Technical Bulletin - 05.12.2007

Subject: Biogas or Biomethane Fuel Use

An alternative energy source for greenhouse gas reduction is to sequester greenhouse gases from renewable waste sources (biogas), purify these gases to produce biomethane, and use the biomethane to displace petroleum or other fossil fuels in transportation or other energy applications.

Biogas, a mixture of methane and other gases produced from the decomposition of organic materials is produced naturally in landfills, and from the processing of animal waste, sewage, crop waste, and cellulosic and non-cellulosic crops. Biogas which escapes into the atmosphere significantly contributes to the effects of global warming. Biogas is not suitable for Cummins Westport engines.

Biomethane is most commonly made via anaerobic digestion of organic biomass material where biogas is processed to remove impurities and produce pipeline quality natural gas (methane). Biomethane can be processed into compressed natural gas (CNG) or the more energy-dense liquefied natural gas (LNG) for natural gas vehicles.

Using biomethane as a renewable fuel has significant greenhouse benefits:

- During combustion, biomethane is converted to carbon dioxide (a 20 times greenhouse gas savings)
- Biomethane is a renewable resource that displaces fossil fuel 100%.
- The biomethane that is burned as fuel in place of fossil fuels produces less greenhouse gas than the fuel it replaced.

Cummins Westport approves the use of up to 100% biomethane that meets published natural gas fuel specifications per Cummins Application Engineering Bulletins (AEB 79.01, AEB 79.02, and AEB 79.05)

Cummins Westport manufactures and sells the world's widest range of low-emissions alternative fuel engines for commercial transportation applications and has over 16,000 alternative fuel engines in service around the world.

For further information contact a Cummins Westport representative, or visit www.cumminswestport.com

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