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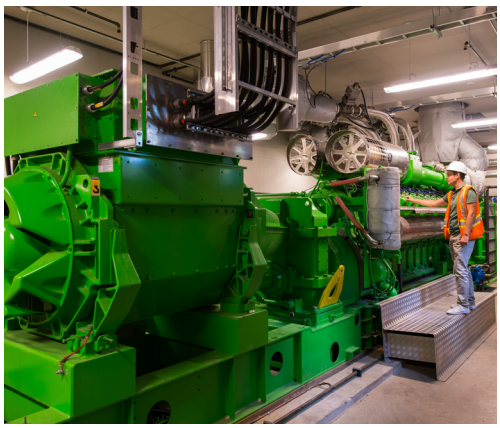
Nexterra Systems Corp.

a global leader in energy-from-renewable-waste gasification systems

CORPORATE PROFILE



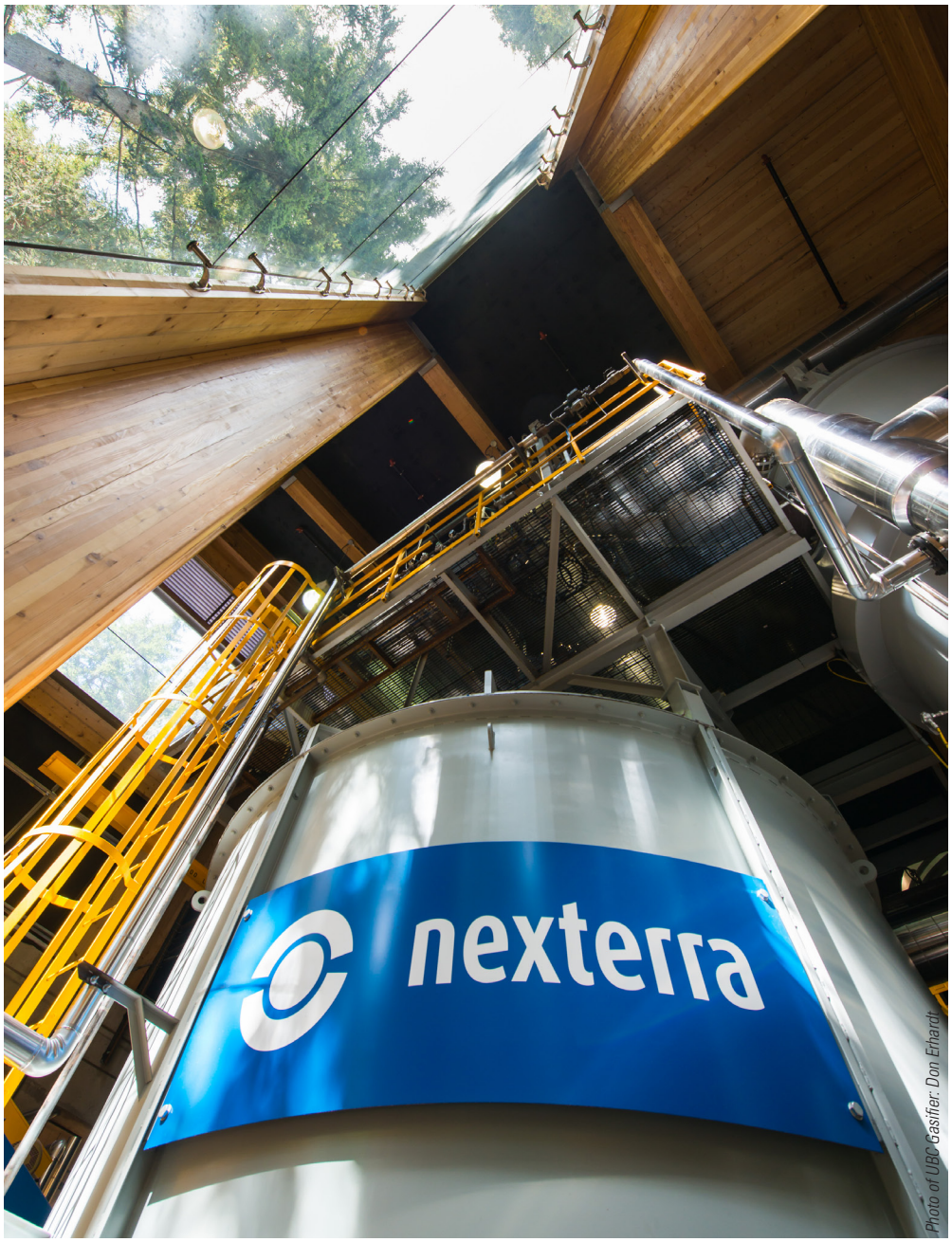


Photo of UBC Gasifier: Don Erhardt

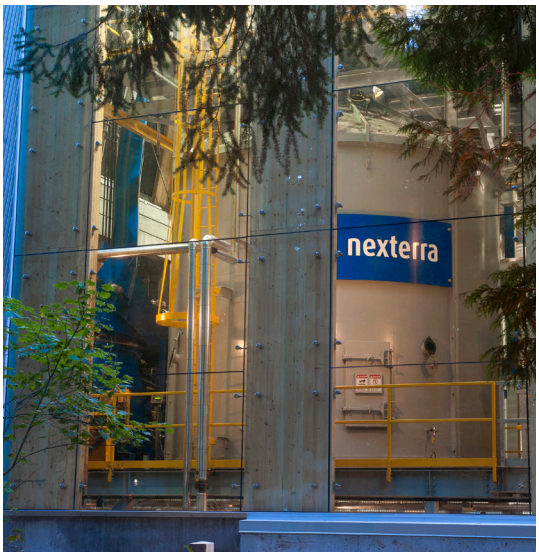
CORPORATE PROFILE

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. The typical scale of Nexterra systems range from 2 to 40 MWt (8 to 120 MMBtu/hr) net useable heat for thermal energy systems, or from 2 to 12 MW for power systems.

Nexterra has completed seven commercial projects in Canada and the US, and has completed the sale of its first project in the United Kingdom. Nexterra's customers include the US Department of Energy, the University of British Columbia and Kruger Products. See pages 6 and 7 for project descriptions.

Incorporated in 2003, Nexterra is a private company with an experienced team of employees working in Canada and the United Kingdom. The company is owned by Tandem Expansion Fund and the Business Development Bank of Canada (BDC). It has established relationships with several world class partners including GE Energy and Export Development Canada (EDC).



Nexterra's combined heat and power (CHP) plant at UBC

"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 of Carbonarius, developer of the Birmingham Bio Power Ltd. renewable energy power project in the UK

THE NEXTERRA OPPORTUNITY

