



Geelong Energy Hub – Questions and Answers

1. What is the Geelong Energy Hub?

On 16 June 2020, Viva Energy (**Viva**) announced its vision to transform its Geelong Refinery into an energy hub to support Victoria's evolving energy needs, intending to develop a new Liquefied Natural Gas (**LNG**) import terminal. Viva is also considering the potential development of a solar farm and battery.

Development of an LNG import terminal would require an extension of the existing Refinery Pier, the mooring of a Floating Regasification and Storage Unit (**FSRU**) at the new berth, and construction of a new ~6.5km pipeline to take the gas from the facility to the existing gas transmission system.

2. When will the project proceed, including the approvals process and consulting with the community?

The LNG import terminal component is at pre-FEED (front end engineering design) stage which is a process to assess the technical and economic feasibility of the project. This is expected to be completed towards the end of 2020.

The next phase will require more formal and detailed environmental and risk assessments ahead of the relevant approvals process and any Final Investment Decision. Viva acknowledges that community engagement and consultation are an important part of these processes and the School will actively engage in a review and assessment of all reports and in particular, the Environment Effects statement to address the potential impact on our community.

3. Why has Viva identified Geelong as a good location?

Viva has identified Geelong Refinery as an ideal location for these projects because:

1. it is an existing industrial facility with complementary services on site;
2. it has experience operating of major hazard facilities;
3. it has access to an efficient working port;
4. it is well located to service the Victorian gas market;
5. it is in close proximity to the gas transmission system (~6.5km);
6. it is in close proximity to many of the renewable energy projects in Victoria and connection into the main electricity transmission network; and
7. it has ample land to develop other opportunities (solar farm, gas powered generation, strategic oil and/or fuel storage).

4. Why is an energy hub and LNG import facility needed?

Viva reports the energy hub is being contemplated for a range of reasons:

1. the Australian Energy Market Operator (**AEMO**) have concluded that the east coast of Australia and Victoria in particular are predicted to be short of gas by early to mid 2020s;
2. the project provides support for more renewables;
3. the site could be used for development of alternative energies such as hydrogen; and
4. diversification is important for Geelong Refinery to remain viable and protect jobs.

5. How does a FSRU work?

In general, a FSRU has three key operational elements:

1. it is an LNG carrier that has facilities on board to receive LNG from visiting LNG carriers;
2. a FSRU has the ability to regasify the LNG which converts it from a liquid to a gas. The FSRU is doublehulled (has two layers) with especially designed and constructed tanks to maintain the very low temperature of the LNG at -161 degrees Celsius to stay in a liquid state during storage; and
3. when the LNG is converted from a liquid to a gas, the LNG is pumped from the tanks inside the FSRU through a series of heat exchangers. Seawater from the bay is then circulated around the outside heat exchangers to warm the very cold LNG, resulting in slow evaporation of the liquid back to gas. Prior to being injected into the gas transmission pipeline, Viva notes the gas will be pressurised and tested to ensure it meets the Australian Market Energy Operator's specifications.



6. Are the LNG tankers and FSRU safe?

Viva reports there are around 35 FSRUs in operation worldwide and there are hundreds of LNG carriers transporting LNG from production facilities to demand centres around the world, stating:

“The LNG shipping industry globally has an excellent safety record since it began in the 1960s, with over 100,000 voyages completed without a major incident or loss of cargo. FSRUs and LNG carriers are built to very strict international design standards, including the International Maritime Organisation’s Code for Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code), and are regulated in Australia by the Australian Maritime Safety Authority (AMSA)”.

7. Are there any environmental impacts from this project?

Viva will undertake a range of assessments and investigations to assess potential environmental impacts of the project. These studies will inform strategies to avoid, minimise or mitigate these impacts wherever possible.

The School will actively consider all the applicable environmental impacts including the impact of dredging and marine and terrestrial biodiversity values, including the ecological character of Corio Bay, the potential discharge of cooled seawater, containing residual chlorine or other contaminants, due to regasification processes; possible emissions of wastes, including greenhouse gas emissions due to the regasification processes; any surface water and groundwater the effects of noise from construction and operation and ongoing further impact from potential increased pollution.

8. What approvals will be needed for this project?

Viva will be required to undertake all necessary studies and assessments to satisfy the applicable regulatory approvals for their project.

9. Where will the pipeline run?

Viva expects that a pipeline approximately 6.5km in length will need to be constructed. Around 2.5km will run through existing refinery operational areas and approximately 4km of licensed pipeline would be required to reach the gas transmission system. The pipeline is expected to traverse industrial and farming land and not impact residential areas. The pipeline will not cross any School land.

10. Solar farm and battery project

Viva is also assessing the feasibility to establish a solar energy farm on surplus refinery land, support the development of strategic oil stocks, and support the emerging hydrogen industry.

There may be strategic opportunities for the School in exploring alternative and renewable energy sources both for future use but also for student participation in projects and learning programs.

11. Next Steps

The School will continue to monitor the development of the Geelong Energy Hub closely and provide any updates as and when they become available.

Sources

VIVA Energy Australia Media Release, 16 June 2020
VIVA Energy Australia *Geelong Energy Hub Supporting Victoria’s evolving energy needs*
VIVA Energy Australia *Geelong Energy Hub Questions & Answers*

For further information please see: www.vivaenergy.com.au