# Consultation on Future Made in Australia: Unlocking Australia's low carbon liquid fuel opportunity

## 1.0 Introduction

### 1.1 About Marr Contracting

Marr Contracting are world leaders in the design and delivery of heavy lift luffing tower cranes and heavy lifting services. With almost 100 years' experience working on large-scale construction projects in Australia and around the world, our expertise spans the large-scale construction, major transport infrastructure, mining, oil and gas, power, nuclear, technology, and decommissioning sectors. Not just a crew and cranes for hire, we're big thinkers and problem solvers who love a challenge with a string of 'world firsts' to our name – including the world's largest capacity tower crane, the 330-tonne capacity Marr 2480D Heavy Lift Luffing (HLL) crane.

With offices in Sydney, London, and Leeds (UK), and projects across the globe, we are committed to encouraging the construction industry to think differently about how complex, large-scale construction projects can be delivered with productivity, efficiency, safety, and sustainability as key drivers of success.

### 1.2 Why we see LCLFs as critical to the Construction Industry

The construction industry faces urgent sustainability risks and finding solutions to the challenges we face requires looking at the issues from a multi-dimensional point of view.

One of the most critical challenges is that the built environment contributes 39% of total global greenhouse gas (GHG) emissions, with the construction industry contributing 11% total GHG emissions as embodied carbon. While initiatives to reduce direct GHG emissions are gaining momentum, decarbonising the construction of built environments, especially limiting embodied carbon, will take time.

Switching current machinery to renewable sources of power will have a positive impact on our environment. But how else can our industry improve its sustainability performance to have greater impact?

#### 1.2.1 Productivity is crucial

One of the biggest problems we see in our industry is a myopic view of how to address the challenges we face. In addition to the urgent need to reduce GHG emissions, there's also a need to look at other issues including workplace health and safety, waste generation, fumes and human capital from a sustainability standpoint.

Productivity is crucial when it comes to making our industry more sustainable, but it is often left off the agenda when it comes to making big decisions in the name of sustainability.

A point in case is the conversation around the electrification of cranes. Whilst we acknowledge there is a place for electric cranes in our industry, we know they are not the only answer particularly when you look through the lens of productivity and the current availability of clean power in the market.

In Australia, although the capacity for renewable sources of energy including wind, solar and hydro power are growing; recent quarterly reports (2023) from the Australian Energy Market Operator (AEMO) still highlight that over half of the power generated in the east coast of Australia in Q4 2023 came from fossil fuel.

In other parts of the world, where renewable energy industries are more mature, and nuclear power industries exist as well, the rate of power generated from fossil fuels is far less (EU 36%, UK 42% and USA 61%).

So for us, moving towards electrification of our crane fleet was not the answer because we would still be drawing power off an electricity grid that is still heavily reliant on fossil fuels. It simply didn't make sense.

Furthermore, in remote off-grid sites and even urban environments, we're seeing several constructors rely on stand-alone diesel generators to operate electric cranes which in some instances can use 700 to 1000% more fuel than diesel-operated cranes. That's expensive from both a financial and sustainability point-of-view.

Taking the cost of operating a typical high-rise construction tower crane (such as a Favelle Favco M390D) as an example, if we know that it averages 5.8 litres of diesel per hour at the current fuel rate of approximately AUD2.20 (£1.30) per litre compared with a diesel-generated electric crane using seven times that amount it costs more than AUD159,000 (£93,950) per annum to operate the electric crane.

From a craneage point of view, the other big issue with electrification is lost productivity. And this was the main driver behind our decision in 2022[1] to transition to 100% renewable diesel (HVO100). By switching from fossil fuels to HVO100, we can reduce our GHG emissions while at the same time maintaining the speed, power and reliability of our cranes.

Using Neste Renewable Diesel (HVO100) gives us a greater than 80% reduction in GHG emissions, from well to wheels, for our fleet. It also reduces tailpipe emissions of hazardous substances such as particulate matter, nitrogen oxides, hydrocarbon, carbon monoxide and polycyclic aromatic hydrocarbons (odours) and thus has less impact on air quality. By using renewable diesel-powered cranes, instead of electric cranes or FAME based biodiesel power cranes, we can also deliver additional benefits.

