

Southern Oil Refining (SOR) supports mandating bio based fuels as part of the Queensland's energy mix. We believe the proposed biofuel mandate for Queensland is a smart idea to further promote biofuel and bio manufacturing industry in Queensland and moving towards a clean energy economy. However, SOR would like to see the mandate extended to specifically include advanced biofuels ('renewable' fuels), not just biodiesel and bioethanol from conventional feedstocks and conventional processes.

Advanced biofuels are the next generation of 'green' fuels. They are made from alternative (non-conventional) and sustainable bio-based feedstock sources (agricultural, forestry, algae, municipal and consumer waste). Hydrotreating is a proven process for converting bio based oils into 'renewable' bio-based fuels (e.g. renewable diesel or renewable jet).

Advanced biofuels offer many advantages over conventional biofuels and is seen as the way of the future:

1. Their feedstocks do not compete with the food market (as often do biofuels based on conventional feedstocks)
2. The fuels do not incur the same weight to power problems or disadvantages as conventional biofuel products
3. Hydrotreating is proven technology which produces 'drop in' fuels chemically and physically compatible with fossil fuels

4. As a drop in fuel, renewable diesel/jet can be blended with fossil fuels or consumed unblended
5. Renewable 'drop in' fuels are significantly cleaner burning than the corresponding conventional fossil fuel
6. SOR's hydrotreating facility has the ability to supply bio-based special military fuels for the Australian (and we believe, the USA) Navy
7. The chemical by-products from the refining process of bio-based feedstocks have similar properties to by-products from conventional fossil fuel refineries.

The inclusion of 'renewable' biofuels as part of the mandate will stimulate investment in building advanced biofuel refineries which will produce benefits for Queensland as outlined in the outbluebox, Deloitte Access Economics 2014 report '*Economic impact of a future tropical bio refinery industry in Queensland*'.

SOR has already established a small hydrotreating plant (capacity about 7 Megalitres per annum) at Wagga Wagga (NSW) that can produce drop-in fuels from bio-based feedstocks. Once the development and commercial pathway has been proven, SOR plans to construct a large scale plant. One of the options for the location of this plant would be at its Gladstone, Queensland, 'waste lube oil upgrading' plant (owned and operated by SOR's subsidiary - Northern Oil Refinery(NOR)).

The biggest investment risks in the construction of advanced biofuels plants of the kind SOR is considering, are breaking into an established market where market share is very concentrated, competing with existing suppliers and blenders at the wholesale point, and educating consumers of the advantages of renewable fuels.

SOR is confident that having a mandate specifically including advanced biofuels will strengthen investor confidence. It will also mean any investment in biorefining capacity is most likely to be made in Queensland.

We recommend a 'best practice' policy which proposes incorporating in the mandate a separate category for advanced (renewable) biofuels. This can be implemented by specifying the mandate to include 'renewable diesel' or 'renewable jet'. Including and subsequently quantifying the volume of 'renewable' bio-based fuels now will make it easier for Queensland to introduce a target percentage when the industry comes online. Furthermore, should the Queensland government include renewable fuels as part of its biofuel mandate, then we believe that investors will perceive lower risk backing projects like the planned NOR expansion in Gladstone.

In summary, the Queensland Government's biofuel mandate is a smart idea. However, to 'future proof' and offer the 'advanced biofuel industry' sustainability, the mandate should include an advanced 'renewable' biofuels category.

About the Author:

Southern Oil Refining (SOR) is Australia's largest niche oil refiner and the largest producer of re-refined lubricating oils. It is a private, 100% Australian owned company, based in Wagga Wagga, NSW, which has been re-refining waste lube oil since 2001. SOR owns and operates two used-lubricating oil refineries in Gladstone, QLD and Wagga Wagga, NSW.

SOR re-refines waste lube oil for reuse as lube oil – the best and highest use of a 'cradle-to-cradle' solution. The process does not produce any waste and reduces the need for oil imports. The product has a significantly smaller carbon footprint than crude base oils. If all of Australia's collected waste oil was re-refined instead of burned, greenhouse gas emissions would be reduced by about 1 million tonnes per year.

SOR has been developing its refining technology and know-how towards the production of advanced biofuels. It has partnered with a number of potential advanced bio-crude suppliers, researchers and end users and has constructed a number of pilot scale unit operations with the view of building a large scale fuel refinery to produce 'renewable' and niche quality fuels.