West Coast Diesel Emissions Reduction Collaborative

PROPANE GENERATOR for CONSTRUCTION SITES

Working with leaders from government, the private sector, and environmental groups the West Coast Diesel Emissions Reduction Collaborative (Collaborative) brings attention to the need for additional funding for diesel emissions reduction on the West Coast and encourages voluntary and incentive based projects that reduce diesel emissions. The Collaborative is focused on projects that are regional in scope, leverage funds from a variety of sources, result in real measurable reductions/results, and create momentum for future diesel emissions reductions. This document describes an important potential diesel emissions reduction project in the Construction area :

PROPANE GENERATOR for CONSTRUCTION SITES.

Project at a Glance

- Cummins West, Inc. (CWI), in cooperation with the Sacramento Metropolitan Air Quality Management District (SMAQMD) and Auburn Wind Associates (representing the Western Propane Gas Association - WPGA) plan develop a propane powered generator for construction sites as an alternative to the ubiquitous use of diesel powered generators.
- This one unit will be a demonstration of the viability of using a propane generator (genset) rather than relying exclusively on diesel engines for this construction application.

Potential Emission Reductions from One Propane Genset versus a Comparable Diesel Genset

				Annual	Load	Emission Reductions (t/y)			
Year	Make	Model	HP	Hours	Factor	NOx	PM	VOC	CO
2003	Propane	Genset	120	1,000	70%	0.33	0.02	0.03	0.12

- Up to 1.65 tons of NOx and 0.1 tons of PM reduced over a five year useful life
- Significant VOC and CO reductions as well

Problem Statement

Nearly all construction sites have at least one large genset providing electrical power to construction site office trailers, light towers or other temporary electrical needs. Today, these generators are universally powered by diesel engines. While diesel engines are very efficient and reliable, they are also the source of significant NOx and PM emissions. Modern technology can make a similar sized propane-powered generator with very low NOx and essentially zero PM emissions.

Proposed Actions

The partners noted above intend to develop and make available for free “rental” one 52kw propane powered genset. This genset would be loaned out to construction companies in the Sacramento Federal ozone Non-attainment Area (SFNA) during the construction season of 2005 (approximately April – October).

The development of the genset is proposed to be funded by the SMAQMD under a contract to CWI. Under a separate contract, SMAQMD proposes to provide funding to Auburn Wind Associates to support some outreach and also the development of a final report on the mechanical success and industry acceptance of the propane genset.

While Auburn Wind Associates will be able to produce press releases and make presentations to professional associations, no funding has been provided for outreach materials or paid advertising in professional journals or publications that are used by the construction industry.
Developing professional outreach materials and making sure that professional advertisements are placed in industry publications is essential to achieving acceptance of this new approach to providing on-site power for the construction industry.

Project Timeline

Month(s)	Action
1/05	SMAQMD completes contracts with CWI and Autumn Wind Associates
1/05 – 3/05	Propane genset engineered and built by CWI
3/05	Contract with EPA for professional outreach materials
4/05	Propane genset placed in service in CWI equipment rental fleet in the SFNA
4/05 – 8/05	Autumn Wind Associates conducts outreach to construction industry ▪ Adds placed 5/05, 6/05, 7/05 and 8/05
5/05 – 10/05	Propane genset used by construction industry in the SFNA
12/05	Autumn Wind Associates completes final report on project

Anticipated Benefits

Gensets are used on nearly every construction site. Workers in the site are always in close proximity to these gensets and frequently construction of houses, apartments, commercial and retail facilities occurs in close proximity to individuals living or working nearby. Exposure of these individuals to toxic PM emissions could be dramatically reduced with this technology. Further, large parts of California's South Coast and Central Valley are non-attainment for ozone and these areas are also experiencing dramatic growth. Any technology that can reduce NOx emissions will help in these areas.

The SMAQMD has developed an aggressive strategy to require new construction to mitigate their emissions. However, the number of technologies that are available to help in this effort are minimal. The propane genset would be one very effective approach to help construction companies mitigate their emissions as required by the SMAQMD. However, large-scale use of propane gensets can only occur if the industry is well aware of the opportunity.

Estimated Costs

The funding to produce the propane genset and report on the industry acceptance and technical performance will be provided by the SMAQMD. However, funding is needed to make the industry aware of the availability of this solution to their mitigation requirements as follows:

Project Costs

Cost	Item
$5,000	Develop professional 4-color graphics for publication
$5,000	Manage placement of ads, distribution of flyers, deliver a minimum of 4 additional presentations to professional organizations
$12,000	Place four (4) advertisements in construction industry publications (average $3,000 per advertisement)
$22,000	**Total**

Collaborative Partners

As noted above there are three partners involved in the propane genset project, the Sacramento Metropolitan Air Quality Management District (SMAQMD), Cummins West, Inc. (CWI), and Autumn Wind Associates. Their roles are:

- SMAQMD is providing $40,000 to CWI for the engineering, development and construction of the propane powered genset;
- SMAQMD is proving $5,000 to Autumn Wind Assoicates to develop interim and final reports on the technical success and the acceptance of the propane genset by the construction industry, to create one press event featuring the propane genset and to make at least one presentation on the propane genset at a construction industry function.

While these three partners will be able to produce and loan out one propane genset, the ultimate success of this project requires the entire construction industry to be aware and interested in using this technology. Without sufficient outreach, this result is unlikely.

More Information on the Collaborative and Contacts

The West Coast Diesel Emissions Reduction Collaborative is made up of federal government agencies from the U.S., Canada and Mexico, and state and local governments and non-profit and private sector partners from California, Oregon, Washington, Alaska and British Columbia. The Collaborative's purpose is to bring attention to the need for additional funding for diesel emissions on the West Coast, support voluntary diesel emissions reductions, create a forum for information sharing among diesel emissions reductions advocates, and leverage significant new resources to expand voluntary diesel emissions reductions efforts.

The goal of the Collaborative is to leverage over $100 million in new federal funds for diesel emissions reductions projects per year for 5 years to reduce emissions from the most polluting diesel sources in the most impacted communities and significantly improve air quality and public health. By targeting the higher polluting engines with the most cost effective strategies, we estimate that the benefits of this investment will significantly outweigh the costs.

For more information on propane genset, contact:

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For more information on the Collaborative in general, go to www.epa.gov/air/westcoastdiesel or contact Peter Murchie, murchie.peter@epa.gov or Michelle Roos, roos.michelle@epa.gov.