



DATE: July 8, 2019

TO: Council Sustainability Committee

FROM: Director of Public Works

SUBJECT: Report on Implementation of Renewable Diesel at All City Vehicle Fueling Stations

RECOMMENDATION

That the Committee reviews and comments on this informational report.

SUMMARY

Renewable diesel is an alternative diesel fuel made from vegetable oils and animal fats which produces significantly fewer emissions than petroleum diesel. The fuel has been proven viable in diesel vehicle fleet applications and is also associated with improved engine performance when compared to other diesel fuels. When staff originally brought renewable diesel to the Committee's attention in January 2019, the Committee instructed staff to work with the Fleet Division to determine whether this fuel could be used in City fleet applications. Staff learned that Fleet staff were already aware of the fuel and were implementing a 90-day trial to test its use in certain City vehicles. The trial period, which ended in early May, confirmed that renewable diesel is a reliable replacement for petroleum diesel in the City's vehicle fleet. As a result, staff are currently in the process of implementing the use of renewable diesel at all of the City's fueling stations.

BACKGROUND

At the March 11, 2019 Council Sustainability Committee meeting, staff presented a report¹ regarding the renewable diesel trial period that was at that time one month into implementation. As mentioned in previous reports to the Committee, renewable diesel has been proven in vehicle applications as a reliable alternative to petroleum diesel and is currently being utilized in the fleets of other municipalities, including the Cities of San Francisco, Oakland, and San Leandro. Additionally, the carbon intensity of renewable diesel can be up to 80% lower than ultra-low sulfur diesel, which is the standard petroleum diesel option currently available on the market. Renewable diesel is different from biodiesel, which is less refined and can decrease engine performance. In recognition of the environmental benefits associated with replacing petroleum diesel with renewable diesel, the Committee

¹ <https://hayward.legistar.com/LegislationDetail.aspx?ID=3880922&GUID=BB4F1F0C-AA85-44EB-8FEE-5F9CDB101E1F&Options=&Search=>

fully supported this effort and requested that staff return after the conclusion of the Fleet Division's renewable diesel trial period to share its results.

DISCUSSION

The renewable diesel trial period ran 90 days, from February 4, 2019 to May 4, 2019. It occurred at Fire Station 1, which is the primary fueling site for seven City vehicles: three fire engines, two ladder trucks, and two other vehicles. Upon conclusion of the trial period in early May, as anticipated, there was no discernable difference in mileage or performance reported by the drivers of the vehicles. Long term, however, staff does anticipate an increase in vehicle performance due to the fact that renewable diesel burns more completely than other diesel types during the combustion process, resulting in reduced particulate emissions. Reduced particulate emissions leads to reduced particulate buildup within the engines, fewer clogs, and improved engine performance.

With no issues identified during the trial period, Fleet staff are now working to fully adopt the use of renewable diesel at all ten of the City's fueling stations. Two of these fueling stations will not immediately begin utilizing renewable diesel because they are temporarily not in use. However, once they are serving vehicles again, these two stations will also be utilizing renewable diesel.

Renewable diesel is a "drop-in" fuel, meaning that it matches the chemical composition of petroleum diesel, and can therefore be mixed with petroleum diesel, as well as dropped into a diesel engine without requiring any modifications. As a result, the transition is anticipated to be seamless. It is important to note that Fleet staff will simply be topping off the City's fueling tanks with renewable diesel moving forward, so there will continue to be varying quantities of petroleum diesel within the tanks until the renewable diesel has been added for an extended period of time.

With all of the City's fueling stations soon to be utilizing renewable diesel, all of the City's approximately 108 diesel-powered vehicles² will also soon be utilizing renewable diesel when they fill up at one of these stations. However, as mentioned in the March 11 report to the Committee, many of the City's diesel vehicles do not solely rely on fuel provided by the City's fueling stations – some also fuel up at commercially operated stations, which only offer petroleum-based diesel at this time. For this reason, some City vehicles will be operating on 100% renewable diesel 100% of the time, but some will not until commercial fueling stations offer this product.

Renewable Diesel in Emergency Backup Generators

Given the emission reductions associated with using renewable diesel over petroleum diesel, Utilities staff also plan to begin experimenting with its use in emergency backup generators. Staff will keep the Committee apprised of the specific plans for and results of these experimentations. Staff's previously reported concern about using renewable diesel in

² The City's diesel fleet is comprised primarily of Fire Department vehicles, Water Pollution Control Facility vehicles, Landscape vehicles, and Street Maintenance vehicles.

emergency generator applications stems from its potential biodegradability after extended periods of time. Diesel for emergency backup generators can sit in underground storage tanks for decades, so long-term fuel reliability is critical. Staff recently learned that the City of Oakland is currently using renewable diesel in its standby generator applications. Oakland staff have thus far experienced no issues with its use in this application but have also only been using it for a short time. Staff are aware of no other municipalities using renewable diesel for emergency backup generators but will continue to research the feasibility and reliability of its use for this critical application.

ECONOMIC IMPACT

The use of renewable diesel in City vehicles will not impact the local economy.

FISCAL IMPACT

Full adoption of renewable diesel at all City fueling stations is estimated to raise annual bulk diesel spending from approximately \$213,300 to approximately \$220,700. Fleet staff anticipate that this \$7,400 or 3.5% increase in fuel costs will be made up quickly in maintenance savings, as renewable diesel burns more completely than other diesel types during the combustion process, resulting in reduced particulate emissions. Reduced particulate emissions leads to reduced particulate buildup within the engines, fewer clogs, and improved engine performance.

STRATEGIC INITIATIVES

This agenda item is an operational item and does not directly relate to one of Council's three Strategic Initiatives.

SUSTAINABILITY FEATURES

Utilizing renewable diesel to fuel the City's diesel-powered vehicles will reduce emissions and the overall carbon footprint of the City's vehicle fleet.

PUBLIC CONTACT

There is no public contact required for this item.

NEXT STEPS

Staff will continue to keep the Committee apprised of opportunities to use conventional diesel alternatives in various City applications.

Prepared by: Kait Byrne, Management Analyst
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Recommended by: Alex Ameri, Director of Public Works
Todd Rullman, Director of Maintenance Services

Approved by:

A handwritten signature in black ink, appearing to read 'K. McAdoo', written in a cursive style.

Kelly McAdoo, City Manager