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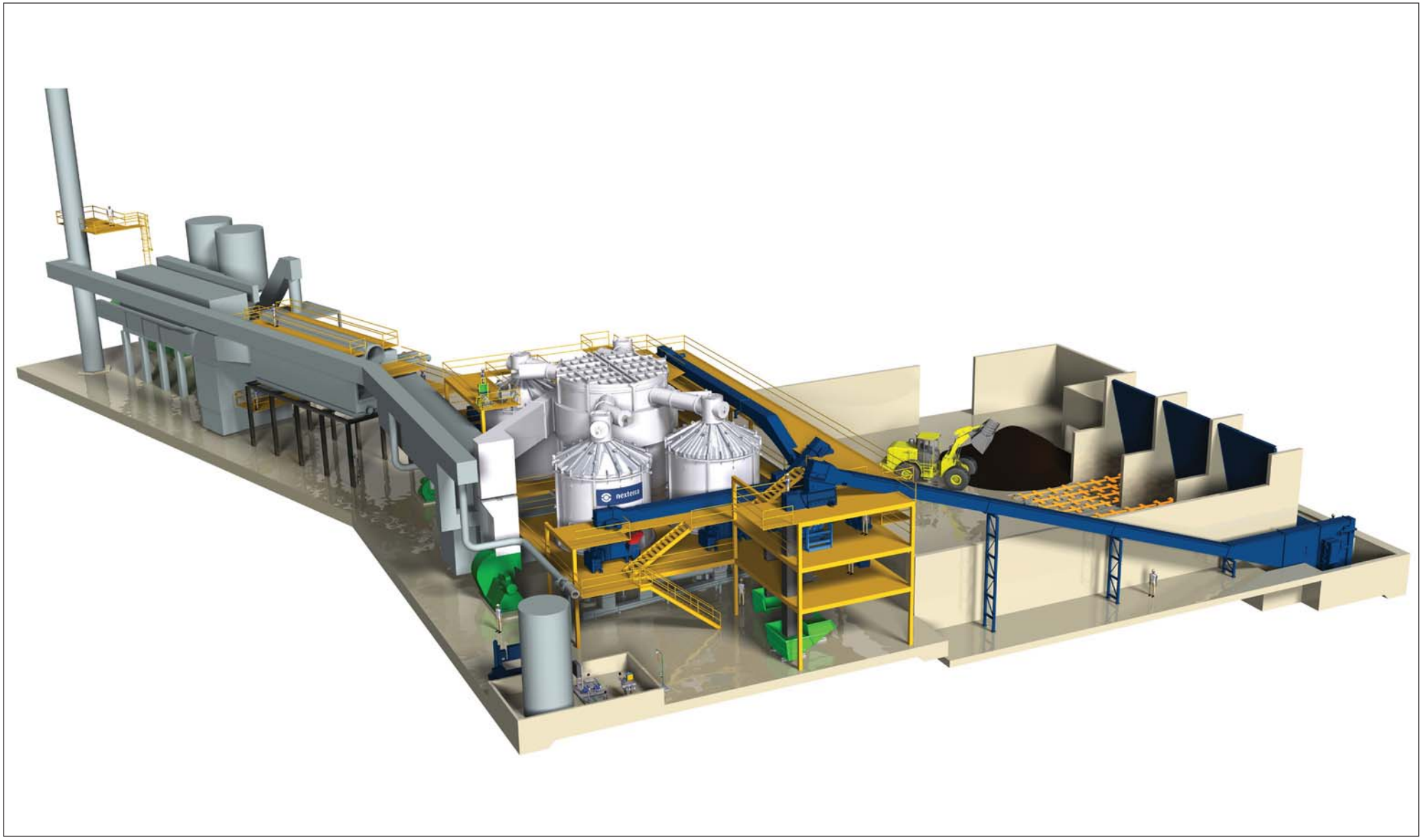
MWH