[1] https://www.marr.com.au/news/marr-taking-the-lead-in-transitioning-to-renewable-diesel-hvo100/

No crane modifications are required, which lowers the total cost of ownership and negates the need to replace existing equipment (which in itself has sustainability flow on effects); and allows Marr to deliver critical construction productivity and cost efficiencies by maintaining the productivity of our cranes.

The reality is that an unproductive construction site is not a sustainable site. On the flipside, by linking innovative thinking with early engagement in project planning stages, bespoke craneage solutions can significantly increase project productivity.

For example, when we were engaged to deliver the heavy lift solution craneage solution for the construction of Turkey's 1915Canakkale Bridge towers our client, DL E&C – Limak – SK ecoplant – Yapi Merkezi (DLSY) Joint Venture, asked us to help reduce the time it would take to build the 318m towers.

The project was delivered more than 12 months ahead of schedule. That's a rare achievement on an infrastructure project of that scale and it would not have been possible using a traditional craneage approach using electric cranes. The simple reason being that electric cranes are not currently powerful enough to lift components weighing up to 155t to a height of 328m.

### 1.2.2. The benefits of modularisation

When craneage solutions are integrated early into the project planning stages, substantial lifting capacity enables modularisation – and this is where productivity drives a real step change in sustainability.

The World Green Building Council identifies "upfront carbon"– the emissions caused by the materials production and construction phases – as one of the most significant challenges to decarbonising the built environment. Therefore, it begs considering how productivity can enable some of the major industry goals aimed at reducing upfront carbon including "build less", "build clever", "build efficiently" and "minimise waste".

Offsite manufacturing creates faster fabrication, more accurate and higher quality construction, which leads to less rework and less waste. The positive sustainability impacts are less landfill generated by the site and less upfront carbon embodied in the build.

Modularisation also supports the rationalisation of construction sites, potentially allowing fewer structural elements and partitions. This approach can deliver smaller substructures and superstructures, which typically embody over 50% of the upfront carbon within buildings. The smaller base footprints our cranes, (with reduced support structures and crane tie-in points), also help to improve the upfront carbon embodied in any project.

### 1.2.3. Improved safety and efficiency gains

Bespoke design also improves site safety by having fewer cranes, fewer lifts, and a decluttered worksite. Minimising load movements and lift interactions ultimately lead to less accidents and injuries. Ultimately, we are reducing complexity on a site, and delivering an integrated crane solution which meets the lifting requirements of the entire project

Early engagement also leads to simpler de-risked operations, with shorter and more reliable project critical paths. Shorter critical paths can lead to less site infrastructure for less time, reducing equipment and labour costs.

Importantly this gives project designers more economic flexibility to invest in renewable materials for the build, lowering the upfront carbon embodied in the project.

Using productivity to drive sustainability helps to immediately progress to our industry while we work on medium and longer-term technical emission reduction initiatives. For example, we have completed case studies where our cranage solutions reduced material offloading processes by up to 80%. Faster offloading lowers delivery transport idle times and assists with an incremental reduction of direct construction site emissions.

The intangible benefits of productivity on sustainability are equally as important as the real reductions in GHG emissions, landfill waste or the safety of our teams.

### 1.2.4. Sustainability is a journey

As craneage providers, we are only at the thin edge of the wedge in terms of what can be achieved to make our industry more productive and more sustainable.

There are critical long-term actions underway, and the industry is gaining momentum in addressing the challenges we all face, but we need to go further and faster together.

Meaningful collaboration and a willingness to explore options available from different perspectives instead of just chasing an outcome without really understanding the issues is critical. Government reform and support for the private sector in addressing sustainability issues as an industry and investing in solutions to affect change is also imperative.

The decisions we are making today are just a step in the journey and we all have a long way to go. We know that technology will evolve so what is the best solution today may not be in the future. In the meantime, adopting the best option available buys us time to find the next best solution.

