QUEENSLAND FARMERS' FEDERATION

Sustainable Liquid Fuels Strategy 2023: **Options and opportunities paper**

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The united voice of Queensland agriculture

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This submission is provided to:

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Our members

- Canegrowers
- Cotton Australia
- Queensland Fruit & Vegetable Growers
- Nursery & Garden Industry Queensland
- eastAUSmilk
- Australian Cane Farmers Association
- Queensland United Egg Producers
- Turf Queensland
- Queensland Chicken Meat Council
- Pork Queensland
- Bundaberg Regional Irrigators Group
- Burdekin River Irrigation Area
- Central Downs Irrigators Ltd
- Fairburn Irrigation Network
- Mallawa Irrigation
- Pioneer Valley Water Co-operative Ltd
- Theodore Water Pty Ltd
- Eton Irrigation
- Queensland Oyster Growers Association
- Lockyer Water Users Forum

About the Queensland Farmers' Federation

The Queensland Farmers' Federation (QFF) is the united voice of agriculture in Queensland.

We are a member-based organisation representing the interests of peak agriculture industry organisations, both state and national. Through our members QFF represents more than 13,000 primary producers across the cotton, sugarcane, horticulture, dairy, nursery and garden, poultry, eggs, pork, and intensive animal industries.

We unite the sector to engage in a broad range of economic, social, environmental, and regional issues through advocacy, policy development, and project activity. We work with the government of the day on behalf of industry, farmers, and the community to provide powerful representation and contribution to the policy direction, sustainability, and future growth of Queensland's agriculture sector.

Our Council of member representatives and policy committees set the strategic priorities for policy development and advocacy, while our Executive Board ensures our corporate governance.

QFF draws on the expertise and industry knowledge of our members and through our commitment to collaboration and considered policy development, we lead Queensland's agriculture sector towards a strong future, ensuring our members are ahead of the game and have a voice at the table on the issues that matter to their members.

Submission

QFF welcomes the opportunity to provide comment on the *'Sustainable Liquid Fuels Strategy 2023: Options and opportunities paper.'*

We provide this submission without prejudice to any additional submission from our members or individual farmers.

Overview

Queensland is transitioning to renewables as part of the Queensland Energy and Jobs Plan, which was released in 2022. The transition to renewable energy will bring both risks and opportunities for agriculture ranging from the land being used to host infrastructure such as transmission lines, or converting farm machinery to work in the same manner current diesel machinery works. Farmers are continually seeing an accelerated rise the costs of farm inputs, such as fertilisers, water, energy and fuel and are seeking ways to improve efficiencies and maintain their viability.

QFF welcomes the opportunity to provide feedback on the Sustainable Liquid Fuels (SLF) strategy to ensure the Queensland Government are aware of and integrate agriculture into future plans to ensure our food, fibre and foliage sectors remain as the world class leaders for the products we produce and can continue to produce sustainably.

QFF note the key areas and questions that we wish to address in this submission, are detailed below and can be summarised as:

- Is the transition to renewables timeframe achievable for the agricultural sector?
- The role of renewable fuels for agriculture.
- Transitioning the agricultural sector to renewable fuels, what will this mean for end cost of production?
- What are the unaccounted costs or unintended consequences that will impact agriculture?

Objectives

The Queensland Government's commitment to a 30 per cent emissions reduction below 2005 levels by 2030, and net zero by 2050, will present both risks and opportunities for the agricultural sector.

The transition to renewables is on a fast trajectory, but deeper consideration regarding implications for primary producers and what this will mean to not only our food security, but the long-term viability of our food fibre and foliage sectors is required. Agriculture has and will continue to be at the forefront of change, with a demonstrated track record of its capacity to build resilience and adapt to change. However, never has there been before a more rapid change required by the agricultural sector than now, during a time when the workforce shortage, increasing input costs and land use competition are challenges farmers and regions who are also trying to navigate the move to renewable energy.

As noted in the sustainable liquid fuels strategy, options and opportunities paper, the Queensland Government is committed to decarbonisation by:

a) expanding options and availability of cleaner fuels for petroleum customers in key sectors
b) leveraging Queensland's significant resources, capability and industry to provide an economic opportunity for Queensland by reducing fuel imports and boosting domestic fuel production
c) unlocking downstream and customer demand to support the sustainable liquid fuel industry.

Seeing alternative options for fuels, that are cleaner and help decarbonise the nation are a positive step forward; however, it is vital that these alternatives can not only be accessible and able to be used on farm, but also need to be cost effective and not cost prohibitive. Boosting domestic fuel production needs to be cost effective. QFF proposes an increase in mandates on fuel suppliers could be considered to allow greater competition for these cleaner fuels and support domestic production.

This will help to establish a secure supply option to help mitigate the impact of global events, which have had costly consequences to agriculture (as recently as the Covid-19 pandemic), where fuel was in short supply. For this to be sustainably managed and provide long-term economic viability for all businesses involved, a clear framework that outlines this process needs to be developed and implemented in close conjunction with industry.

