BC: Forestry, Pellets, RNG and Biofuels

Northwest Bioenergy Summit

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BC Bioenergy Network

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Acknowledgement

NeBC northwest environmental business council

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Solid Fuel Dream Project

DIACARBON™ energy inc.

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Diacarbon Plant
2490 Priest Avenue, Merritt, BC

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Fire causes extensive damage to Diacarbon manufacturing plant

*By **Cole Wagner** on October 11, 2016*

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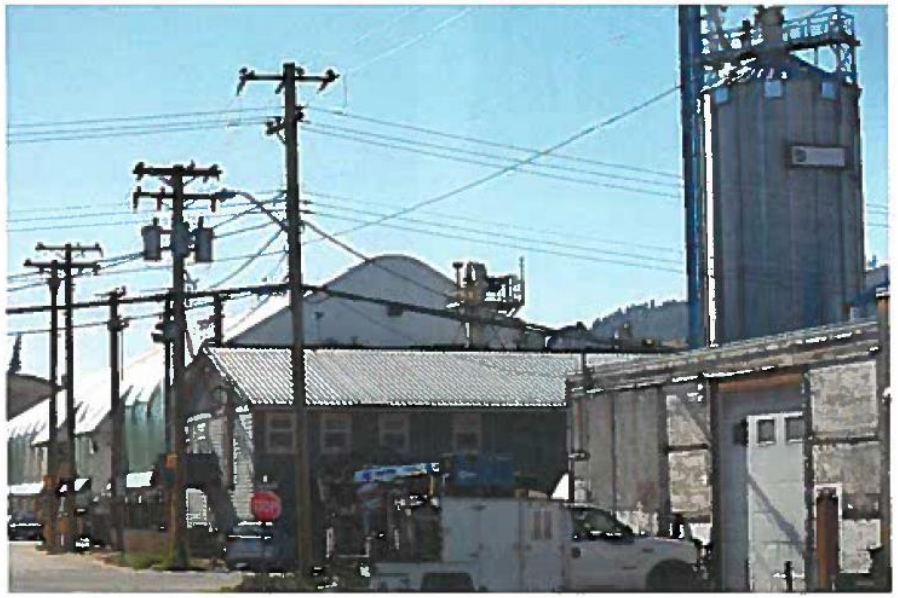

The Diacarbon facility was closed on Tuesday (Oct. 12) after a fire partially gutted a dryer on Thanksgiving Day. (Cole Wagner/Herald)

The Diacarbon manufacturing plant in Merritt remained out of operation today, after a fire did significant damage to equipment yesterday, before it was contained by local firefighters.

Merritt Fire Rescue responded to the fire in the early afternoon on Oct. 10, after being informed that a fire had started in the plant's dryer.

"Crews responded a confirmed structure fire in their dryer, which is a self contained unit. Heat is blown into it, fibre is dropped onto a mat, rolls around and dries as part of [Diacarbon's] process," explained Sky McKeown, the fire prevention officer investigating the Diacarbon blaze.

UBC Bioenergy Research & Demonstration Facility

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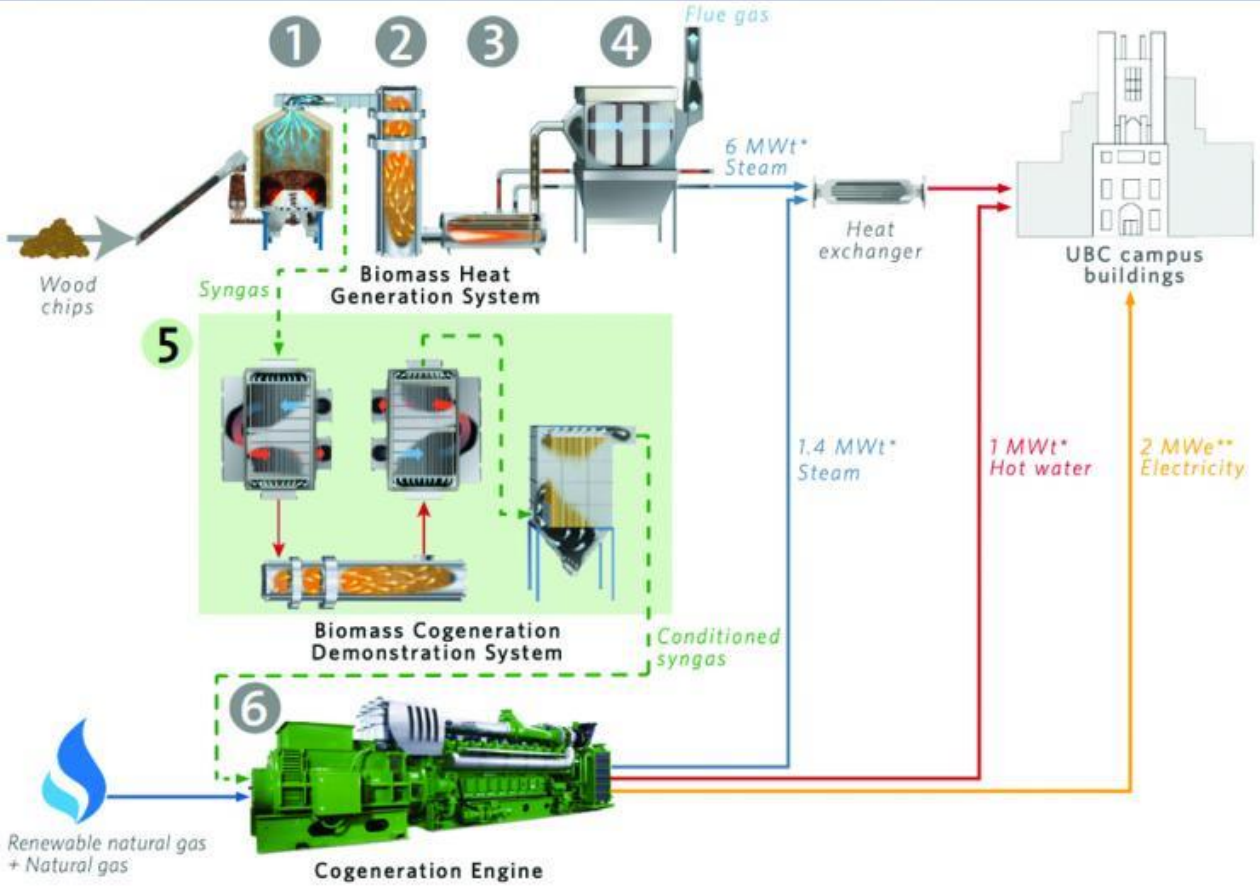
THE UNIVERSITY OF BRITISH COLUMBIA

