2016 Renewable Diesel (R99) Conversion

Fact Sheet

Executive Summary

The District's Board of Commissioners were briefed in early August about staff consideration of conversion to Renewable Diesel in place of standard petroleum diesel and/or biodiesel in order to meet or exceed State requirements for use of biofuels in the PUD's fleet. Renewable Diesel, made from vegetable oil and animal fats, has been successfully tested in District diesel trucks since March, 2016. Sustainability concerns have been raised regarding production of Renewable Diesel from palm oil due to a history of deforestation of rain forests in SE Asia by growers planting more palm for feedstock. We have learned that Neste, the primary worldwide producer, and supplier of the Renewable Diesel purchased by the District, has taken several very proactive and concrete actions in their supply chain (described below) since 2013 to ensure that their raw materials will not lead, either directly or indirectly, to the loss of valuable forests or other lands with high biodiversity. As a result, we are now confident that District procurement and use of Renewable Diesel, sourced from Neste, will not contribute to net harmful global environmental impacts, and will provide significant local environmental benefits from reduced Greenhouse Gas (GHG) emissions.

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Why consider use of Renewable Diesel?

- Washington State has mandated a minimum 20% biofuel mix for all vehicles (with some exceptions) for all municipalities by June 1, 2018. The PUD is considering a conversion to Renewable Diesel to be ahead of the mandate.
- Washington has not yet adopted a clean fuel standard (CFS), but Oregon and California have. However, the Governor's office commissioned a study in 2014 to explore the value of adopting a CFS in meeting greenhouse gas emission goals.
- The standards require fuel providers to reduce the carbon intensity of their products over time. They require fuel suppliers to analyze and reduce the lifecycle emissions of the fuels they sell, including accounting for emissions associated with the extraction, refining, transport, and combustion of their fuels.
- Chelan PUD is evaluating Renewable Diesel as an option to biodiesel for use in its diesel equipment in order to meet State mandates for use of biofuels by June 1, 2018.
- The PUD has a total of approximately 310 on-road vehicles and many other vessels and power operated construction equipment assets, which are subject to the mandate.
- Chelan PUD began testing Renewable Diesel fuel in March, 2016.
  - Approximately 40 vehicles were used to test Renewable Diesel for a period of seven months.
  - To date, a total of 33,000 gallons have been purchased for the test from local supplier Coleman Oil. Testing will continue through December.

What is Renewable Diesel and what are the environmental concerns related to production of it?

- Renewable Diesel fuel is made from vegetable oil and animal fats. Common feedstocks include soybean, palm, and canola oils as well as waste fish/animal fats and other waste oils. Palm oil is commonly used in the production of Renewable Diesel produced in tropical and subtropical regions such as Malaysia and Indonesia.
- The Renewable Diesel we purchase is transported by ship into Portland, Oregon, then trucked from Portland to Wenatchee.
- There are sustainability concerns surrounding Renewable Diesel produced from palm oil due to a history of contributing to tropical deforestation in SE Asia where much of the palm feedstock is grown.
- It is important to note that the use of palm oil itself is not the problem, the problem is the use of palm oil sourced from suppliers that don't use sustainable practices, including the deforestation of rain forests to plant palm plants.
- In all, 1.2 billion gallons of Renewable Diesel were produced globally in 2015; only about 170 million of that total was produced in the U.S.
- A total of 204 million gallons of Renewable Diesel was imported into the U.S. in 2015.

Who is using Renewable Diesel and how are environmental concerns being addressed?