Part of the strategy requires unlocking customer demand. As previously mentioned, creating greater competition between suppliers through increasing their mandate market requirements and creating more leverage to provide more options, will over time see the market expand and help contribute to a reduction in fuel costs. Public awareness and education needs to be at the forefront of these changes, along with ensuring that manufacturing of vehicles and farm machinery can facilitate the use of cleaner fuels without impact to the vehicles or farm machinery.

Switching to cleaner energy sources

Switching to cleaner energy sources and moving away from industry reliance on petroleum is challenging and farmers need to be able to access practical and cost effective alternatives before they are able to move away from traditional fuels sources in a sustainable manner. QFF outlines the

questions provided in the sustainable liquid fuels strategy, options and opportunities paper, and our responses which are listed below:

Q1 Are there any other objectives that you think should be included?

Agriculture must not be disadvantaged and must have a seat at the table throughout any transition measures. As part of the transition to sustainable liquid fuels, agriculture production will need to expand to meet the SLF development requirements. This will mean a balance of the requirements for different sectors regarding land use and access, and minimisation of competition access. Strategic, land use planning must be prioritised in developing a viable framework and future developments.

We must ensure that farmers have access to a dependable and sufficient supply of SLF at reasonable prices; promote the cultivation of feedstocks and biomass resources used in the production of all domestically produced sustainable liquid fuels.

- Reliable and cost competitive supply to the farm.
- Promote the use of domestic feedstock.
- Circular economy with domestic feedstock used for fuel, then used on farm.

How is the government going to support domestic feedstock production to alleviate international and geopolitical export market issues –as seen with electricity prices? This is a question that requires deep intervention, to ensure sustainability in all aspects of the supply chain.

It is important that we prioritize farmers who are not able to transition to electrification, and do not have the capital to fund changes, as there could be an introduction of a co-subsidy arrangement that would enable a smoother transition on-farm. This would be beneficial in reducing costs and retaining business viability and maintaining equity between commodity groups. Helping the agricultural sector, by securing Australia's future equipment supply by addressing potential time constraints (greater transparency on timing needs to be incorporated into consultation and publications – that create an ease of use/clear timeline of events and agencies to get further information), must be integrated into the SLF Strategy framework.

Identifying key locations with favourable conditions, to support pilot trials at a no cost to participants and ongoing post-pilot support such as maintenance, is a necessary priority as part of the objectives, and needs to be facilitated into the SLF Strategy framework.

It is essential to ensure that the skills necessary to facilitate this transition and establish a clear path are determined to ensure ongoing access to those skills. Prioritising the skills needed and ensuring that skills remain in regional areas are essential to ensure the longevity of agricultural businesses.

In addition, Queensland needs to promote energy security and economic growth by reducing the dependency on oil imports, enhancing the rural economy, and reducing greenhouse gas emissions by generating a SLF industry. Policies that form part of this transition to SLF's, need to be evidence based and congruent with sustainability and developmental objectives.

Q2 How should a 'sustainable' liquid fuel be defined to contribute to decarbonisation objectives?

QFF represents the food, foliage and fibre sectors, and there are multiple areas in which our members can be involved in SLF's and contribute to decarbonisation objectives. However, to define sustainable, it not only needs to be economical, but it also needs to ensure that as a nation we are supporting farmers, the environment and be clear on what the decarbonisation objectives are.

Converting from fossil-based liquid fuels (e.g. diesel) with SLF (biodiesel), will be dependent on the rate of technology change for agricultural vehicles and economics including carbon abatement benefits or compliance requirements. Including commodities such as cane, could provide an opportunity to fulfill the role of 'sustainable' and contribute to decarbonisation by incorporating cane in the production process of SLF's. Although providing opportunities is a positive step forward in the circular economy profile, the use of SLF on farms is not considered to be a major part of decarbonisation.

QFF supports the understanding that 'sustainable' liquid fuel should be defined to contribute to decarbonisation objectives. However, it should be recognised that sustainability should extend beyond achieving lower carbon emissions and environmental preservation. Alongside, environmental considerations of SLF, the economic feasibility for farmers is critical. Agriculture often operates on slim margins, and if SLF technologies or solutions to decarbonising an industry are prohibitively expensive, the adoption of SLF may inadvertently discourage farmers from embracing cleaner fuel alternatives to achieve these objectives.

True sustainability in the context of SLF should encompass not only ecological preservation and low emissions potential but also the creation of an economic environment that would support such innovations. This would entail comprehensive research into SLF to optimise the cost-effectiveness (i.e., price parity, energy density/efficiency and shelf-life) of the alternative fuels and forward-thinking policies. By embracing both facets of sustainability (environmental and economic) farmers would be better positioned to align themselves and their SLF uptake with decarbonisation goals.