BIOENERGY RESEARCH & DEMONSTRATION FACILITY

ENERGY SYSTEMS



BRDF PRODUCES...

25% of total campus heating and hot water needs per year

100% of campus heating and hot water needs in the summer

5% of total campus electrical needs per year

BRDF HAS ENABLED...

20+ research projects using the facility data and on-site lab

1,000 visitors through 50 to 100 tours each year

BRDF SAVES...

$800K on UBC operational costs annually (CAD)

TECHNOLOGY DEMONSTRATION

- The biomass cogeneration system consists of fuelling the cogeneration engine with conditioned syngas in place of natural gas.
- This technology was in operation at BRDF for 450 hours before it was stopped due to an equipment failure, which was not economically feasible to repair or replace.
- Incorporating the demonstration system encouraged researchers to keep studying and improving this technology for future applications.

RESEARCH PROJECTS

- As part of UBC's Campus as a Living Lab initiative, BRDF enables research collaborations between academics, campus staff and industry partners.
- The on-site lab within BRDF allows researchers to use the syngas and by-products from the facility for research purposes.
- BRDF has also been used as a case study to improve the sourcing and processing of wood waste and to advance bioenergy production.

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UBC HOT WATER ACADEMIC DISTRICT ENERGY SYSTEM (AS OF 2019)

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TIDEWATER RENEWABLES

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Tidewater developing renewable diesel and hydrogen complex at Prince George refinery

biofuelsdigest.com/bdigest/2021/03/11/tidewater-developing-renewable-diesel-and-hydrogen-complex-at-prince-george-refinery

Meghan Sapp March 11, 2021

In Canada, Tidewater Midstream and Infrastructure is developing a 3,000 barrels per day renewable diesel and renewable hydrogen complex located on the site of Tidewater's existing Prince George Refinery in British Columbia, for an estimated total project cost of C$215 to C$235 million. The renewable diesel and renewable hydrogen complex will be a stand-alone renewables complex focused on 100% renewable feedstock and will include a pretreatment facility to provide Tidewater significant flexibility on running various renewable feedstocks. Tidewater has received BC government commitments of approximately C$100 million in the form of BC Low Carbon Fuel Standard Credits (based on the current market value) for the construction of the complex, representing approximately 45% of the mid-point total project cost of approximately C$225 million. Project funding is predicated on management's current estimate of the asset generating over C$75 million of EBITDA in its first year of operations, which is anticipated as early as 2023, and excludes any incremental EBITDA upside from hydrogen production and the credit value associated with the Canadian Clean Fuel Standard. The consumer use of the produced renewable diesel and renewable hydrogen is expected to reduce carbon intensity and related GHG emissions by approximately 80-90% and 65-75% respectively, versus conventional diesel which represents the equivalent of removing approximately 70,000 – 80,000 vehicles from the road annually. Tidewater is working through additional means to further reduce the carbon intensity of the renewable diesel to be produced.

TIDEWATER RENEWABLES

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Renewable Diesel & Renewable Hydrogen Complex

Renewable Diesel Refinery co-located at the Prince George Refinery

- Utilizes renewable feedstocks to produce Renewable Diesel
- Project includes an over-built renewable hydrogen plant that will produce 10.0 MMcf/d of Hydrogen as part of refinery operations
- Utilizes Haldor Topsoe's HydroFlexTM technology which provides cost advantages and allows for maximum flexibility of feedstock use

Early mover advantage and co-location will lead to attractive economics

- Co-location at PGR drives economics through reduced upfront capital spending and operating costs
- Renewable product yields expected to generate renewable credits in Canada (CFS), B.C. (LCFS), and certain US states (LCFS, RINs and BTCs)

Nameplate Capacity RD: 3.0 Mbbl/d, H2: 23.7 MT/d (10.0 MMcf/d)	**CI Reduction** RD: 80 – 90%, H2: 65 – 75%
Various Feedstocks UCO, DCO, Tallow, Canola & Soybean	**Renewable Product Yields** Renewable Diesel, Hydrogen
Logistics Connectivity Rail and truck	**In Service Date** ~Q4 2023

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Online Micro-Certificate: Life Cycle Assessment of Clean Fuels

HOW TO REGISTER

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PROGRAM INSTRUCTORS

Anna Ringsred (Beavers)

Anna Ringsred is the principal consultant at ARB LCA Consulting. Anna Ringsred has a BSc in Chemical Engineering from the University of Calgary and a Master of Applied Science from the University of British Columbia with a focus on life cycle assessment of biofuels. Anna brings over 10 years of experience conducting and reviewing fuel life cycle assessments, including as Chief Engineer under the BC Low Carbon Fuel Standard, where she helped review fuel carbon intensities and establish carbon intensity requirements for the program.

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Thank you for your attention

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