

## Response by ABEL Energy to the Australian Government's Low Carbon Liquid Fuels Consultation Paper released on 13 June 2024

ABEL Energy Pty Ltd (**ABEL**) is an Australian green hydrogen and green methanol project developer, with a vision to become the largest owner and operator of green methanol production facilities in Australia. ABEL congratulates the Australian Government on its Future Made in Australia package and its Low Carbon Liquid Fuels support initiative.

### Background

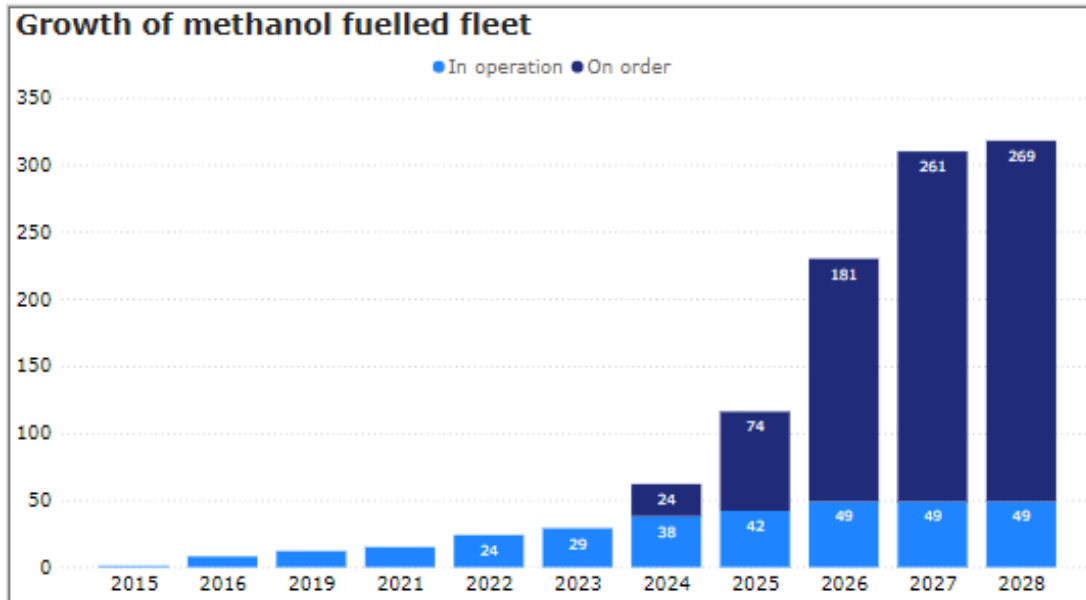
ABEL has pipeline of green methanol production projects is focussed on areas that are abundant in sustainable wind, water and biomass resources. Our flagship project, Bell Bay Powerfuels, is located at Bell Bay in Tasmania, with two other sites under active development, including Townsville Powerfuels in Queensland and another site in Tasmania.

The Bell Bay Powerfuels project (**BBPF**) is a commercial-scale green methanol project development located in the regional Tasmanian Green Hydrogen Hub at Bell Bay. The BBPF project is one of the most advanced green methanol development opportunities being pursued by project developers across Australia and the Asia Pacific Region (other than China). On completion, it will produce up to 300,000 tonnes per year of renewable, green methanol to be used as a net-zero, low carbon liquid fuel for the maritime sector, as a sustainable feedstock for the chemicals and aviation fuel sectors, and as a diesel replacement for off-grid equipment and power generation. With commercial operations scheduled for late 2028, the project will be one of the largest green methanol production facilities in the Asia Pacific region.

