

Adrian Suharto  
Head of Stakeholder Engagement  
Neste Singapore Pte Ltd  
250 North Bridge Road 17-01  
Singapore 179101  
Ph: +65 6223 1222  
DID: +65 6820 0229  
adrian.suharto@neste.com

New Zealand Productivity Commission  
by submission to [www.productivity.govt.nz](http://www.productivity.govt.nz)

03.11.2017

## **Submission to how New Zealand can transition to a low emission economy**

Dear ladies and gentlemen,

I herewith kindly ask you to consider the below information when planning New Zealand's transition to a Low Emission Economy. In this submission we will be addressing:

1. Neste Renewable Diesel uses sustainable raw materials
2. The benefits of Neste Renewable Diesel in improving air quality and reducing local emissions
3. Trials and Use of our Renewable Diesel Globally meets various standards and useable in different industries
4. Neste Aviation fuels reduces emissions and fits in the goals set by the local industries and governments in New Zealand

### **Introduction to Neste and our renewable fuels production**

Neste is the largest producer of renewable diesel (HVO) and the largest producer of biofuels from waste and residue material. In addition to the significant carbon emission reductions of up to 90%, our renewable diesel is a high performance fuel that reduces traffic-related local emissions and improves local air quality, especially in urban areas.

Neste is able to use a big variety of waste & residues as well as vegetable oil in the production of renewable diesel. In recent years, we have not only expanded our raw material portfolio but also significantly increased the share of waste and residues in our total renewable raw material usage. Already nearly 80% of our raw material usage is waste and

residues formed in industrial processes, such as waste animal fat (tallow) or fatty acid distillates, which are vegetable oil processing residues.

All our raw materials are traceable to the point of origin and comply with our sustainability policies and principles (<https://www.neste.com/en/corporate-info/sustainability/sustainable-supply-chain/raw-material-sourcing>). The greenhouse gas emission (GHG) reduction potential of all of our renewable products are measured for the entire lifecycle of the product. (<https://www.neste.com/na/en/about-neste/sustainability/cleaner-solutions/products-carbon-footprint>).

### **Advantages of Neste Renewable Diesel**

Local emissions can be reduced also by investing in new vehicles, for example with electric engines or the most modern diesel engines. The service life of heavy duty vehicles and machinery is however long. Measures which can help improve the environmental performance of existing vehicles can therefore play an important role in improving air quality immediately while at the same time providing a viable option especially for small and medium sized enterprises that are likely to struggle with the burden of having to switch all vehicles to cleaner burning engines way before their end of life.

A switch to Renewable diesel can happen overnight with no infrastructure investments or engine modifications required. Renewable diesel could thus play a very effective role in improving air quality in the short to medium-term and would not have the limitations of blending compared to the traditional biodiesel.

Already prior to the commercial success of Renewable diesel, its benefits in reducing local emissions have been demonstrated in several tests, studies and long-term fleet trials. These scientific studies and field trials<sup>1</sup> with 100% pure renewable diesel have shown that paraffinic fuels offer the following air quality benefits:

- 33% lower levels of fine particulates (and a smaller number of particulates in general)
- 9% less nitrogen oxides (NOx)
- 30% less hydrocarbons (HC)

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<sup>1</sup> These average emission reduction figures are derived from studies on our renewable diesel and other HVO fuels when 100% Neste Renewable Diesel has been used as the fuel. Vehicle emissions have been compared to those of conventional sulfur-free diesel. Findings are published in over 40 scientific publications.

- 24% lower carbon monoxide (CO) emissions  
reduced levels of polyaromatic hydrocarbons (PAH)

### **Trials using our Renewable Diesel**

The most extensive study and field trial is the so-called Optibio study. The study was spearheaded by the Helsinki Regional Transport Authority (HRT) with its partners, including the Helsinki Metropolitan Area, carrying out a three-and-a-half year fleet test involving some 300 buses from four bus operators.

Paraffinic diesel fuels are already available in commercial scale globally today. Neste currently produces 2.6 million tons of renewable diesel (HVO). Global HVO production is estimated to be in between 3.5 and 4 million tons.

By today a widening list of vehicle engine manufacturers (i.e. Daimler, MAN, Scania, Volvo, IVECO, PSA, Caterpillar and many more), especially in the heavy duty segment, have issued approvals for the neat use of paraffinic diesel fuels such as Renewable diesel. The fuel also meets as such the US diesel fuel standard.

Especially in California and other parts of the US neat paraffinic diesel is already used widely for several years. Today the same is also true for European countries such as Sweden, Norway, the Netherlands, Germany and the UK.