CARBONARIUS



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BIRMINGHAM BIO POWER LTD., TYSELEY, UK
RENEWABLE ENERGY 10 MW POWER PLANT

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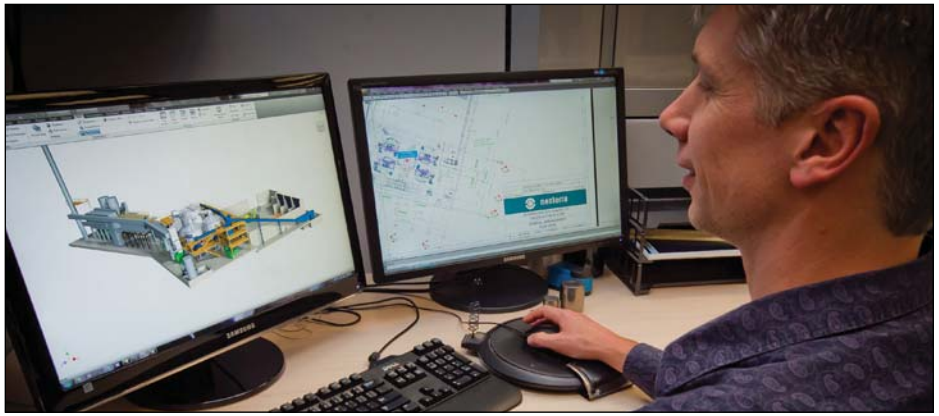

Nexterra designer Jeff Steiger works on the design of the renewable energy power plant in Tyseley near Birmingham, UK.

This illustration shows the building that will house the Birmingham Bio Power Ltd. plant.

Project Description

- Project Name: Birmingham Bio Power Ltd. (BBPL)
- Location: Tyseley, UK
- Project Developer: Carbonarius
- Project Delivery: MWH will provide balance of plant and EPC services
- Facility Type: Renewable Power Generation Plant
- Application: Gasification system will provide high pressure steam for electrical power production
- Nexterra Scope of Work: Nexterra will supply gasification and steam generation systems from fuel handling to stack (excluding turbine)
- Investors: Balfour Beatty plc, Eternity Capital Management, Foresight Group's UKWREI fund, Green Investment Bank and GCP Infrastructure Fund
- Bonding: Provided by Export Development Canada (EDC)

System Highlights

- Start-up: 2016
- Capacity: 10 MWe of electricity
- Fuel: 67,000 tonnes/yr of locally sourced, class A – C waste wood diverted from landfills
- Fuel moisture content: 20 – 25%

Expected System Performance

Electricity Production (Gross)	10.3 MWe
Electrical Generation (Home Equivalent)	17,000 homes
Avoided CO_2 Emissions	107,000 tonnes/yr
Avoided CO2 Emissions (Car Equivalent)	45,000 cars off the road/yr
Waste Wood Diverted from Landfills	67,000 green tonnes/yr

"Nexterra has demonstrated that they have a proven, robust gasification platform that will handle the wood waste feedstock available in the UK while still meeting the stringent UK emission regulations. We look forward to working with them on this and other projects in the UK."

- Ian Brooking, Director, Carbonarius

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Process

- Fuel delivered to fuel storage and reclaim system.
- 4 Gasifiers convert woody biomass to combustible syngas.
- Clean syngas is burned in the oxidizer.
- The hot flue gas is directed through a steam boiler to produce high pressure steam.
- Steam is distributed to a condensing steam turbine to produce electricity.
- An SNCR is utilized to reduce NOx in flue gas.
- The Baghouse cleans flue gas before exhausting it out the stack.

Benefits

- Generates enough renewable energy to power 17,000 homes.
- Qualifies as a UK Advanced Conversion Technology (ACT).
- Project receives the highest level of Renewables Obligation Certificates (ROCs).
- Project creates 100 engineering, project management and construction jobs, and 19 full-time jobs at the plant once operational.
- Meets stringent WID emission standards.