The project will also deliver a host of benefits to Australia:

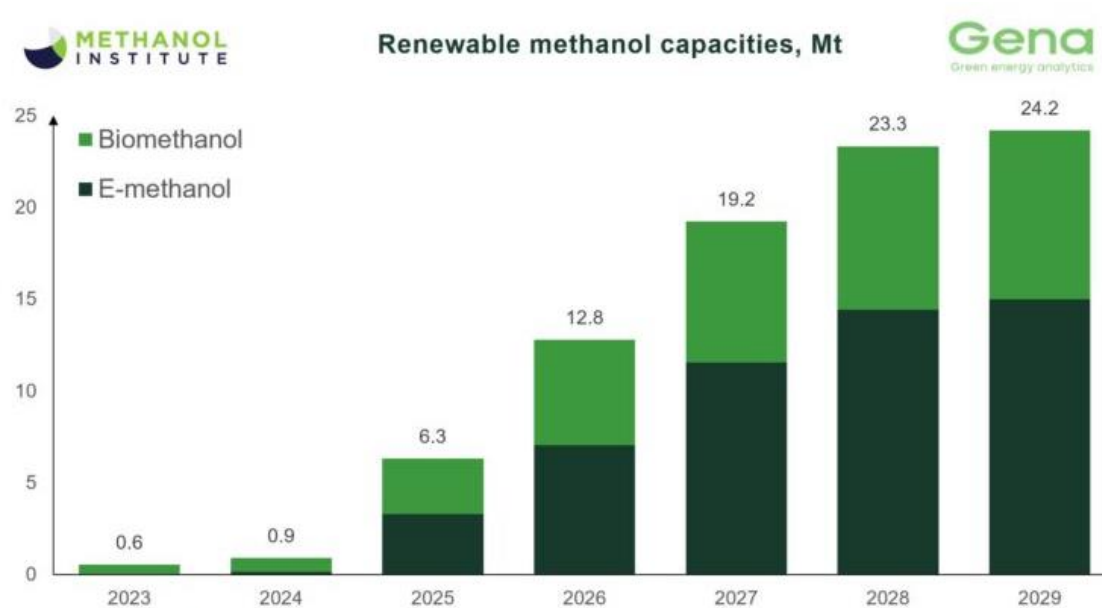
- A new and future-proof climate-tech industry for the Tamar Valley community in Tasmania providing long term employment opportunities for 150 local full-time employees and at least 250 indirect jobs for the region.
- Initiate development of the hydrogen industry in Tasmania with local skills and expertise to support other projects in the area which has been designated as a national hydrogen hub.
- Provide Tasmanian, Australian and international maritime customers with a safe, sustainable and ultra-clean burning fuel to replace heavy fuel oil and petroleum diesel to run their vessels.
- Provide those Australian mining and agricultural industries which have limited access to a power grid with a simple, energy-dense, liquid substitute fuel for diesel; for use in engines, turbines and fuel cells that are either designed for methanol or can easily be adapted.
- Provide the Australian chemical sector with the opportunity to access their first local source of methanol since 2016 – a source which will also reduce the carbon intensity of their products.
- Avoid over 540,000 tonnes per year of fossil fuel-derived CO<sub>2</sub> emissions which would otherwise have been generated by the use of petroleum and natural gas products.
- Contribute to local fuel security, being the only fuel produced in Tasmania solely from local inputs.
- Enable Tasmania to become one of the largest sources of green methanol for shipping in the Asia Pacific region.

Demand for green methanol is growing strongly, and there are clear offtake opportunities in both the domestic and international markets. One such area is the hard-to-abate marine transport sector, where bunker fuel and diesel have dominated for much of the last 70+ years. As highlighted in the graph below, there is growing demand for green methanol based on the number of new methanol fuelled ships on order.



Source: International Maritime Organization (IMO)

Green methanol production capacity is growing worldwide in response to this emerging market for green methanol as a low carbon liquid fuel for shipping. Australia is well placed to be a key producer of green methanol, but will require Government support to realise these opportunities.



Source: GENA Solutions, [www.genasolutions.com](http://www.genasolutions.com). Note: As of May 2024. Based on announced startup dates.

## Response to consultation paper

ABEL Energy is aware that a number of parties responding to the consultation paper have expressed concern that methanol was not mentioned in the paper. Indeed, the following paragraph from the paper exacerbates our concern about whether green methanol will be considered eligible for LCLF support:

“The LCLF being considered in this paper consist of ‘advanced biofuels’ and synthetic or e-fuels, namely renewable diesel and SAF. One of the key benefits of advanced biofuels, as opposed to conventional biofuels (also known as ‘first generation biofuels’), is that they are drop-in fuels, meaning they are compatible with existing fuel infrastructure.”