Q3 Do you agree that the sectors identified as 'hard to abate' are likely to continue to rely on liquid fuels in the medium to long-term?

Yes, sectors identified as hard to abate, will continue to rely on liquid fuels. In the agricultural industry, feed suppliers must receive the full value of raw materials, which may include the value of the reduction or the credit reduction. The use of SLF's on farms is an option, however, without incentives and/or carbon abatement income it would potentially be uneconomical to maintain in a highly competitive environment. The condition of Queensland's extensive road network provide significant limitations for the use of electrified heavy transport due to safety issues.

Q4 Are there any transitional and/or long-term fuels that should be prioritised to leverage timeframes and Queensland's resources, capabilities and industrial base?

SLF can help facilitate the transition towards the decarbonisation of hard to abate sectors by reducing carbon emissions without significantly changing the existing vehicle fleet. However, the priority given to each liquid fuel alternative should depend on its actual life-cycle emissions reduction potential, shelf-life, energy efficiency, and whether it is or will become competitive with the price of existing fossil fuels. The fuels to note as part of this submission impacting the agricultural sector are:

Ethanol – can be effectively used in existing engines. It holds the potential to transition towards second-generation SLF, using lignocellulosic feedstocks such as cotton seeds, stalks, cane, and bagasse. This shift could significantly alter the future of ethanol development and expand its possible applications.

Sustainable Aviation Fuel (SAF) – is used in the aviation sector and has similar properties to conventional jet fuel but with a smaller carbon footprint. Depending on the feedstock and

technologies used to produce it, SAF can reduce life cycle GHG emissions dramatically compared to conventional jet fuel. This opportunity requires strong planning in regard to protecting agricultural producing land to ensure the SAF opportunity can actually be sustained and realised.

Biodiesel – is blended with petroleum diesel to be used in modern diesel engines and can be used in the short- to medium-term for hard to abate sectors like mining, marine and intensive agriculture. Currently biodiesel is difficult to access and cost prohibitive.

Renewable diesel – is an advanced SLF made from a range of feedstock waste and purpose grown energy feedstock sources. Renewable diesel can directly substitute conventional diesel and does not require blending and therefore offers a direct replacement for conventional diesel for transport applications. It could provide a viable decarbonisation pathway for hard to abate sectors facing challenges in transitioning to electrification – particularly for heavy vehicles and machinery located in geographically isolated areas.

Biogas – biogas is produced through the anaerobic digestion of organic matter, such as agricultural biomass or waste. It can be processed into biomethane and used as a direct substitute for LPG in existing infrastructure. This infrastructure needs to be prioritised, to deliver alternative fuel replacements for LPG which is a core component of the poultry industry. Without incorporating poultry producers, we will be excluding a core component of the agricultural sector which can lead to an inefficiency and inequity in the market between producers.

Q5 Where and when do you see the opportunities for the following types of sustainable liquid fuels, both as transitional fuels and as long-term fuels?

Ethanol and SAF

The Queensland sugarcane industry offers significant opportunities for ethanol production. In the short to medium term, ethanol can serve as a transitional fuel, reducing the transport sector's carbon footprint. Queensland's sugarcane industry can produce first-generation bioethanol, blending it with petrol to cut greenhouse gas emissions and enhance octane ratings. Existing infrastructure can easily handle up to 10% ethanol blends, providing an immediate emission reduction pathway.

As a long-term fuel, second-generation bioethanol from sugarcane bagasse can reduce lifecycle greenhouse gas emissions by utilising waste products and avoiding competition with food production. Expanding production could boost rural development, diversify farmers' income, and create jobs in SLF production. Ongoing projects, like the Mackay pilot plant and others in development near Burdekin, are already advancing bioethanol initiatives. Sugarcane can be harnessed for SAF or converted into ethanol through sugar fermentation or advanced SLF processes, like enzyme-based approaches for higher yields and minimal by-products.

The production of renewable sustainable feedstock (e.g., sugarcane-based feedstock) to produce SLF's to substitute fossil-based diesel to provide decarbonization benefits overall is likely to be more significant than the contribution from farm changes.

As potential feedstock providers, growers need to be included in project feasibility to ensure that they are fully recognised in the business case. This may include long-term offtake agreements with a payment system for feedstock which more than covers the opportunity cost of the current value of sugarcane components.

There is a need for research into high biomass producing sugarcane varieties and systems to handle this from field to processing. There is also a need for strong land use planning frameworks that protect agricultural producing land to realise these types of opportunities.

Biodiesel and renewable diesel

Biodiesel and renewable diesel offer opportunities to convert agricultural waste or biomass into energy with diverse feedstock options. Various techniques such as gasification, pyrolysis, and anaerobic digestion can transform these agricultural biomasses into energy. The energy generated can help offset the high capital costs associated with these conversion technologies.

