of massive LNG tankers and the FSRU vessel.
- 2. Safety Concerns:** Severe safety risks arise from its proximity to residential areas and schools, the potential for catastrophic incidents, inadequate hazard mitigations, and complex navigational challenges, making it imperative to reject this project.
- 3. Inadequate Marine Studies:** The current studies lack comprehensive year-round monitoring, detailed chlorine plume data, and accurate seagrass impact assessments, undermining their reliability and failing to mitigate environmental impacts on Corio Bay.
- 4. Peer Review Findings and Unreviewed Changes:** Numerous gaps identified in the peer review of Viva Energy's marine studies, including the need for improved hydrodynamic models and seagrass mapping, and thorough chlorine discharge assessments, have not been resolved.
- 5. Dredging Concerns:** Significantly more dredging than outlined is needed, leading to substantial environmental and community risks, with inadequate monitoring and mitigation measures making this project untenable.
- 6. Failure to Provide Cultural Values Assessment:** Non-compliance with the Minister for Planning's Directions regarding the Cultural Values Assessment (CVA) makes it

impossible to proceed without a thorough understanding of potential impacts on Aboriginal cultural heritage.

- 7. Air Quality Concerns:** The project poses significant air pollution risks, including greenhouse gas emissions, methane leakage, and VOCs, which can harm vulnerable populations. Inadequate local air quality monitoring further exacerbates these concerns.
- 8. Climate Change Impacts:** The project threatens Victoria's climate targets by increasing greenhouse gas emissions and fugitive methane leaks, likely underestimated, which make it an obstacle to meaningful climate action.
- 9. Energy Security:** Demand-side measures offer a more reliable, cost-effective, and sustainable solution to address Victoria's gas shortfall compared to new gas projects and import terminals.

In light of these significant environmental and community risks, it is imperative that this project is halted permanently. Our community has consistently voiced its opposition, and it is crucial that the Minister for Planning rejects this flawed proposal to protect our environment, our safety, and our beautiful bay.

Thank you for considering our submission.

Yours sincerely,

**David Spear**  
Chair

**Dan Cowdell**  
Chief Executive Officer