Southern Oil

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Committee Secretary
Senate Standing Committees on Environment and Communications
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Dear Committee Secretary,

Introduction

Southern Oil Refining (SOR) is 100% Australian owned and operates two waste oil recycling refineries – in Wagga Wagga VICTORIAN (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 waste derived 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 hour 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.

Fourth (and Fifth) Review of the Product Stewardship for Oil Scheme

Overview

- There has been a lack of substantive progress with the fourth review of the Product Stewardship for Oil Scheme (PSO) commenced 2020.
- Waste/recycling of lube oil sector was engaged for four years to try to progress the fourth PSO review.

- Without substantial resolution on key issues, our input serves to inform the terms of reference for the fifth independent review due for completion in December 2024.
- The sector has engaged cooperatively and provided a raft of information repeatedly to government officials and to at least three separate independent consultants. The last of which involved Deloitte's seeking access to members' sensitive financial information.
- To date the waste oil recycling industry has flown under the radar and has been able to effectively undertake waste oil collection and recycling effectively and without deleterious outcomes.
- The PSO is held up as a product stewardship scheme that largely works. Unfortunately, however, the lack of action with the PSO review has seen these settings becoming increasingly fragile. It is a matter of fact that the very small levy applied to new lubricants, and the levy benefits for the sector, have remained largely stagnant for over 20 years.

Issues

Financial review.

As part of the sectors' ongoing engagement of the PSO review, sensitive financial information was made available to progress the most recent Regulatory Impact Statement (RIS).

Infrastructure challenges – possible environmental/human health harm

Our industry needs PSO reform now more than ever to ensure continued growth through infrastructure re-investment and to meet unprecedented running costs.

Most of the used oil refinery infrastructure in Australia is reaching end of operational lifespans and is now facing increased maintenance turnaround which impact on waste oil processing and escalation in operating expenses. Without this support that enables re-investment, we face significant risks that could reverse the progress made.

We are currently witnessing a number of these risks unfold in various regions across the country - particularly Tasmania, Western Australia, and the ACT. These risks include the closure of recycling facilities, lack of collections infrastructure, job losses, increased waste disposal to landfill, and potentially serious environmental impacts. We have seen written advice from a major mine site that it would have to suspend its operations if waste lube oil was unable to be collected.

Specifically:

- In Tasmania the PSO scheme is now insufficient to pull waste oil to the mainland where recycling facilities exist. The severe glut in Tasmania has been caused by a range of government and commercial decisions, partly driven by public pressure, that have resulted in a virtual end to the use of recycled oil in traditional energy applications. It is ironic that public and government interest in protecting the environment has led Tasmania to stop

- using its waste oil for energy and is now potentially creating a far larger environmental issue. Our members no longer have the capacity to store used oil and have had to cease providing this service.

- Our members are particularly concerned that stopping collections will lead to the illegal dumping of waste oil with its consequent negative effects on our environment.

- Western Australia is experiencing a glut caused by a perfect storm of demand destruction for recycled oil used in fuel oil energy applications, an increase in economic and mining activity, and an increase in maintenance shuts due to aging infrastructure on the existing used oil refinery that is operating at full capacity.

- The largest refinery in Australia, Northern Oil in Gladstone, has routinely no capacity to store any more lube oil for re-refining. Indeed, all five significant waste oil processing plants nationwide have frequently been at capacity.

- We need to remember that the more our economy booms the bigger the problem as all our mining and support enterprises generate more waste oil which there is nowhere to store or process, leading to deleterious outcomes for the economy and environment.

- Used lube oil volumes have continued to increase despite increasing electrification of vehicles and other parts of the economy.

Environmental harm and human health risk

The waste oil recycling industry plays a crucial role in waste management, resource recovery, and reduction of greenhouse gas emissions. Without adequate support, we face the real danger of regressing and losing the significant progress we have made towards a more sustainable future.

There is an unacceptable risk the dumping of waste lube oil would have to our waterways and natural environment. Used oil is identified as a hazardous waste by the Hazardous Waste (Regulation of Exports and Imports) Act 1989. This Act limits the trade of used oil as a waste for final disposal and encourages recycling, reclamation and recovery of energy, though this does not include direct incineration.

The Basel Convention Technical Guidelines on Waste Oils from Petroleum Origins and Sources (Y8) identifies that lubricating oils contain contamination from their use that can cause health and safety problems for humans (including cancer), harm to the environment, or react after disposal to have these effects.

Untreated used oil contains many chemicals that are hazardous to human health and the environment if not managed competently. These contaminants include dioxins and furans, heavy metals, chlorinated or sulphonated contaminants and polycyclic aromatic hydrocarbons.

Recommendations

A timely completion of the fifth review will provide investment and operational certainty. Refiners risk appetite to invest is hampered by rising costs for inputs and government indecision. Industry is limited in our capacity to recoup growing costs by the inconsistent application of the policy instruments in the PSO scheme. With a correctly set levy and commensurate benefits payable to industry, the scheme can serve its original purpose – a stable and viable scheme will give industry the certainty to invest and grow this industry.

The industry recommends:

1. An indexation of the levy that reflects contemporary consumer willingness to pay, will also addresses the benefit deficit, and stimulate much needed infrastructure investment.

