

FUELS THAT GROW ON TREES: BIODIESEL ADVANTAGE

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Abstract

This paper discusses about Biodiesel which can be used as 100% pure or blended with diesel fuel up to 20%. The Global biofuel demand is growing at a 5-10 percent per annum. International Government policy towards emission reduction has created a guaranteed demand for Biodiesel. By blending only a small per cent of biodiesel with fossil fuel such as coconut methyl ester, emissions are reduced, the sulphur content of the fossil fuel lessened. The paper suggests to allocate a minimum of 5% of its total coconut production for biodiesel production and promote the widespread utilization of biodiesel for the power and transport sectors.

1. Introduction

Environmental abuse has led to global warming and climate change through the emission of greenhouse gases (ghg), particulates, sulphur and toxins. World response has been to introduce the United Nations Framework Convention on Climate Change (UNFCCC), Earth Summit, 1992 and the introduction of the Kyoto Protocol in 1997. The resulting robust International Government Policy towards emission reductions has created a guaranteed demand for biodiesel.

2. Biodiesel

Biodiesel is a renewable and biodegradable fuel produced from plant oils. It is a natural hydrocarbon with negligible sulphur content which can substantially reduced emission from any diesel-fed engines. In its simple term, it may be defined as a chemically modified vegetable oil which exhibits properties that is very similar to diesel fuel.

It is normally produced by reacting the vegetable oil with alcohol (methanol or ethanol) in the presence of a suitable catalyst under a specified temperature and pressure. In chemical jargon, biodiesel is actually a methyl ester with the name of the specific vegetable oil used added to it e.g. coco methyl ester or rapeseed methylester etc. can be used as 100% pure or blended with diesel fuel up to 20%. It can also be used as a diesel fuel quality enhancer/additive ranging from 1-5%.

Advantages of biodiesel :

- Obtained from plants, a natural and renewable resource.
- Environment friendly and biodegradable.
- Smokeless and clean burning fuel without sulphur which is in consonance with the requirements of the UNFCC.
- Reduces toxic and cancer causing substances in the air like aromatic hydrocarbons which are inherent components of petroleum based fuels.

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- Reduces greenhouse gases as the CO₂ generated is absorbed by the plants as plants synthesize the components of biodiesel.

3. Coco biodiesel

In the coconut producing countries of the Asia Pacific biodiesel has traditionally been made using coconut oil as feedstock as coconuts are the most abundant renewable resource. However, there is no widespread production of coco biodiesel due to high production costs and the resulting loss of income from coconut sales and exports.

4. D1 Mission statement

D1 mission statement is to be the leading global producer and supplier of premium biodiesel, enabling and empowering partners and communities to share in the success of a cleaner environment through D1 growing green energy solutions.

5. D1 Strategy

Short term :

Provide finance, training and license for the D1BioDiesel refineries for regional projects in Africa, India and Philippines underwritten by guaranteed off-take and feedstock supply agreements.

Mid term :

Expand regional non edible feedstock supply channels through farm cooperatives in order to increase production of D1BioDiesel.

Long term :

Introduce Desert Reclamation and RE-forestation programs for long term direct supply, production and distribution of D1BioDiesel to the world market.

6. D1Regional Projects: Asia Pacific

The Philippine government issued Memorandum Circular 55 (February 2004) directing all government agencies to include coconut methyl ester into their diesel fuel requirements. China and Japan have financed feasibility studies on the benefits of biodiesel to satisfy their demands for pollution reduction.

A Memorandum of Agreement has been signed with the Philippine Coconut Authority for the requirements of a pilot program and the funding of a feasibility study for the expansion of the project. In Mindanao negotiations are taking place to establish land cultivation and intercropping programs with existing farmers, with a target of generating 3 billion litres of D1 BioDiesel per annum within the next 5 years. The program has received approval for funding under a Debt Swap Agreement with the Brunei Investment Agency.

7. Markets and trends

- The global bio fuel demand is growing at a 5-10 per cent per annum based on recent data.

- If the city of Tokyo, which is committed to reducing pollution, mandated a 10 per cent blend of biodiesel, an opportunity to supply 3.6 billion litres of biodiesel would exist.
- Finance is currently the biggest user yet currently manages between 3-5 per cent blend due to shortages of feedstock.
- Germany uses blends of B20 up to B100 with approximately 800 service stations selling bio diesel. These stations run out of fuel by 11 am as a result of consumer demand for green fuels.
- As a result, Europe refines biodiesel primarily from rapeseed oil and America from soy bean oil on subsidized systems.
- By blending only a small per cent of bio diesel with fossil fuel methyl ester, emissions are reduced, the sulphur content of the fossil fuel lessened.
- The growing of the oil for biodiesel production absorbs carbon dioxide and its use reduces emission by more than 80 per cent.
- Per research of the Nihon University and the Tokyo Metropolitan Research Institute, coco diesel has been regarded as a superior bio diesel due to its lubricity, solvency and detergency qualities;
- Coco diesel has also been regarded as a superior additive when blended with non edible oils such as jatropa and moringa oils.

8. Strategic Alliance

- The exceptional qualities of the coconut oil and the superior technology of D1 Oil in blending and refining bio tremendous market advantage in the industrialization of the coconut industry.
- Using the D1 refining technology, CME can be mass produced and supplied as a B5 bio diesel blend using various blends to meet specific market conditions.

9. Socio-Economic Impact

- Poverty alleviation.
- Widespread community development.
- Entrepreneurship at grassroot level.
- Agro industrialization from by products such as charcoal, bio mass, organic fertilizer, glycerol, animal feeds.
- Environmental enhancement such as erosion control, soil enrichment, among others.
- 15 mw power stations can be produced between 2,000 to 5,000 hectares thus generating cheap electricity for rural development.
- The program will provide widespread productive labor through skills transfer and capacity building programs to promote alternative energies at local communities' level.

10. What makes the D1 Growing Energy Solution sustainable and economic?

- Trees are planted once only and produce seeds for up to 30 years.
- They are inexpensive to maintain and easy to harvest. Additional industry developed from the by pro, animal feed and glycerol).
- Massive job creation and expansion for rural communities and farm cooperatives.
- Reclamation of non productive desert and marginalized land.
- Treated waste water is used for irrigation.
- Positive environmental impact from carbon reduction and carbon sequestration.

- Reduction on the dependency of fossil fuel imports.
- Generation of foreign currency for developing countries through exports.
- Non-edible vegetable oil is the most energy positive fuel to produce, requiring only agro forestry input, seed processing and D1 technology.

11. APCC resolution

Let it be resolved that member countries of APCC shall :

- Support all initiatives to reduce the global greenhouse gases emissions
- Promote the widespread utilization of biodiesel for the power and transport sectors
- Allocate a minimum of 5% of its total coconut production for biodiesel production
- Adopt the technology to cultivate, propagate and process indigenous oil bearing crops as supplementary feed stocks for biodiesel production to reduce lot projects in island economies such as in the pacific communities