In addition to the transport sector, paraffinic fuels should also be considered as a great opportunity for other sectors, i.e. to support emission reductions for construction machinery and power generation.

### **Neste Renewable Aviation fuels**

Aviation is the fastest growing means of global transport and thus emissions will grow substantially. The International Civil Aviation Organization (A U.N. body) has set a target that from 2020 onwards the growth in aviation will be carbon-neutral. Currently, the only viable alternative to displace fossil liquid fuels for powering commercial aircraft is sustainable renewable jet fuel, which is one the most efficient means of decreasing greenhouse gas emissions. It can be adopted immediately as a drop-in fuel product without the need for additional investments in new fuel distribution infrastructure.

The International aviation community is committed to working in partnership where appropriate with governments, other industries and representatives of civil society on credible and feasible actions in response to global climate change concerns and other socioeconomic challenges.

Neste encourages Governments, regions, cities and municipalities partnering with private industry to provide opportunities to embed sustainable principles at the heart of decision-making, and to make sure that all stakeholders benefit from efforts to decarbonize aviation. While much of aviation's carbon footprint is linked to flights, there also remains great scope to reduce emissions through other measures. These could include, for instance, offering renewable fuel for ground transport and bioplastic applications for aircraft.

One example of public-private collaboration where Government has taken the initiative can be seen in the partnership between the Cantonal (Regional) Geneva Government-owned Genève Aéroport and Neste to offer sustainable aviation solutions. The Swiss gateway is planning to introduce renewable jet fuel supply for aircraft operating from Geneva International Airport. The initial target involves setting at least 1% of the annual jet fuel consumption at Genève Aéroport to be composed of renewable jet fuel, starting in late 2018.

Other examples of state owned enterprises taking action to mitigate their GHG emission related business activities are developments led by airports like Hamburg and Stuttgart in Germany and Helsinki in Finland where Neste MY Renewable Products have already been selected and introduced for use in ground transport as a means to reduce CO2 emissions.

We have also recently entered into formal discussions with Air New Zealand to co-develop a solution whereby Neste can support Air NZ's ambitions to decarbonise their aviation operations through the use of our Renewable Jet Fuel at key hub airports in New Zealand and other International airport locations.

Neste's sustainable and renewable solution for aviation has been tested in many flights. Lufthansa used our renewable jet fuel on a total of 1,187 flights between Frankfurt and Hamburg in 2011. The key conclusion of the extensive tests carried out during the trial is that the aircraft and their engines performed excellently. The condition of the combustion chambers, turbines, and fuel systems of their engines was exemplary both during and at the conclusion of the trial. No signs of damage or corrosion were detected in the aircrafts' fuel tanks, and longer-term storage was not shown to have any negative impact on fuel quality.

Whilst we recognize and support the aviation industry's need to drive further efficiency gains through technological solutions and operational efficiencies, we as a community also have an opportunity to deliver significant environmental and social benefits as we seek to lower the carbon intensity of our fuels overall by supporting the development, certification, and commercial use of lower carbon renewable fuels, derived from environmentally and socially sustainable sources.

However, in our experience of developing markets for renewable diesel in California and Europe it has been made abundantly clear that in the absence of Government support - i.e. financial and regulatory, the challenges to these market developments would have been too great to overcome, resulting in a lost opportunity to begin the effort required to decarbonise those societies and economies.

Now, the effort to develop markets for renewable jet fuel must be matched with similar regulatory support otherwise progressive decarbonising initiatives such as the example at Geneva Airport would not happen.

For our industry to have any realistic prospect of developing significant volumes of sustainable aviation fuel supply, some form of regulatory support to level the playing field with fossil fuel products is required.

We understand that this short submission paper may not address all the questions which the commission inserted into the 'issues paper'. Neste would welcome to engage in a dialogue and we are happy to provide further details on how we can support the transition of New Zealand to a low emission economy.

Sincerely

Adrian Suharto  
Head, Stakeholder Engagement

About Neste:

Neste (NESTE, Nasdaq Helsinki) builds sustainable options for the needs of transport, businesses and consumers. Our global range of products and services allows customers to lower their carbon footprint by combining high-quality and low-emission renewable products and oil products to tailor-made service solutions. We

are the world's largest producer of renewable diesel refined from waste and residues, and we are also bringing renewable solutions to the aviation and plastics industries. We want to be a reliable partner whose expertise, research and sustainable practices are widely appreciated. In 2015, Neste's net sales stood at EUR 11 billion, and we were on the Global 100 list of the 100 most sustainable companies in the world.