Given that green methanol is the quintessential low carbon liquid fuel (CH<sub>3</sub>OH) and is commonly categorised as an advanced biofuel, synthetic fuel or e-fuel (depending on how it is produced) around the world, there is no logic to excluding it from any LCLF support scheme in Australia. In this respect, we make the following points:

- Methanol is the simplest hydrocarbon molecule that is a liquid at standard temperature and pressure. This feature not only makes it easy to transport, store and use, it also means that it is an ideal feedstock for the production of more complex hydrocarbons, including fuels like SAF and biodiesel, and chemicals like formaldehyde and olefins (ethylene and propylene).
- As noted earlier, methanol is now a drop-in fuel for an increasing number of new large ships, with many in the maritime industry having announced that green methanol is the fuel that will solve both their greenhouse gas emissions issues, as well as the air pollution issues associated with burning more complex hydrocarbons like fuel oil and diesel in busy port cities. Methanol is the cleanest-burning LCLF available because it is a single molecule fuel which has no carbon-carbon bonds (which generate soot), is oxygenated (50% by mass), contains no sulphur, and has a low combustion temperature (which reduces NO<sub>x</sub> formation).
- International shipping companies operating in the Asia Pacific region are looking to Australia and China as the only two near-term prospects for producing the green methanol needed to start replacing heavy fuel oil for their container ships. Australia and China have the land, the solar and wind resources, and the technical skills and expertise required to produce green methanol at scale. Those shipping companies and investment capital providers need to see governmental support for this new industry to encourage them to back Australian production projects. In April 2024, ABEL and other Australian green methanol developers were invited by Austrade on a mission to Singapore and Malaysia to promote Australia’s capabilities in this area.
- It is very important for the emerging Australian green methanol production industry that the proposed Guarantee of Origin scheme include a mechanism for measuring the carbon intensity of green methanol produced in Australia. Otherwise, Australian producers will have to rely solely on international schemes where possible, which may place them a significant disadvantage internationally.
- Australia has better prospects of producing green methanol at scale than any other LCLF. This is because a much broader, lower-value range of biogenic feedstocks can today be used to

provide the biogenic carbon needed for green methanol production, eg. forestry and agricultural wastes, and CO<sub>2</sub>. By contrast, HEFA fuel production technology is typically still reliant on a narrower range of higher-cost feedstocks like used cooking oil, rendered tallow and other bio-oils (which in some cases risk being disqualified by customers as competing with food production). This is another reason given by shipping companies for having chosen green methanol as their new fuel of choice.

- China is already leading the way with two operating commercial-scale (~100,000 tpa) methanol production plants based on hydrogenation of CO<sub>2</sub>, and many more renewable methanol plants under development. By contrast, the use of CO<sub>2</sub> as a basis for producing green diesel/SAF and Fischer-Tropsch fuels is much more complex and still the subject of technological development which may ultimately not be commercially successful.
- Australian projects under development like ABEL's will have a lower carbon intensity than most of their Chinese counterparts, and should ultimately therefore be competitive based on providing a lower carbon intensity (and therefore higher value) product. In any event, demand for green methanol is expected to exceed supply for the foreseeable future.
- Once green methanol plants are operating in Australia, there will an opportunity for domestic shipping and other maritime operators, as well as remote diesel users, to access green methanol, and buy new vessels and equipment, and convert existing equipment to run on it. Like other LCLFs, methanol is easily transported and stored in large volumes at relatively low cost compared to gaseous fuels. However, unlike other LCLFs, methanol does not have a short shelf-life, which is a significant advantage in certain use applications.

In designing the support mechanisms for Australian production of LCLFs, including green methanol, ABEL Energy makes the following recommendations:

- The Guarantee of Origin scheme should be as closely aligned as possible to already well-established similar certification schemes in Europe and North America, such as the EU Renewable Energy Directive, and California's Low Carbon Fuel Standard. This will greatly assist international customers in assessing the value and integrity of Australian LCLF products.
- In addition to supply and demand side support mechanisms, it would greatly assist project developers if the Australian Government introduced a Loan Guarantee Scheme, similar to that in the US, to improve access to project finance. The US scheme has been a great success.