Nexterra's 1st biomass gasification system in the UK will anchor the 10 MW renewable power plant. This illustration shows the inner workings of the system but is not an accurate representation of the actual project configuration.

"To execute this project in the UK, we needed a gasification technology that was proven, reliable and bankable. After looking at different technologies we determined that Nexterra's technology and track record was the best fit for the project."

- Ian Miller of MWH Global, EPC and project management company for the Birmingham Bio Power Ltd. renewable energy power project in the UK

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Project managers Kelly O'Neill for Nexterra (left) and David Rome for MWH on the site of the Birmingham Bio Power Ltd. renewable energy plant in Tyseley, UK.

Tyseley site soon to be transformed

The renewable energy plant will be built on the site of Webster and Horsfall factory in Hay Milles. W&H have been on the site since the mid 19th century, when James Horsfall rebuilt a disused blade and sword factory as a steam driven mill beside the River Cole. It was from this site that W&M manufactured the first transatlantic cable which was laid in 1866, comprising 30,000 miles of wire taking 250 workers more than 11 months to manufacture.

After a period of decline before and after extensive bombing in World War II, Tyseley is attracting many new companies in a range of industries. The Tyseley site will soon be transformed from a vacant lot to the Birmingham Bio Power Ltd. renewable energy plant, employing over 100 workers during construction and 19 permanent staff once the plant is completed.

Nexterra technology meets ACT criteria for ROC program

Nexterra's gasification technology qualifies as an Advanced Conversion Technology (ACT) under UK legislation, meaning that the power generated by the project will receive the highest band of Renewables Obligation Certificates (ROCs). These designations have assisted the Birmingham Bio Power Ltd. renewable energy project to be more financially viable.

Under the Renewables Obligation (RO), licensed electricity suppliers are required to source a percentage of the electricity supplied from eligible renewable sources. Renewables Obligation Certificates (ROCs) are issued for each MWh of renewable electricity generated based on ROC banding.

Nexterra's Gasification Technology

Nexterra's core technology is a fixed-bed updraft gasification system. These systems range in output from 2 to 40 MWth (8 to 140 MMBtu/hr) and 2 – 15 MW electric. Nexterra's systems are simple in design, able to handle a wide-range of feedstocks and produce very low emissions.

1. Fuel In-Feed System - The metering bin provides short-term fuel storage and ensures a constant supply of fuel to the gasifier. Fuel is conveyed by a horizontal auger from the metering bin to a vertical auger that pushes fuel into the base of the fuel pile inside the gasifier.

2. Gasifier - Within the gasifier, the fuel moves through progressive stages of drying, pyrolysis, gasification and reduction to ash. Combustion air (20 - 30% of stoichiometric), steam and/or oxygen are introduced through the inner and outer cone into the base of the fuel pile. Partial oxidation, pyrolysis and gasification occur at 1500 — 1800 °F (815 – 980 °C), and the fuel is converted into "syngas" and non-combustible ash. Combustion temperatures in the fuel pile are tightly controlled and kept below the ash melting temperatures to ensure that there is no formation of "clinker" and that the ash flows freely.

3. Automatic Ash Removal System - As the fuel is processed in the system it is reduced to non-combustible ash. The ash migrates to the grate at the base of the gasifier where it is removed intermittently through a set of openings. When hydraulically activated, the rotating grate opens and the ash drops into two ash hoppers. Each ash hopper has two parallel augers to convey the ash to a collection conveyor and an enclosed ash bin.

4. Syngas - Syngas exits the gasifier at 500 — 700 °F (260 – 370 °C). The syngas can be combusted in a close-coupled oxidizer with the resulting flue gas directed to heat recovery equipment (e.g., boilers, thermal oil heaters, air-to-air heat exchangers), fired directly in industrial boilers or kilns, or cleaned for use in the firing of internal combustion engines or the production of higher value gases and chemicals.

