CleanFuture, Inc. (John Thornton)

CleanFuture appreciates the opportunity to comment on the proposed WA-GREET 4.0 updates. Please see our attached letter regarding the biogas-to-electricity efficiency benchmark.

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Department of Ecology
Climate Pollution Reduction Program
Lauren Sanner
PO BOX 47600
Olympia, WA 98504-7600
Electronically submitted

RE: Clean Fuel Standard Rulemaking – WA-GREET 4.0 Biogas-to-Electricity Efficiency Benchmark

Dear Ms. Sanner,

CleanFuture appreciates the opportunity to provide comments on the Washington Department of Ecology's discussion paper regarding proposed updates to WA-GREET 4.0, specifically the 50% electric generation efficiency benchmark for biogas-to-electricity pathways.

CleanFuture is a leading environmental company that has worked for over a decade to electrify and improve the efficiency of a wide range of vehicle fleets. CleanFuture, Inc. has built a strong platform connecting clean vehicle fleet customers with low carbon fuels (electricity and other fuels), particularly zero and sub-zero CI fuels, serving both on the supply and demand side in multiple programs and jurisdictions. CleanFuture is a designated credit generator for hundreds of fleets and thousands of vehicle units under Washington's Clean Fuel Standard (CFS), Oregon's Clean Fuels Program (CFP) and California's Low Carbon Fuel Standard (LCFS) and CleanFuture is a fuel pathway holder for numerous renewable electricity projects fueled by biogas from cow manure and other organic wastes.

The proposed 50% efficiency benchmark is perhaps achievable by utility-scale combined cycle gas turbine ("CCGT") plants under steady-state baseload power generation, but it is unreasonable to apply such a standard for small-scale distributed energy resources (DERs).

Ecology must recognize that biogas-fueled small-scale DERs operate at lower efficiencies than utility-scale generators fueled on natural gas, this difference is recognized in generator OEM's technical data sheets. Furthermore, the use of selective catalytic reduction (SCR) in emission controls on reciprocating engine generators also reduces overall efficiency.

Ecology's adoption of CARB's efficiency benchmark in LCFS Guidance 19-06 is not achievable for DERs on dairies. Real-world open-source data is available from 376

distributed energy resource of comparable size from New York State Energy Research and Development Authority (NYSERDA) with electrical efficiencies as summarized in Table 1 and also attached for reference in Exhibit A.

Table 1: Distributed Energy Resources – Data from New York State Project Performance Dashboard

Category	***Electric Efficiency % HHV***	***Sample Size***	***link to portfolio***
Anaerobic Digester Gas (ADG) Projects	*25.4 %*	*41*	*https://der.nyserda.ny.gov/reports/view/portfolio/?p=mLthQfz3*
Combined Heat and Power (CHP) Projects	*28.4 %*	*289*	*https://der.nyserda.ny.gov/reports/view/portfolio/?p=8FzaHl63*
Fuel Cell Projects	*46 %*	*52*	*https://der.nyserda.ny.gov/reports/view/portfolio/?p=eYCkqzgJ*
		376	

A central tenet of clean fuel standards is technology neutrality; but imposing a benchmark efficiency standard for biogas made into electricity as a transportation fuel tilts the playing field. There is no such efficiency benchmark applied to biogas made into biomethane, nor any other fuel in the clean fuel standard.

The policy landscape is elsewhere biased against biogas made into electricity – the federal Renewable Fuel Standard (RFS) fails to provide a RIN credit where if that same biogas was made into biomethane combusted in a transportation end-use it then that RNG generates a RIN credit. The absence of the RIN credit is a barrier for biogas electricity projects. Similarly other federal support for biogas-to-electricity projects is limited (45Y PTC provides very little value to smaller scale biogas projects, and the 48E ITC is a one-time payment that does not provide ongoing project revenue and support) compared to biogas-to-biomethane projects.

Ecology's imposition of an electrical efficiency benchmark would mean that digesters receive credit for only a fraction of the methane reduction benefits actually achieved, violating the basic principle of carbon accounting. The existing calculator already accounts for the amount of biogas directed to a generator, so we question why an additional efficiency adjustment should reduce recognition of methane reductions that have actually occurred.

The goal should be to encourage more dairy digesters to be built and more methane emissions to be reduced. An efficiency benchmark discourages investment in these projects to reduce methane emissions. CleanFuture urges Ecology to remove the electrical efficiency benchmark.