For example, cotton seeds can be economically viable for biodiesel production, but usually has a higher profitability per tonne when sold as a product in other existing markets. An underutilised waste product is 'gin trash'—the byproduct of cotton processing, including stems, leaves, and short fibres. Traditionally considered waste, converting gin trash into biodiesel or renewable diesel could create a valuable commodity, enhancing the overall economic return of cotton production. This kind of waste-to-energy transformation aligns with circular economy principles, potentially turning sectors such as the cotton industry into a more sustainable and profitable operation.

Biogas

The disposal of agricultural waste has long been viewed as a logistical, financial, and environmental burden for farmers. The agricultural sector should have the opportunity to reimagine how biomass and waste streams could be converted into biomethane, electricity, and bio-fertiliser, thereby reducing carbon emissions as well as creating economic growth for regional Queensland. Co-generation opportunities present a means for the agricultural industry to diversify its income streams while considering factors like waste-recycling or disposal and transportation costs. To fully unlock the potential of agricultural waste as a resource, crucial policy shifts are needed. Firstly, agricultural waste should be reclassified from industrial waste, opening pathways for new waste-to-energy initiatives. Secondly, natural gas infrastructure should adapt to accept 'green' natural gas, like biomethane, fostering a more accessible market and encouraging investment. Lastly, biomethane should be recognised as a zero emissions gas, reflecting its environmental benefits, and potentially making it eligible for greenhouse gas reduction incentives.

Q6 Will sustainable liquid fuels be an important part of your decarbonisation journey?

Not until it is proven affordable, reliable, and efficient, providing a good return on investment.

- In the sugarcane industry, for example, there is potentially an unrealistic understanding of what the cost for sugarcane feedstock is. However, more R & D and evidence-based science needs to be integrated into the decarbonisation journey along with real economic values to primary producers. It is to be noted that there is a current value for all components of sugarcane, however it essentially becomes an opportunity cost for what the minimum value provided back to the grower and/or miller is.
- Limited infrastructure for the distribution of bulk liquid fuels from the sugarcane industry regions currently poses as a limiting factor.

Q7 Where do you see customer demand for sustainable liquid fuels, with reference to different fuels and industry sectors?

Transport applications where technological barriers to electrification exist such as in the long-haul transport, marine, aviation, intensive agricultural and mining sectors.

Q8 What do you/your customers need now, and what will you require in the future?

Infrastructure

Expansion of SLF production and use will require large infrastructure investments in production, transport, distribution, and manufacturing. From the feedstock supply chain to SLF production, infrastructure is a critical element for success and provides an excellent foundation for expansion of existing SLF plants. Additional plants can be situated in rural regions near biomass-rich areas, which ensures that rural areas benefit from job-creation and the generation of significant economic growth.

Pilot programs

Potential zones should be identified to trial implementation of energy ecosystems in different geographical locations around Queensland. Initial demonstration projects that are properly designed to quantify the gap between sustainable liquid fuels and conventional fossil fuels are also needed. These studies/programs need to document a viable transition from conventional liquid fuels to sustainable liquid fuels. These trials should be at zero cost for farmers willing to participate and post-trial support (i.e., maintenance) must be provided. The pilot programs should consider coverage of a broad range of agricultural activities and seek to attract the deployment of equipment, technologies, and fuel supply chains to fit with established infrastructure and early merging of demand from producers, as well as workforce and skills availability. Determining which farmers need which fuels and which feedstocks for specific SLF is also a crucial step.

Education and outreach initiatives

Extensive education programs and widespread outreach initiatives will be needed to promote awareness and understanding. It could be beneficial to establish training programs or resources to help farmers and other stakeholders understand the economic and financial aspects of SLF use and production, allowing them to make more informed decisions.

Stakeholder involvement

To capitalise on these opportunities, the Government should actively collaborate with industry and relevant stakeholders to facilitate the development of biomanufacturing, bioenergy, and refinery processing. Fostering more partnerships between government, research, and stakeholders could help spur innovation and accelerate the development and adoption of new SLF technologies. Collaborating with farmers on demonstration projects and research initiatives to test the feasibility and efficacy of new SLF technologies in real-world farming contexts is essential. Additionally, collaboration with OEM suppliers and energy experts is needed to map future market offerings in these fuels.

Market-based mechanisms

Implementing market-based mechanisms can enhance the fuel market by encouraging competition among SLF feedstock producers, stimulating innovation, and driving down costs. This competition

would also promote diversity in the fuel supply, reducing dependence on imported fossil fuels and enhancing energy security. Additionally, SLF can often be produced from domestic resources, promoting self-sufficiency, and boosting local economies. Renewable fuel standards ensure a steady demand for SLF, stimulating ongoing production and infrastructure investment.

The sustainability of the agriculture sector is driven by many factors, with input costs such as fuel continuing to rise, putting increasing pressure on farm input costs, and creating a cost-price squeeze. Diesel prices over the past few years have hit record prices, in some cases the combined input costs of fuel, fertiliser and chemicals has increased to 150%, representing an average compounding inflation rate of 4.7% p.a. with a 28% increase since 2019.