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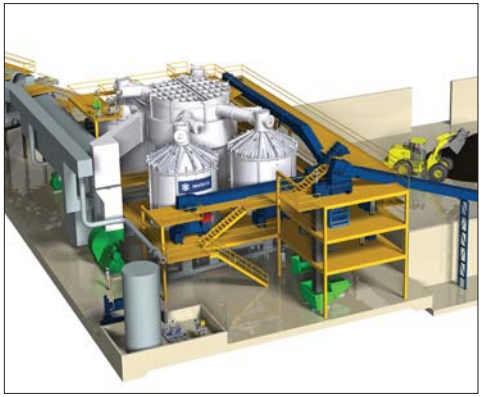

BIRMINGHAM BIO POWER LTD. (BBPL), TYSELEY, UK

UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, BC

U.S. DEPARTMENT OF ENERGY, OAK RIDGE NATIONAL LABORATORY, OAK RIDGE, TN

US DEPARTMENT OF VETERANS AFFAIRS MEDICAL CENTER, BATTLE CREEK, MI

UNIVERSITY OF NORTHERN BRITISH COLUMBIA, PRINCE GEORGE, BC

DOCKSIDE GREEN RESIDENTIAL DEVELOPMENT, VICTORIA, BC

KRUGER PRODUCTS LP, NEW WESTMINSTER, BC

TOLKO INDUSTRIES, LTD., HEFFLEY CREEK DIVISION, KAMLOOPS, BC

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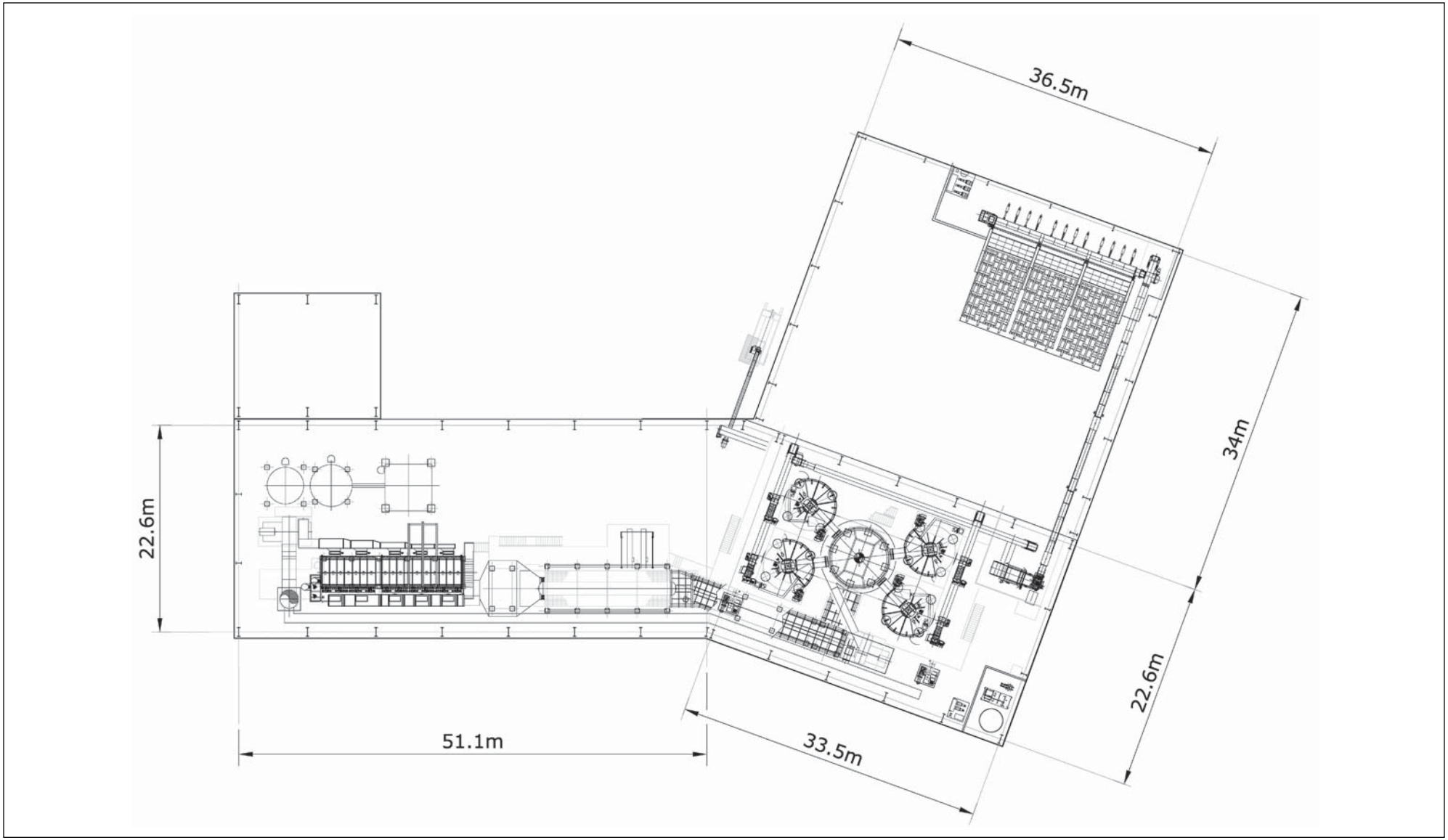