The annual global market for biomass and waste to energy solutions is $21 billion and growing. In addition to satisfying the demand for dispatchable renewable energy, these solutions also address public concerns such as volatile fossil fuel costs and the landfilling of organic waste.

In response to the global demand for renewable waste-to-energy solutions, Nexterra has grown from its initial focus on North American industrial and institutional customers. The company is now working with strategic partners to offer complete renewable heat and power systems beyond North America.

Nexterra has recently expanded into the United Kingdom where its gasification systems qualify for the highest level of support under the UK's Renewables Obligation Certificate (ROC) program, enabling projects to generate attractive financial returns for project developers. Nexterra is also looking to expand its business into the ownership and operation of biomass power plants in the UK.

Nexterra also has an extensive fuel testing program to prove the technology on a greater variety of waste feedstocks. This will enable customers to use the lowest cost feedstocks available to improve project economics.

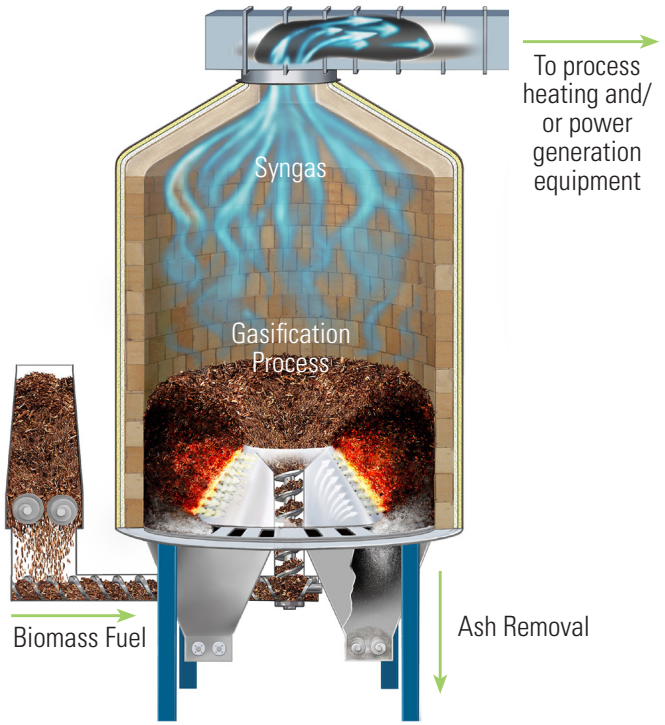
Nexterra's biomass gasification system at ORNL

WHAT IS GASIFICATION?

Gasification is a thermo-chemical process that uses heat to convert any carbon-containing biomass fuel into a clean burning gas, commonly referred to as "syngas". The high efficiency process produces much lower particulate and other emissions than conventional combustion technologies.