Many of these inputs are sourced from overseas. Most consumers have not yet seen the impact of this as farmers have absorbed many of these price increases, however this is not sustainable. We need the federal government to work closely with industry to help shore up the supply of fuel and other key inputs, so that farmers have a secure and stable environment to operate in, costs can be contained, and we can continue to do what our farming sector does best in producing high quality, food, fibre, and foliage. We also need government to ensure a transparent and level playing field and to discourage market power imbalances occurring due to dominance of large companies who have power through their market power. The ACCC (Australian Competition and Consumer Commission) has a key role to play to ensure a fair and equitable operating environment and market for the supply of key inputs.

Domestic refining capacity and storage

The government must commit to maintaining whatever level of domestic refining capacity is necessary to service the SLF needs of Queensland farmers. The strategic reserve will not achieve its purpose unless Queensland or Australia has the capacity to refine the SLF domestically. The government should commit to establishing a strategic fuel reserve, which will improve SLF security. (See question 14)

Certification or guarantee of origin schemes

It is key that information about feedstock is appropriately classified at the collection and gathering point, and that this information is correctly transferred through the supply chain. Matching biomass category definitions between policy frameworks also helps certification schemes to be used in multiple frameworks. Certification, safety approvals, and compliance with industry standards are essential for the safe and reliable use of SLF. However, obtaining certification can be a time-consuming process, often taking several years. This could pose a potential bottleneck when aiming to meet emissions timelines.

Contingencies

Appropriate regulatory measures need to be put in place to protect producers and facilitate the establishment of a domestic market for SLF. It is also crucial to develop contingencies for situations of market failure to ensure the industry's resilience. Immediate issues, as well as short-term and long-term impacts, should be thoroughly assessed. For instance, how SLF might affect vehicles or equipment, or whether it's more viable to replace machinery rather than convert existing ones for SLF compatibility. Additionally, the availability of SLF needs to be considered to avoid supply disruptions.

The development of comprehensive disaster management plans could help minimise potential adverse effects of extreme weather events or other unexpected challenges on SLF production and distribution. There is also a need to consider a scenario where international markets may not be prepared to pay a premium for sustainability. Such a situation could impact the profitability and overall market viability of SLF. Increase in council rates where renewables or Bio-Gen facilities are adopted needs to be carefully evaluated. Farmers/producers should not have to suffer higher council rates because neighbouring land evaluations increased due to early adoption of green energy schemes.

Protection for domestic feedstock prices

The government must ensure that any increase in SLF mandates should not escalate costs and risks to a level that outweighs the benefits. Particularly, any increase in consumption or supply mandates must be thoroughly assessed to ensure it does not excessively increase domestic feedstock prices, such as grain and molasses used in ethanol production or tallow used in biodiesel production, to the point of infeasibility. It is crucial to ensure the balance of supply and demand remains undisturbed, thereby preventing negative impacts on other sectors reliant on these commodities.

Q9 What do you consider to be the most fundamental barriers to sustainable liquid fuel uptake? Do you expect these barriers to change over time?

OEM COMPATIBILITY AND AVAILABILITY

The long asset life of farm machinery, especially mobile machinery, means any new technology that replaces old equipment, such as battery electric or hydrogen fuel cells, will take a long time to propagate through the national farm fleet in Australia. As most farm equipment is imported, predominately from major US or European manufacturers, government engagement is crucial to explore their development plans and timelines, as Australia does not dictate their technology advancements. Funding needs to be integrated into this area for the agricultural sector to be able to fulfill its requirements in reducing emissions.

It is important to note that the agricultural sector is open to adopting electric vehicles that are battery powered, however given the conditional of many of our roads in regional Queensland, a heavy-duty electric vehicle on regional roads poses a safety hazard. Batteries are placed at the front of vehicles, which means a higher chance of rolling during road incidents, which is increased due to the condition of roads.

Investment cost

Early adopters of SLF may struggle to establish a compelling investment case due to factors such as limited market demand, uncertain regulatory support, and technological uncertainties. Addressing these barriers is important to incentivise and support early adoption.

Price and efficiency parity

Given that ethanol is less energy-dense compared to petrol, each progressive increase in the ethanol-to-petrol blend ratio would necessitate a corresponding reduction in the price per litre. This is to ensure that the cost per kilometre travelled remains equivalent, considering the reduced energy output of the ethanol mix compared to pure petrol. The consensus is that farmers are unlikely to pay a premium for a less efficient fuel, even if it contributes positively to decarbonisation of the sector. It

is doubtful that anyone would be willing to pay, for instance, $5 or $6 for renewable diesel, which would inevitably impact their profit margins.