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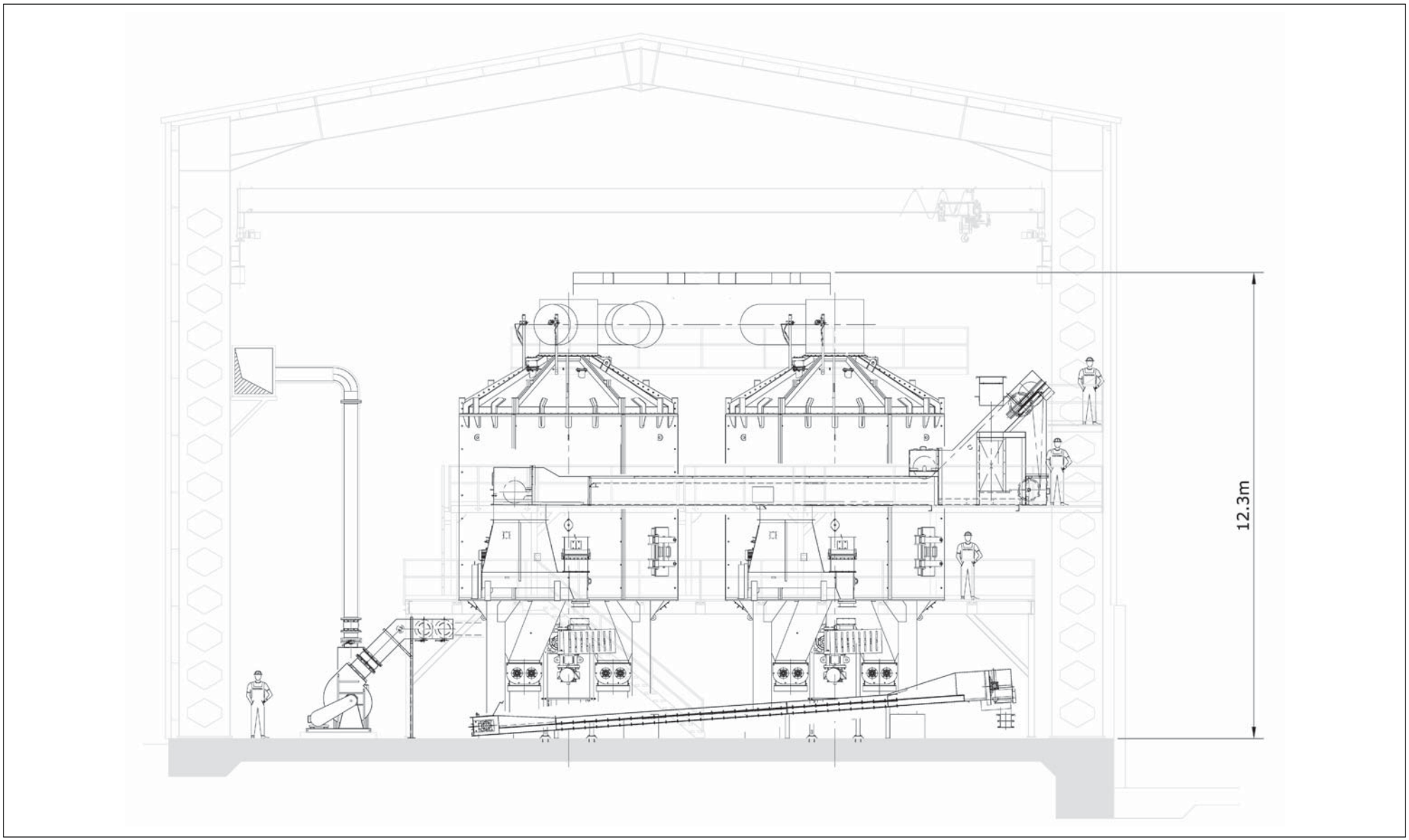
PLAN VIEW 6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About Nexterra Systems Corp.
Vancouver, British Columbia