Gasification differs from combustion because it uses just 20% to 30% of the air or oxygen needed for complete fuel combustion. During gasification, the amount of air supplied to the gasifier is carefully controlled so that only a small portion of the fuel burns completely. This "starved air" process provides sufficient heat to pyrolyze and chemically break down the balance of the fuel into syngas that can be distributed to a variety of energy users.

Unlike "flue gas" from conventional combustion plants, syngas can be transported for remote combustion. It can be used as a substitute for natural gas, fuel oil or propane to produce process heat, steam, hot water and/or electricity using conventional energy recovery equipment. Syngas is composed primarily of carbon monoxide, hydrogen and methane, as well as vapourized pyrolysis liquids and hydrocarbons. Syngas can potentially be synthesized and used as a basic chemical building block for industrial gases and a large number of products in the petrochemical and refining industries.



NEXTERRA'S GASIFICATION TECHNOLOGY – HOW IT WORKS

The system below is a typical Nexterra system configuration. Systems can be adapted for a number of heat, hot water and power generation applications, and can vary in size and number of components.

1. Fuel In-Feed
Locally sourced biomass, sized to 3-inch minus, is loaded into the fuel bin, conveyed to a metering bin and then bottom-fed through the fuel feed cone. It is distributed across the top of the fuel pile inside the refractory lined gasification chamber. Nexterra's gasifiers can accommodate biomass fuels up to 60% moisture content without any pre-conditioning

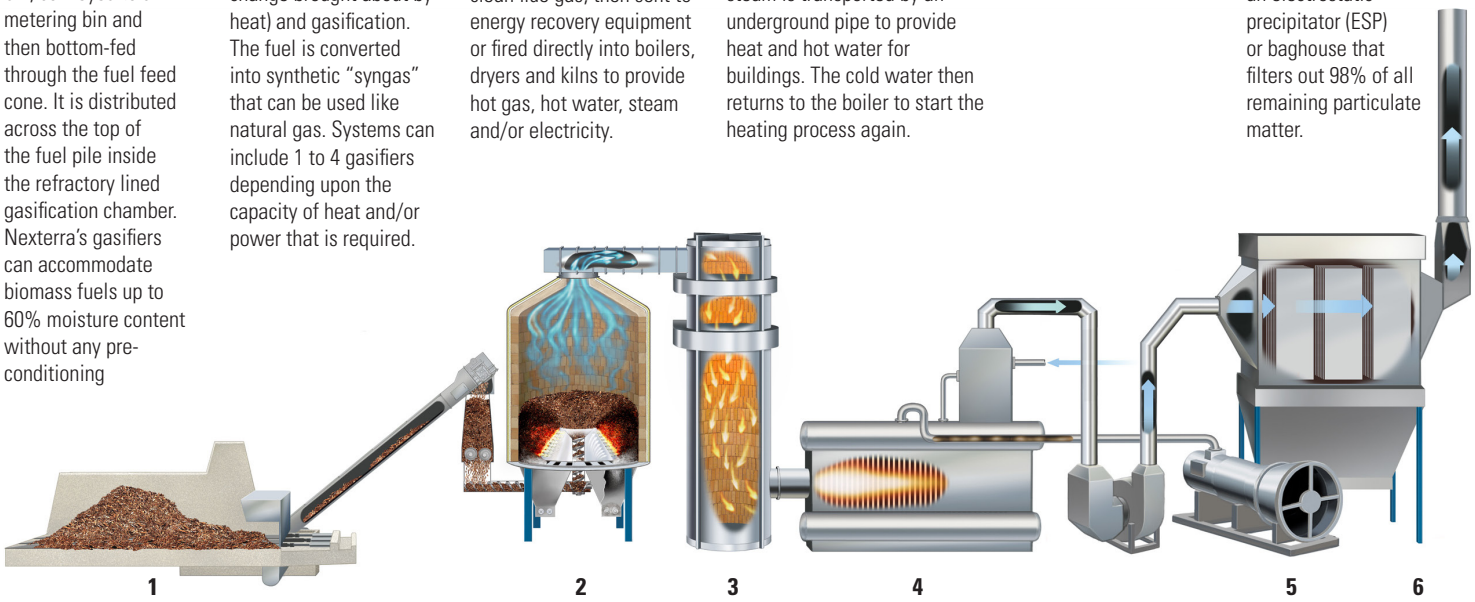
2. Gasifier
Fuel enters the gasifier(s) and goes through several stages including drying, pyrolysis (chemical change brought about by heat) and gasification. The fuel is converted into synthetic "syngas" that can be used like natural gas. Systems can include 1 to 4 gasifiers depending upon the capacity of heat and/or power that is required.