Supply chains vulnerabilities

Often there is a major focus on the end technology and not enough on the supply. Currently, diesel is reliably delivered and stored through regional networks all around the State. Any switch to an alternative requires secure production, distribution, and storage. The risk of supply interruption would turn many farmers off an alternative. Evaluating the existing workforce capabilities and energy infrastructure in different regions is vital for effective deployment. Government and industry stakeholders should also work together to examine concerns about the establishment of long-term feedstock supply contracts.

Local maintenance and accessibility

Access to local maintenance/ engineers will be a concern for farmers, and they are likely to turn to this same network of dealers and mechanics for any fuel consumption and efficiency advice. A lack of local expertise in maintaining and repairing new technology systems, and competition with existing well established diesel services, can only be overcome with time and significant investment by manufacturers, retailers, and other suppliers, and with relevant technical and vocational training.

Safety and warranty

The use of SLF in high concentrations can present issues with existing infrastructure and engines due to its elevated oxygen and moisture content. It can also lead to problems related to sedimentation and cold flow, which could affect the overall system performance. This arises concerns about safety for use, potential effects on machinery warranties, and misunderstanding about its associated costs. For example, in the US, E15, a blend of petrol and 15% ethanol, has not gained significant traction in the market, partially due to reservations from manufacturers. Many of them have not sanctioned its usage, and there's a worry that using it may lead to the invalidation of on-farm equipment/machinery/vehicle warranties.

Risks of phasing-out adopted technologies

Alternative fuels like electric or hydrogen fuel cell technologies could eventually replace SLF in the future, potentially rendering existing and new SLF infrastructure obsolete. There's a risk of early commitment to specific infrastructures that may later prove less sustainable than anticipated or than future alternatives. Compatibility concerns exist, especially with farm machinery like tractors using fuels such as biodiesel, requiring careful consideration and planning. Engine infrastructure modifications are not instantaneous, and the current timeline remains uncertain. A co-ordinated approach between jurisdictional timelines and roadmaps is crucial to minimise any risk to private infrastructure investments and adoption. Proactive planning, including forward estimates of vehicle replacement strategies, rather than merely considering conversion and availability, is essential as the industry transitions to SLF.

Q10 How do you think potential feedstock or production trade-offs should be managed to prioritise resources where competition exists between transitional and emerging sustainable fuel types?

In the long-term, second-generation SLF may mitigate pressure on land resources by utilising a broader variety of feedstocks, encompassing not just conventional crops but also waste materials. To

ensure a balanced and sustainable approach, it's critical to avoid redirecting arable land intended for food production towards energy crop cultivation and to ensure that a range of feedstocks are used across the spectrum of SLF varieties. Likewise, feedstocks that yield the highest energy output for their economic viability, such as sugarcane and ethanol, should be prioritised. Understanding the potential impact of SLF mandates on the availability of feed grain for livestock producers is crucial.

Thorough assessments of any potential supply constraints, especially those influenced by changes in the production of crops like wheat and sorghum, should be conducted. These assessments should factor in varying conditions, including both standard and drought scenarios, to ensure a robust and sustainable approach to SLF production. Moreover, the adoption of SLF technologies by a select group of farmers may affect the valuation and pricing of land, potentially leading to an increase in their income and land value. This could create social and economic tensions or barriers for other landowners in the same region, underlining the need for careful planning and equitable distribution of opportunities in the shift towards SLF production.

Q11 Does the lower carbon content of sustainable fuels justify a cost premium relative to traditional fuels? If so, what is the value proposition?

SLF are a more expensive source of energy than fossil fuels. As a result, incorporating them into the fuel mix therefore imposes economic costs, borne by farmers in return for emissions reductions. If the SLF is itself inefficient, there is a flow on effect to production and yield which outweighs any value proposition of a biobased fuel. Major companies attempting to incorporate SLF into their decarbonisation strategy may afford to pay a premium for SLF and embrace the 'greener' reputation it offers. However, smaller farms may struggle to absorb these additional costs. If sustainable fuels become compulsory, agricultural producers may resist an imposed premium.

Q13 Are the existing mandates supporting uptake of sustainable liquid fuels? If so, how can they be improved? If not, what should change?

Liquid Fuel Supply Act 1984

The Liquid Fuel Supply Act 1984 needs to be amended to increase the supply of biobased fuels. Currently, the biofuel mandate requires four per cent of the total volume of unleaded petrol sales to be 'biobased' (i.e., ethanol) and 0.4 per cent of diesel fuel to be biobased. The current mandate offers insufficient incentives for wholesalers and retailers to promote SLF, leading to attempts to exploit 'opt out' loopholes. The exemption process for non-compliance is inadequate therefore hindering SLF uptake. A stricter mandate in Queensland could bolster local SLF production and feedstock farming, boosting supply and SLF adoption.

Potential legislative opportunities to improve this are:

- Requiring fuel wholesalers to also meet the biofuel mandate.
- Establish pathways for SLF producers to reach end users.
- Improving retailer and wholesaler compliance with Part 5A of the Act.