Thank you for your consideration of these comments. Please advise if any further input on these issues would be constructive.

Sincerely,

John A. Thornton, President
CleanFuture, Inc.

Exhibit A: Distributed Energy Resources Performance Dashboard from NYSERDA

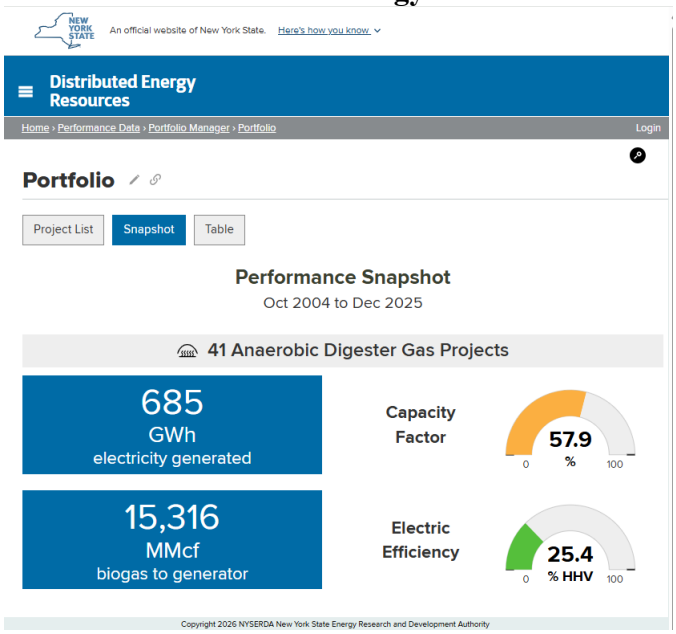


Figure 1 - Anaerobic Digester Gas Projects Performance Dashboard

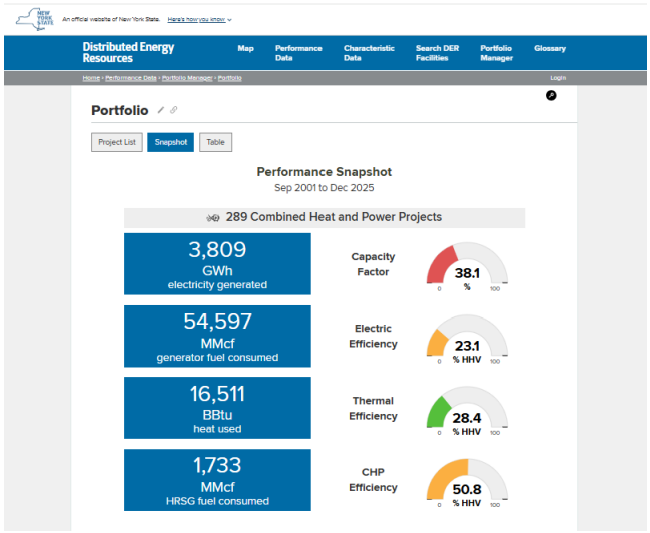


Figure 2- Combined Heat and Power Projects Performance Dashboard

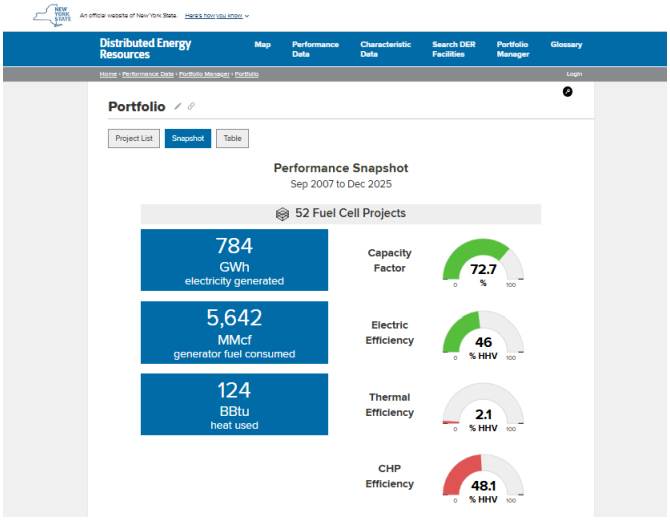


Figure 3 - Fuel Cell Projects Performance Data Dashboard