Southern Oil

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NSW Renewable Fuel Scheme (RFS) Certificate scheme.

Introduction

Southern Oil Refining (SOR) is 100% Australian owned and operates two waste oil recycling refineries – in Wagga Wagga NSW (head office) and Yarwun, near Gladstone Qld. SOR was the first company in Australia to produce fully re-refined, recycled lube oil to international standards and is Australia's leading manufacturer of re-refined lube oil and biobased diesel. Annually, we recycle around 140 million litres of waste lube oil that may otherwise be burnt or dumped.

Our wholly owned subsidiary SynBio is a sustainable fuels company that has done significant research, development, modelling, and piloting in sustainable and renewable liquid fuels. As part of our re-refining and recycling process, we produce biobased diesel. Our biobased diesel has been certified as meeting necessary criteria prescribed under the Queensland Liquid Fuel Supply Regulation 2016 and Liquid Fuels Supply Act 1984. We also operate Australia's only Advanced Biofuel laboratory and have demonstrated that our product, when blended with fossil diesel, would meet all the fuel majors fuel specifications/standards - such as Density, Distillation -T95, Viscosity and Sulfur.

SynBio is also in year 5 of a project with the CSIRO looking to produce sustainable hydrogen through a combination of Steam Over Iron Reforming and Chemical Looping Combustion technologies. Technologies that we have applied to create a propriety process that seeks to utilise waste gases (such as those generated by our refineries) to produce sustainable, and cheap, hydrogen. After extensive research, design, and independent evaluation, we have recently approved the design and build of a 10KG per day pilot plant. If successful, the production of hydrogen at commercial scale through our process will be economically compelling and result in emissions reductions that are significant. The GHGE are arguably better through our process than green hydrogen currently when compared under a full life cycle analysis.

Overview

Renewable fuels are much broader than just Green Hydrogen. Our fundamental premise is that the New South Wales Government promote and encourage the use of solar, biological based, and waste derived feedstocks as part of the sustainable energy and fuels mix and transition to net zero. Don't pick winners or be prescriptive. Don't let perfect be the enemy of the good.

While SOR is doing research and development in both waste and biologic based fuels, we do note there is a public policy argument that relying entirely on biological feedstocks for fuels as an example may lead to lead to increased tension on the issue of land use – i.e. food v fuel. Which is topical given

the recent public concerns expressed from state and federal governments on supermarket pricing and farmers 'walking away'. If more farmers divert land for fuel feedstocks, domestic food supply will be impacted, which puts further pressure on cost of living. Cost of living is one of the top priorities for government to assist with. Not worsen.

A mix of sustainable energy options should be at the forefront of a transition to a net zero carbon economy. As part of this net zero outcome, this should be a transitional approach that is not blinkered by the end goal itself. Transitioning is best achieved by sensible incremental steps that encourage investment and promote awareness - while achieving significant carbon reductions. Business and industry will be focussed on cost and risk, as well as being environmentally socially responsible.

In the sustainable liquid fuels context for example, this is best achieved through a natural push/pull of producers, users and investors with the government providing cost/risk reduction and policy frameworks such as the safeguard mechanism, biofuels mandate, as well as capital works programs. While the end goal is net zero, it is important to understand what this means.

It is our premise that the aim of net zero doesn't mean that every activity/product results in zero or negative carbon emissions, but that the sum of all activity/product emissions is zero or negative. So that if you can minimise the impact of something which can't be zero or negative (such as fuel) it makes it easier to do others that can be (such as reforestation). In the fuels discussion, net zero shouldn't mean zero Green House Gas Emissions (GHGE). Even with pure biological feedstocks there are GHGE – through farming, harvesting, milling, refining, and transportation of said fuel (noting that hydrogen fuels have their own list of emissions). From a policy context, net zero should mean that the aim is to have a much better GHGE compared to fossil fuels, with the best being as close to zero as possible.

Sustainable fuels and energy are not made just from renewable sources, but from sources and methods that lead to a reduction in GHGE, and transition towards the net zero end goal. A good example is fuel from recycled tyres. The GHGE savings from passenger, truck and mining tyres can be anywhere between a 45% - 90% reduction (i.e 10%-55% comparative GHGE emissions, depending on the type of tyres used). That emission reduction is favourable when compared against several biological fuel sources. Like biologic based fuel, there are emissions costs associated with refining and transport. However, unlike biologic sources, there are significant emission savings that come from unlocking the steel and carbon black in those stockpiles, rather than sending to land fill and putrefaction. These are real GHGE reductions consistent in realising the goal of net zero.