- Approximately 374 million gallons of Renewable Diesel were used in the U.S. in 2015. About 170 million gallons was produced in the U.S. that was not from palm oil.
- A number of cities, jurisdictions and large companies are using Renewable Diesel today, including but not limited to:
  - California State Agencies (estimated quantities of 7.3 million gallons in 2016)
  - City of Oakland, CA (approx. 250,000 gallons/year)
  - City of San Francisco, CA (5.8 million gallons annually)
  - EWEB (100,000 gallons/year)
  - Various public agencies across Oregon (4 million gallons/year)
  - United Parcel Service (46 million gallons 2016-2018)
- Neste Company, the primary worldwide supplier of Renewable Diesel and the supplier of the District's Renewable Diesel, sponsored a study of the energy and greenhouse gas balance (life cycle assessment) of 100% Renewable Diesel. The assessment was conducted in accordance with the ISO 14040-43 standard for life-cycle assessment as a basis for environmental declarations and carbon footprints. The study determined that the Neste R100 Renewable Diesel product, produced from either canola or palm oil, saves substantial primary energy and greenhouse gas emissions over the entire life-cycle when compared to conventional petroleum diesel fuel.
- Neste adopted "No-Deforestation and Responsible Sourcing Guidelines" in April 2013. The general purpose of the guidelines are to ensure that Neste's raw materials will not lead, either directly or indirectly, to loss of valuable forests. Specifically, the guidelines provide the following environmental benefits or requirements:
  - All Neste feedstock sourcing will follow the requirements of the European Union Renewable Energy Directive (established in 2009) which precludes the use of raw material used to produce biofuels being obtained from land with high biodiversity after January 2008, including primary forests, nature preserves, threatened or endangered ecosystems, grasslands, wetlands, or peatlands as defined in the Directive.
  - Neste will only purchase biofuel feedstock that, among other things, are:
    - » Fully traceable back to the point of origin
    - » Are produced in compliance with all applicable laws and regulations
    - » Protect high carbon stock forest areas
    - » Protect and properly manage peatlands
  - Neste will provide preference to suppliers who actively implement similar no-deforestation principles in their operations, will support their suppliers in meeting their guidelines, and, will reconsider use of suppliers unwilling to comply with the guidelines.
  - Neste's guidelines established legally binding requirements for renewable raw material supply that prohibit the use of raw material obtained from land that was either a primary forest or wooded land, a protected area, a wetland, or a peatland in or after January 2008.

The above guidelines established by Neste include regular stakeholder engagement and ongoing supplier reviews and audits to ensure implementation and compliance with the guidelines.

- In 2013, Neste engaged in formal cooperation with The Forest Trust (TFT) which specializes in prevention of deforestation of tropical rainforests, which led to the initiation of field audits and workshops with palm oil suppliers on sustainable operating methods.
- By the end of 2015, all of Neste's largest suppliers had committed to no-deforestation principles in their procurement from third parties.
- Neste now requires all of its palm oil suppliers to be members of the Roundtable on Sustainable Palm Oil, which requires them to commit to respecting human rights and protecting forest areas.
- Neste was rated by Clean Knights, a publication on "clean capitalism" at 39th on their top 100 most sustainable companies in the world for 2016.

What are the benefits of use of Renewable Diesel for Chelan PUD/ Chelan County?

- Full conversion to 100% Renewable Diesel, for all District diesel powered equipment would require about 113,000 gallons annually and would reduce District fleet carbon emissions by about 2.3 million pounds (1150 tons). B20 - a blend of 20% standard biodiesel and 80% petroleum diesel (the other viable alternative to Renewable Diesel), doesn't run as well in fleet vehicles and some engine manufacturers will not allow a B20 blend under warranty restrictions. By comparison, Renewable Diesel is a "drop in" replacement for petroleum diesel that can be run as a 100% replacement, or mixed at any percentage desired with no operational impacts.
- A mix of at least 20% Renewable Diesel along with the 80% petroleum diesel would put the District in compliance with State biofuel mandates for all diesel equipment ahead of schedule, while still providing the environmental benefits of significant emissions reductions.
- Other entities in Wenatchee who use the District's fueling facilities (Fire District 1 & 3 and the City of Wenatchee) have been kept up to date with the Districts efforts and are prepared to convert to Renewable Diesel.

Other sourcing and cost considerations

- U.S. production is lagging, but increasing demand may spur more production domestically from non-palm feedstocks.
- Currently the additional cost of imported Renewable Diesel (compared to regular diesel fuel or 20% biodiesel) to the District would be between $22K and $62K annually due to increased transportation costs.

Staff recommendation for next steps

1. Our local fuel supplier, Coleman Oil has been able to secure sourcing of Renewable Diesel out of Portland, OR which they have verified is produced by Neste Company.
2. Given the strong, proactive actions that Neste has taken over the last couple of years to ensure that their raw material supply chain will not lead directly or indirectly to loss of valuable forests or other sensitive or endangered ecosystems, we are now confident that our procurement and use of Renewable Diesel will not contribute to negative global environmental concerns.
3. We propose an immediate transition to a 50% blend of Renewable Diesel. Going to a 50% blend now will still provide tremendous local environmental benefits of reducing our GHG emissions, while minimizing the cost impacts of the higher transportation costs to import the fuel to Wenatchee.

As (and if) domestic production increases and/or costs for Renewable Diesel comes more in line with petroleum and biodiesel products, we would likely transition to 100% Renewable Diesel usage. In the event that domestic production does not increase and/or costs continue to increase, we can fall back to a 20% Renewable mix and still meet State biofuel mandates.