Fuel Security Act 2021

In transitioning from conventional fossil fuels to SLF, the Queensland and Australian government should commit to establishing a strategic SLF reserve which will improve Queensland's future SLF security. The Fuel Security Act 2021 provides a legislative framework for government to establish a national fuel reserve through an industry minimum stockholding obligation.

At present, entities engaged in specific activities, primarily those related to the refining or importing of certain fuels, may find themselves subject to the minimum stockholding obligation. This obligation mandates these entities to maintain a minimum inventory of diesel, jet fuel and refined petroleum products. The establishment of a consistent, domestic SLF stock baseline would instil confidence in SLF users. It would offer a safety net against potential supply disruptions, which in turn encourages investment in SLF infrastructure and production.

With a SLF reserve strategically distributed throughout various locations in Queensland, the advantage of reaching users more rapidly in the event of localised disruptions is achievable. A commitment to a SLF reserve not only ensures fuel security but would also stimulate economic growth within the SLF industry. By ensuring a steady supply of SLF, it would provide stability for SLF feedstock producers and suppliers, which can be critical during periods of market volatility or supply chain disruptions.

Q14 What other policy or regulatory options should be considered?

Liquid Fuel Emergency Act 1984

Modernising the Liquid Fuel Emergency Act 1984 is crucial to ensure that Queensland's farmers are protected during severe market disruptions. In the future, should a SLF supply crisis occur, the Australian or Queensland Government should requisition and ration SLF in accordance with an updated Act.

At present, the Act identifies several 'essential user' categories and grants the Australian Government the authority to allocate fuel to additional classes deemed necessary for preserving community health, safety, or welfare. While farmers, as food, fibre and now fuel feedstock providers, might be broadly covered by this definition, explicitly including farm businesses in the legislation would guarantee their access to SLF in the event of a supply crisis. Amendment to the Act, along with the state and territories associating Acts and Guidelines, should clearly define farm businesses as 'essential users,' recognising their vital role in maintaining the production of SLF feedstocks.

Waste Reduction and Recycling Act 2011

Critical for SLF (and anaerobic digestion) is economic viability, itself conditional on a regular supply of feedstocks. A review of the overly restrictive Waste Reduction and Recycling Act 2011 that controls the movement of on-farm waste is needed to support feedstock quality and quantity. Federal and State governments could work together to introduce more uniform waste levies to avoid perverse outcomes, whereby waste is sent to states with lower levies. This waste could otherwise be diverted from landfills into SLF production or anaerobic digestion if there was a financial incentive to encourage this behaviour.

Q15 How should the strategy interact with Australian Government commitments?

Australia has not had fuels incorporated in any national 'renewable' targets, which to date have been exclusively renewable electricity targets. Mandatory targets are essential for stimulating investment towards more sustainable liquid fuels. For SLF to obtain a market there will need to be a functioning market based on existing technology. Once the market has been established on the basis of the new parameters of carbon saving and sustainability, and there is predictable consumer demand, the private sector will be incentivised to invest in SLF innovation.

Q16 Do any of the following act as an enabler or a barrier to using sustainable liquid fuels in your industry/business?

Fuel Quality Standards Act 2000

At present, both ethanol and biodiesel are required to comply with the standards established under the Fuel Quality Standards Act 2000, which is administered by the Department of Environment and Energy. Any future domestic fuel quality standards need to align with international obligations and standards to facilitate potential market expansions and international collaborations.

Sustainability criteria/ greenhouse gas assessment

SLF and agricultural biomass producers must demonstrate that they meet the greenhouse gas benefit criterion, regardless of the type of feedstock used. The greenhouse gas savings required are at least 20% when compared to regular petrol or diesel. The government should explore options to assist or subsidise feedstock producers in carrying out their own greenhouse gas assessments or in obtaining sustainability criteria approval from DES. This endorsement would support that their production processes comply with established environmental standards.

Q17 What is needed for you to produce/ invest/ use sustainable liquid fuels in Queensland?

Jurisdictional policy considerations

Stable policies, unambiguous definitions, and clear underlying guidance and jurisdictional roadmaps are essential to promote SLF from energy crops or second-generation waste or biomass streams for the longer term.

Government assistance and incentives

Assuming that challenges related to purchase price and availability can be addressed, SLF emerges as a potentially viable and accessible option for Australian farming in the near future. However, the main barrier to the increased use of SLF is that it costs more to produce than conventional fossil fuel products. Limited subsidies/incentives are a major obstacle in adopting any alternative fuel. In order to promote investment into the production and uptake SLF, financial incentives and governmental support is necessary. These incentives should either be short-term and targeted at offsetting upfront capital costs for fuel introduction or fuel-use technology, or ongoing and focused solely on recognising significant and proven environmental benefits compared to conventional fossil fuels. The use and production of SLF requires financial incentives, including tax credits and subsidies on production and adoption, to make it feasible and competitive with the conventional fuels.