International Practice

Sustainable Aviation Fuels

For aviation, Australia should be consistent with, and adopt, the internationally recognised Carbon Offsetting and Reduction Scheme for International Aviation [CORSIA] framework administered by the International Civil Aviation Organisation [ICAO]).

CORSIA recognise lower carbon aviation fuel as being a fossil-based fuel that meets the CORISA sustainability criteria. CORSIA also outlines Sustainable Aviation Fuel (SAF) as a renewable or waste-derived aviation fuel that meets the CORSIA sustainability criteria.

In both cases, sustainability is they key metric. Why wouldn't Australia work to be consistent with the framework?

California Air Resources Board's proposed amendments to the Low Carbon Fuel Standard regarding sustainable aviation fuel.

California is recognised as a global leader in reducing GHGE through electrification and advancement of sustainable and renewable fuels. The late 2023 announcement by the California Air Resources Board's (CARB) proposed amendments to the Low Carbon Fuel Standard regarding sustainable aviation fuel should be noted (see below).

In short, waste derived, lower carbon and biologic based fuels are all in the mix for the Californian market. CARB recognizes as do others in this space that aviation will require liquid fuels for many/many decades (at least for larger aircraft) and that only credible approach for reducing emission at scale is via lower carbon aviation fuel. And, the feedstocks are under increasing pressure given concerns about land use change and impacts on food prices. Thus, meaningfully lower CI options without the attendant impacts associated with a number of the food-based feedstocks could be a useful solution to include in the mix.

CARB Statement

"*CARB is proposing to eliminate the exemption for intrastate fossil jet fuel from the LCFS regulation starting in 2028. The aviation sector has historically relied on jet fuel produced from fossil fuels, and fossil jet fuel is currently exempted from generating deficits in the LCFS program. However, to achieve the deep emissions reductions called for in AB 1279 and the 2022 Scoping Plan Update, California must reduce GHG emissions from aviation.*

In California, intrastate jet fuel constitutes about 10% of total jet fuel consumption and is responsible for 2% of GHG emissions in the California transportation sector. As emissions from other vehicle types decline, this percentage is expected to increase. Alternative jet fuel (AJF) production has increased since it became an eligible LCFS opt-in fuel in 2019, and with 11.6 million gallons produced in 2022. This provision would be limited to flights that take off and land within the State of California.

Momentum is growing for AJF, an alternative liquid fuel that can displace fossil jet fuel without engine modifications, along with interest in zero-emission technologies for aviation. At the federal level, a tax credit of up to $1.25 per gallon is available to sustainable aviation fuel (SAF) producers.29 In alignment with the federal support available for SAF, Governor Newsom highlighted the need to transition to low-carbon alternatives in his July 2022 letter to the CARB Chair, in which he directed CARB to adopt a 20% clean fuels target for the aviation sector.30 The 2022 Scoping Plan Update anticipates a major shift away from fossil jet fuel by 2045, including 20% zero-emission aviation.

Several airlines have also announced GHG emission reduction targets, as well as multi-year agreements to source SAF for their operations. For example, United Airlines,31 Southwest Airlines,32 and American Airlines33 have released plans to achieve carbon neutrality by 2050. Additionally, Alaska Airlines set new climate goals that include net-zero carbon emissions by 2040.34 Finally, Delta Airlines has a goal to replace 10% of its fossil jet fuel with SAF by the end of 2030.35 Production is ramping up to meet the increasing demand for low-carbon incentives. For example, multiple refineries in California are transitioning their existing facilities to produce bio-based alternative fuels, including AJF. AJF is a viable low-carbon alternative that can further reduce aviation carbon dioxide emissions and currently generates credits in the LCFS program. Adding fossil jet fuel as a required fuel under the program will build on the momentum in the aviation industry."

Conclusion

Renewable fuels are much broader than just Green Hydrogen. Given the breadth of energy and liquid fuels GHGE that need to be reduced, we think it is entirely practical that the New South Wales Government promote and encourage the use of multiple feedstocks and energy sources as part of the sustainable energy and fuels mix to transition to net zero.

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