Nexterra Systems Corp. is a global leader in plant-scale, energy-from-waste gasification systems for the production of clean, renewable heat and power. The company offers a proven gasification technology with over 150,000 hours of commercial operation and uptime of over 90%. Nexterra's gasification technology delivers lower costs, higher reliability, lower emissions and greater fuel flexibility compared to conventional biomass energy systems.

Nexterra has completed seven commercial projects in Canada and the US, and is delivering the sale of its first project in the United Kingdom.

Projects include:

- U.S. Department of Veterans Affairs (DVA) Medical Center, Battle Creek, MI
- University of British Columbia, Vancouver BC
- U.S. Department of Energy (DOE), Oak Ridge National Laboratory, Oak Ridge, TN
- University of Northern British Columbia, Prince George, BC
- Dockside Green Residential and Commercial Development, Victoria, BC
- Kruger Products Limited Paper Mill, New Westminster, BC
- Tolko Industries Ltd., Heffley Creek Plywood Mill, Kamloops, BC
- Nexterra Product Development Centre (PDC), Kamloops, BC

For more information:
www.nexterra.ca and www.nexterra.co.uk

The Birmingham Bio Power Ltd. renewable energy plant will be located in Tyseley, a suburb of Birmingham, UK. Pictured here is the Council House, headquarters of the Birmingham City Council, the largest local authority in Europe.

A medium-size market town during the medieval period, Birmingham grew to international prominence in the 18th century during the Industrial Revolution, producing a series of innovations that laid many of the foundations of the modern industrial society. With the invention of the industrial steam engine by James Watt in 1776, it was hailed as "the first manufacturing town in the world". The Birmingham Bio Power Ltd. renewable energy plant is located in Tyseley, a suburb of Birmingham, UK.

"BAE Systems' support of Nexterra's entry into the UK renewable energy market is part of a long-term commitment we have to Canadian industry. Nexterra has a fantastic technology and we are delighted it has secured its first project here. We hope this is just the beginning for Nexterra in the UK and we look forward to continuing our support to its growth in this market."

- John Rossall, Industrial Participation Director, BAE Systems

Project Developer

Carbonarius is a joint venture between O-Gen UK and UNA Group.

Project Delivery / EPC

MWH Global is a strategic consulting, technical engineering, environmental and construction services firm in the infrastructure sector. www.mwhglobal.com

Project UK Investors

Balfour Beatty

Foresight group

ETERNITY CAPITAL

Green Investment Bank

GCP Infrastructure Fund Ltd.

GCP

Project Bonding

EDC

Export Development Canada (EDC), Canada's export credit agency, has provided bonding for the project.

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