## 2.0 Challenges and Barriers to the LCLF Opportunity

### 2.1. Current LCLF Sourcing and Capacity

In 2022 Marr Contracting became the first business in Australia to be granted approval from the Australian Government to purchase, import and supply HVO100 to our clients. We have partnered with one of the major fuel suppliers in Australia to distribute the product to clients who have placed orders for HVO100 with us. The HVO supplier is Neste, and the specific product is Neste MY Renewable Diesel (HVO100).

Neste's proprietary NEXBTL technology allows a wide range of fats, vegetable oils and waste products such as used cooking oils, to be used as a raw material. These are manufactured through a two-stage process, where the pre-treated feedstock is saturated with hydrogen at high temperatures to remove the oxygen (hydrotreatment) and the resulting paraffinic molecules are then further processed to improve the fuel properties (isomerisation). The result is a product that is significantly better for the environment than mineral diesel, while - thanks to its chemical composition - delivers the same performance and can be used without modifications to the existing fleet or infrastructure.

Neste currently produces their renewable diesel in Porvoo (Finland), Singapore and Rotterdam (Netherlands). All Neste refineries that produce renewable products have International Sustainability & Carbon Certification (ISCC) or are approved by the U.S. Environmental Protection Agency (EPA). In addition, the refineries in Porvoo, Rotterdam and Singapore have ISO 14001 environmental certification. Marr's original shipment of HVO100 was produced from waste animal fats – a great example of the circular economy in practice.

Neste has a total production capacity for renewable products of some 5.5 million tonnes, which will increase to 6.8 million tonnes by the end of 2026[2]. This capacity encompasses all of Neste's renewable products: Neste MY Renewable Diesel™, Neste MY Sustainable Aviation Fuel™ and Neste RE™.

Australia will have a comparative advantage in sourcing some raw feedstocks at a lower cost than a producer like Neste, but this would likely be offset by the technological maturity they have within their process and ability to comply to certification schemes that give the consumer confidence in the sustainability claims of the product. On current policy and considering the market environment, we see Australia having to rely on imports of LCLF, which is why we are supportive of both production incentives and demand-side mechanisms in general to support equity in production volume and price.

### 2.2. Pricing and 'Green Premium' of LCLF

The cost of HVO100 is approximately twice that of mineral diesel. Given we source HVO100 from Northern Europe to avoid the negative impacts of palm oil derivatives found in HVO sourced from Asia, the additional transport costs add to the price premium, or 'green premium'. We anticipate future production capacity of HVO100 in

[2] https://www.neste.com/products-and-innovation/plastics/questions-and-answers-about-Neste-RE

Singapore, free of palm oil derivatives, which could lower costs through shorter transport routes. Despite relatively low fuel usage in our cranes (e.g., 6 litres per hour), the high price of HVO100 impacts client decisions, particularly when project budgets are tight. Overall, we have seen HVO adopted by clients in 7 of our Australian projects, some of these are using a HVO blend, (20% HVO for example), to help reduce the cost, which although it is better than not using any HVO it is not delivering the full benefit of GHG emissions reduction.

### 2.3. Client Adoption and Education

We have successfully communicated the benefits of linking productivity with our crane solutions and decarbonising with HVO100 at industry conferences. Sharing the widespread adoption of HVO in the UK has influenced Australian constructors. However, the higher cost remains a barrier for some clients, especially when pursuing cost savings. Tier 1 constructors have shown interest in adopting HVO100 on key projects, particularly after understanding its benefits compared to the negative effects of biodiesel. The Bio Fuel has a high water content which damages the engines. The HVO has no water content and we are seeing no damage. The benefit of using Bio Fuel can be quickly offset at the end of a project with the cost of engine reworks required.

## 3.0 Policy Recommendations

Acknowledging the purchase cost of LCLF is a key barrier, it is also important to state that the cost of emission reduction is cost competitive for our industry. We see LCLF playing an important role for certain heavy machinery in the construction industry for some time, due to the uncertainty in finding other renewable power solutions that can still provide the productivity of current equipment. This leads us to a conclusion that there is a clear need for demand side-mechanisms to both encourage further LCLF take-up and assist Australian producers establish sustainable operations with predictable demand.