Reduction of biofuel excise

Considering that the combustion of SLF yields only a portion of the energy produced by conventional fossil fuels, it would appear that the current excise on SLF, from an energy content perspective, is higher than that of fossil fuels. For instance, if the taxation were based on energy content, the ethanol excise would be reduced to cents per litre. Therefore, ethanol has transitioned from enjoying a tax advantage over petrol to a tax disadvantage. A change to levy taxes on all liquid fuels based on their energy content would ensure tax neutrality. Changes to fuel excise might impact the industry's viability. Currently, SLF are taxed at a lower rate than other fuels, but this support is expected to decrease over the coming years as excise is tied to the Consumer Price Index.

Taxation

Private infrastructure costs, such as the construction of on-farm fuel storage infrastructure, must remain eligible for the expanded instant-asset write off. The strategy should consider introducing a new financial incentive for the construction of on-farm fuel storage infrastructure. Given that the fuel security of Australia is partly a function on the amount of fuel held privately and publicly within Australia's borders, Government incentives that encourage an increase in the quantity of privately stored fuel would initially improve the SLF security of Queensland.

Research funding

The government should allocate funds to the research and development of SLF and implement policies that reduce the risks related to start-ups that would otherwise discourage their establishment across the supply chain. Rather than imposing significant costs on farmers to sustain a currently uneconomical SLF industry that relies on existing, financially unsustainable technologies, it would be more practical to support research into advancements in both conventional and emerging technologies, with specific application for the context of Queensland conditions.

Q18 What can we learn from other Australian states or internationally about the future fuels transition?

United Kingdom

Amplification of Price Spikes – the introduction of inelastic demand into agricultural commodity markets through biofuels intensifies the amplitude of price spikes. This contributes to increased volatility in food prices, which poses significant challenges to food security.

Challenges of Regulatory Frameworks – current UK regulations, such as the Renewable Transport Fuel Obligation (RTFO), Renewable Energy Directive (RED), and Fuel Quality Directive (FQD), include standards to avoid the use of biofuels produced on recently deforested land or land of high biodiversity value. However, extending these standards to encompass biofuels produced on land recently used for food production or land of high arable value is likely to face opposition from farmers and biofuel companies.

Limitations of the RTFO – the current form of the RTFO, as an instrument to achieve the RED target, presents economic and sustainability challenges. Volumetric targets incentivise suppliers to minimise costs by supplying ethanol, thereby reducing the amount of energy supplied by biofuels, which contradicts the RED objective. Furthermore, the RTFO's sustainability criteria do not address indirect land-use change or food security, raising concerns about the environmental and social consequences of increased biofuel consumption beyond the UK. The inclusion of necessary safeguards at the EU level remains uncertain.

California (US) market credits

California has adopted market credits designed to stimulate the creation of a new, vibrant SLF industry. However, the duration these will be in place remains uncertain. It's a critical issue because such support measures often determine the rate of industry growth and the speed of transition from traditional fuels to more sustainable alternatives like biofuels.

Summary

Input costs are continuing to rise across the agricultural sector, which impacts the supply of food, fibre and foliage across the supply chain.

The transition to renewable energy presents both risks and opportunities for agriculture. Operating costs on farm are currently at risk of high energy costs (network expansion, accelerated renewable energy projects, etc) which will have a direct impact on irrigated food production in particular. Currently many agricultural businesses are heavily reliant on diesel, not just for farm machinery, but as an energy source, due to the continuing increase of energy prices and the limitations in regard to viable alternatives currently available. Energy is a major input cost on farm, due to a variety of factors, whether it is for climate control of intensive animal facilities for animal welfare, refrigeration of horticultural produce, cotton ginning or irrigation, energy forms a major cost component of the agricultural sector.

QFF advocates for a more sustainable system to remove the burden of high fuel and electricity costs on Queensland's food, fibre, and foliage producers. This includes supporting sound policy and proven technologies that advance improved energy productivity, farm-scale renewable energy systems as part of integrated regional energy supply and solutions for improving the utilisation of existing machinery throughout the transition to SLF.

Maintaining a sustainable and profitable agriculture sector is essential to the Australian economy. The longevity and prosperity of farmers and the environment into the future. It is necessary for both the federal and state governments to provide clarity around emissions reductions targets and support to achieve them to ensure the state's agriculture sector remains competitive in the global market.

A sound planning framework is required to ensure appropriate protection of agricultural producing land and the enablement of coexistence opportunities that allows for the continuation of agricultural production to ensure a sustainable future for food, fibre and foliage production, as well to open up realistic opportunities in relation to sustainable fuel options.

If you have any queries about this submission, please do not hesitate to contact Ms Sharon McIntosh at sharon@qff.org.au.

Yours sincerely

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