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Docket Number:	16-ALT-02
Project Title:	2017-2018 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program
TN #:	214393
Document Title:	Comments: WPGA, NREL & ROUSH for GHG/NOx rdxn via biopropane and ARFVTP
Description:	N/A
Filer:	System
Organization:	Western Propane Gas Association, National Renewable Energy Laboratory, and ROUSH CleanTech
Submitter Role:	Public
Submission Date:	11/7/2016 1:56:17 PM
Docketed Date:	11/7/2016

Comment Received From: Joy
Submitted On: 11/7/2016
Docket Number: 16-ALT-02

WPGA, NREL & ROUSH for GHG/NOx rdxn via biopropane and ARFVTP

Additional submitted attachment is included below.

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November 7, 2016

California Energy Commission
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SUBJECT: Letter of Comment on 2017-2018 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program

To Whom It May Concern:

Western Propane Gas Association in conjunction with the National Renewable Energy Laboratory and ROUSH CleanTech are pleased to submit this letter of comment regarding the proposed *2017-2018 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program* presented at the committee meeting on October 27th, 2016.

The Western Propane Gas Association (WPGA) is a trade and membership service organization that represents propane marketers throughout California. Founded in 1949, the association has grown in its influence while maintaining its core principles of education and safety. WPGA recognizes the important role we can play for our local communities and collectively with other stakeholders invested in a cleaner future. Our Association has set a course for the development of new and advanced technologies that aid in achieving the climate goals set forth by the State. One such advancement would be the commercial development of bio-propane in California. Importantly, this very-low carbon intensity fuel could potentially be coupled with advanced propane engines that are now achieving progressively lower NOx emissions. In fact as early as 2017, ROUSH CleanTech plans to certify a number of Class 4-7 propane autogas vehicles, which includes school buses, to the 0.05g/bhp-hr level of CARB's Optional Low-NOx Standard. ROUSH has been able to make this progress with no incremental cost added to the vehicles. ROUSH is now investigating the total emission profile of low-NOx propane engines using renewable (bio) propane.[1]

The National Renewable Energy Laboratory (NREL) is the only federal laboratory dedicated solely to research and development for renewable energy technologies. NREL also works closely with industry to advance the commercialization and deployment of renewable energy and energy efficiency technologies. NREL has been working with WPGA and other interested stakeholders to evaluate the technical and economic viability for bio-propane commercialization in California. The introduction of bio-propane, which is now being produced in the Netherlands, could dramatically reduce the carbon footprint associated with production of this important energy source. Bio-propane combusted in very low-NOx propane engines will provide an important additional option for California to achieve its aggressive goals to simultaneously reduce GHG and smog-precursor emissions from the State's prolific heavy-duty vehicle sector, which includes school buses for low income and/or rural areas. We trust that the ARFVTP will find the deployment of bio-propane fits within the scope of worthwhile investments to reduce GHG emissions in our State and request that the CEC broaden the scope of funding to include bio-propane. An investment today will help support future technology and engine investments expected as early as 2017 and beyond.

In summary, NREL, WPGA and ROUSH believe that it is clear that advanced autogas vehicles coupled with bio-propane can, and should, play an important role to help California transform its HDV transportation sector. Thank you once again for providing us with

the opportunity to review the CEC's proposed investment plan and provide comments. Our respective organizations are available to furnish any additional information on the matter.

Sincerely,

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[1] Presentation by Todd Mouw, ROUSH CleanTech, "Autogas & CNG," presented at Low-NOx Workshop, October 12, 2016 in Chicago.