The following are our views to the specific questions in the consultation paper:

***What options should the Government consider in its regulatory impact analysis, such as a mandate introduced over time, low carbon fuel standard connected with a trading scheme, a non-binding target or other demand options?***

We support mandates for a gradual increase in the use of LCLFs in the construction industry's energy sources, aligned to the establishment of local supply chains. Mistiming the mandates before local supply availability could drive adverse sustainability impacts through the sourcing of LCLF which may contain palm oil derivatives for example. When implemented, these mandates should be linked with regulatory enforcement to ensure compliance, and adoption across all participants in the construction industry. Regulated mandates would also serve to encourage early project planning to meet the requirements and cover any price inequity between mineral diesel and LCLF's through productivity innovations.

Additionally, an LCLF performance standard connected with a trading scheme would encourage additional product innovation, but also importantly provide a mechanism to achieve more equity between the price points of low and high carbon fuels, potentially

enabling construction industry participants to avoid even greater emission reductions. Therefore, we advocate for a mix of policy response including both mandates and a LCLF performance standard.

**How would the application of a mandate affect your business/operations?**

Mandates would assist our business in maintaining our unique value proposition of providing significant productivity gains for infrastructure projects using our craneage solution, and concurrently allow us to achieve at least an 80% reduction of our GHG emissions. This allows for synergistic decarbonisation efforts, beyond energy used to build infrastructure to reductions of other sources of embodied carbon such as waste, resource consumption and project timeframes (i.e. a shorter project timeline reduces workforce travel requirements and associated emissions with this travel). But importantly, delivering productivity to projects via our craneage solution also delivers other sustainability impacts in safety and waste, as well as general economic performance improvement for our industry.

**Should demand-side interventions be designed to only apply to some areas of the market and not others?**

Marr Contracting does have a position on this policy option.

**Which sectors or sub-sectors should demand-side interventions apply?**

We support demand side interventions in the construction industry and would additionally encourage them in heavy transport and marine logistics industry too, as these are sources of Scope 3 GHG emissions for our business.

**How would the introduction of a mandate or other demand measures affect competition in your industry?**

As long as mandates don't take effect whilst there is still minimal local production and inequity between the price of mineral diesel and LCLF, there should not be an effect on competition. The risk if this was not the case is that larger industry participants may be able to address the price inequity through other levers whereas smaller participants may not be able to.

**Should design of a mandate, low carbon fuel standard, target or other demand option create requirements for a certain proportion of fuel use be drawn from Australian produced LCLF?**

Yes, if policy conditions are able to assist the development of a sustainable local supply chain of LCLF.

**How would the introduction of demand side measures impact the feasibility of domestic production of LCLFs, and what impact would this have on the appropriate design of any production support?**

Marr Contracting does have a position on this policy option.

**4.1. Conclusion**

The adoption of Low Carbon Liquid Fuels is vital for reducing GHG emissions in the construction industry. At Marr Contracting, we are committed to leading this transition and support policies that drive the growth and adoption of LCLFs. We urge policymakers to implement the recommended measures to ensure the construction industry can contribute to Australia's net-zero goals while maintaining productivity and efficiency.

Collaboration between industry stakeholders and government is crucial to drive the growth of the LCLF market. Successful collaborations, such as our partnership with Lendlease and Multiplex on two major Infrastructure NSW projects[3], demonstrate the effectiveness of joint efforts in adopting sustainable practices. These partnerships can serve as models for how industry and government can work together to achieve sustainability and productivity goals.

By establishing robust support mechanisms and fostering industry collaboration, Australia can become a leader in sustainable construction practices, benefiting both the environment and the economy.

[3] https://www.marr.com.au/news/australias-construction-industry-takes-first-step-towards-net-zero-with-landmark-transition-to-renewable-diesel/