2. An increase and then indexation of the Category 1 PSO benefit that encourages the highest order waste oil recycling , to be in-step with significant increases across all business costs - especially gas, electricity, fuel and wages.

3. Greater recognition of the carbon abatement that re-refining of waste lube oil provides.

Supporting Information

Willingness To Pay Study

In 2023, EY was commissioned by SOR to conduct a review of Australian consumers' overarching willingness to pay (WTP) for oil recycling. This national study was completed late June 2023.

The report details that nearly 3 in 4 Australians are willing to pay a reasonable and separate fee for oil recycling. Indeed, 72% strongly agree/agree to have their mechanic charge a reasonable and separate fee for oil recycling, while 1 in 2 consumers are willing to pay 100 cents per litre - or $5 for their used oil to be recycled. This is significantly more than the current PSO levy.

The very modest increase in the levy announced in the 2023 Budget was welcomed by our industry. However, there remains scope to further increase the levy.

Greenhouse Gas Emissions Benefit from Cat 1 Recycling

There are significant benefits to the environment from re-refining waste oil by (Cat 1) refineries.

- 1 litre of recycled lube oil results in a 2.26kg CO2 reduction
- SOR waste oil is collected from every mainland state and territory
- In 2022-2023, SOR recycled circa 140 million litres of waste oil, reducing CO2 emissions by around 190,000 tonnes
- In the last decade, SOR has recycled just over 1 billion litres of waste lube oil

Waste derived fuels/energy - lack of national support.

The transition to a net-zero economy through the recycling and waste resource recovery supply chain is a commercially driven, technically viable and results in good public policy outcomes. However, current Commonwealth sustainable fuel/energy policy settings largely focus on picking winners by prioritising renewable over sustainable and make the perfect the enemy of the good. This approach does not support the Commonwealth's own 2018 National Waste Policy which sets the agenda for waste reduction to 2030, with the 2019 National Waste Policy Action plan (NWPAP) identifying seven ambitious targets – with the third being to recover 80% of all waste by 2030

Liquid Fuels and Energy

- The suite of renewable fuel options that can help the transition to net zero is much broader than only green hydrogen or biologic based feedstocks.

- The focus on reducing our carbon footprint must be on sustainability, scalability, and cost effectiveness.

- We encourage the Commonwealth Government to support a range of fuels—including biological-based and waste-derived feedstocks—as part of the sustainable fuels mix.

- All levers will be required to get to net zero. To achieve this transformed economy, every activity or product need not result in zero or negative carbon emissions, but rather the sum of all activity and product emissions must be zero or negative.

- Waste-derived fuel has a lower emission profile than fossil fuels while also avoiding the pressure on land use that biological-based fuels might create. Abandoning food crops for fuel crops has divided communities. Particularly in the context of the cost-of-living crisis.

- Decisions about the eligibility of renewable/sustainable fuels should recognise independent life-cycle assessments.

- The potential for recycling and resource efficiency to contribute to emissions reduction and the path to net zero has not been harnessed in Australia. The National Greenhouse and Energy Reporting System and the Safeguard Mechanism currently overlook life cycle assessments, which limits recognition of the recycling sector's contribution to a net zero future.

- In the waste and recycling sectors, only landfill gas capture and organic recycling are regarded as emission reduction activities, disregarding significant opportunities for emission avoidance and lower embodied energy that recycling and concomitant resource efficiency presents.

Case study: Southern Oil's steam over iron reforming and chemical looping combustion hydrogen process Southern Oil, through its wholly owned subsidiary SynBio, is working with the CSIRO to produce sustainable hydrogen via a combination of steam over iron reforming and chemical looping combustion technologies. The propriety process uses waste gases (such as those generated by Southern Oil's refineries) to produce cheap and sustainable hydrogen. After five years of research, design, and independent evaluation, Southern Oil has approved the design and build of a ten-kilogram-per-hour pilot plant. If successful, scaling and commercialising this process will result in significant emission reductions, arguably better than green hydrogen in a full life-cycle analysis.

Case study: tyre-derived fuel End-of-life tyres present both a waste management challenge and an opportunity for resource recovery. Tyre-derived fuel provides an alternative energy resource to replace fossil fuels such as gas, coal or oil in industrial applications such as cement kilns, electricity generation or industrial process heat. It is estimated that 150,000 tonnes of tyre-derived fuel avoids 174,000 tonnes of carbon-dioxide emissions compared to brown coal. The greenhouse gas emissions savings from tyre-derived fuel are favourable when compared against several biological fuel sources: like biologic-based fuel, there are emissions costs associated with refining and transporting tyre-derived fuel. However, unlike biologic sources, there are significant emission savings that come from

unlocking the steel and carbon black in tyre stockpiles, rather than sending to landfill and putrefaction.

Policy settings regarding renewable/sustainable fuels should align with international best practice, particularly regarding Sustainable Aviation Fuel (SAF). SAF requirements should be consistent with the internationally recognised Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) framework, administered by the International Civil Aviation Organisation, which recognises waste-derived aviation fuel as a sustainable aviation fuel that meets the CORSIA sustainability criteria.

We are very keen to work with the Commonwealth Government to advance our mutual objectives of reducing emissions and maximising resource recovery. These objectives can be met by ensuring that life-cycle assessments and waste-derived fuels are better recognised.

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