3. Oxidizer
The syngas exits at 500 - 700° F (260 - 390°C) where it can be directed to an oxidizer for conversion to clean flue gas, then sent to energy recovery equipment or fired directly into boilers, dryers and kilns to provide hot gas, hot water, steam and/or electricity.

4. Boiler
The boiler produces either steam or hot water depending upon the system application. In a central heating system, steam is transported by an underground pipe to provide heat and hot water for buildings. The cold water then returns to the boiler to start the heating process again.

5. Generator
In some applications a steam turbine generator can be added to produce electricity.

6. ESP or Baghouse
In some applications, after exiting the boiler, the flue gas is cleaned in an electrostatic precipitator (ESP) or baghouse that filters out 98% of all remaining particulate matter.



APPLICATIONS

Nexterra provides turnkey biomass energy systems to produce heat, steam and/or power. Systems can be easily configured to best satisfy the requirements of the end customer.

1. THERMAL ENERGY SYSTEMS

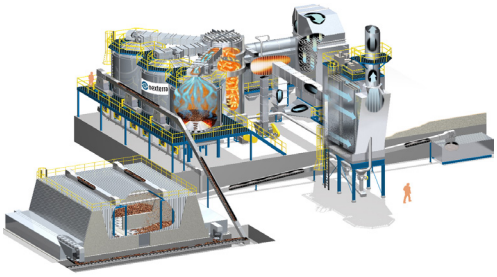


Figure 1: Configuration of 20 MWt Heating Plant

- Output: Hot Air, Hot Water, Steam
- System Sizes: 2 to 40 MWt (8 to 120 MMBtu/hr)
- System Efficiency (HHV): 72 – 82% depending on fuel/project specifics
- System Efficiency (LHV): 77 – 87% depending on fuel/project specifics
- Fuel Types: Wood Residuals, Clean Construction Debris, Biosolids (planned)
- Fuel Feed: 25 – 250 tonnes per day (bone dry)
- Fuel Moisture Content: 6 – 60% moisture
- Fuel Size: 7.5 cm (3 inches) or less in all dimensions
- Projects: Oak Ridge National Laboratory, University of Northern British Columbia, Dockside Green, Tolko Industries

2. STEAM POWER & CHP SYSTEMS

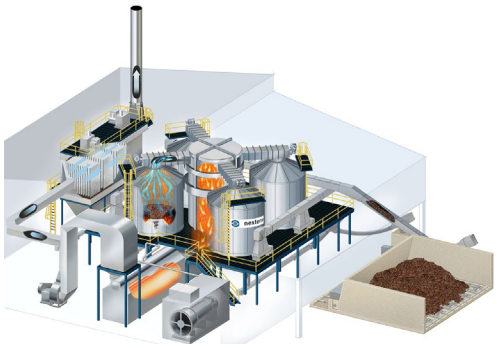


Figure 2: Configuration of 20 MWt/1.4 MWe CHP plant

- Output: Power, Combined Heat and Power using Steam Turbine
- System Sizes: 1.4 to 10 MWe
- System Efficiency (HHV): 21 – 27% depending on fuel/project specifics
- System Efficiency (LHV): 22 – 29% depending on fuel/project specifics
- CHP System Efficiency (HHV): 46 – 50% depending on fuel/project specifics
- CHP System Efficiency (LHV): 49 – 53% depending on fuel/project specifics
- Fuel Types: Wood Residuals, Clean Construction Debris, Biosolids (planned)
- Fuel Feed: 25 – 250 tonnes per day (bone dry)
- Fuel Moisture Content: 6 – 60% moisture
- Fuel Size: 7.5 cm (3 inches) or less in all dimensions
- Projects: US Veterans Affairs Medical Center in Battle Creek, Michigan (under construction), Birmingham Bio Power Ltd. (BBPL), Tyseley, UK

3. DIRECT FIRED THERMAL ENERGY SYSTEMS

Figure 3: Configuration of 12 MWt Direct Fired Boiler System

- Output: Syngas for existing boilers, lime kilns, furnaces
- System Sizes: 2 to 40 MWt (8 to 120 MMBtu/hr)
- System Efficiency (HHV): 72 – 82% depending on fuel/project specifics
- System Efficiency (LHV): 77 – 87% depending on fuel/project specifics
- Fuel Types: Wood Residuals, Clean Construction Debris, Biosolids (planned)
- Fuel Feed: 25 – 250 tonnes per day (bone dry)
- Fuel Moisture Content: 6 – 60% moisture
- Fuel Size: 7.5 cm (3 inches) or less in all dimensions
- Projects: Kruger Products Tissue Mill, New Westminster, BC

4. INTERNAL COMBUSTION ENGINE HIGH EFFICIENCY CHP SYSTEMS

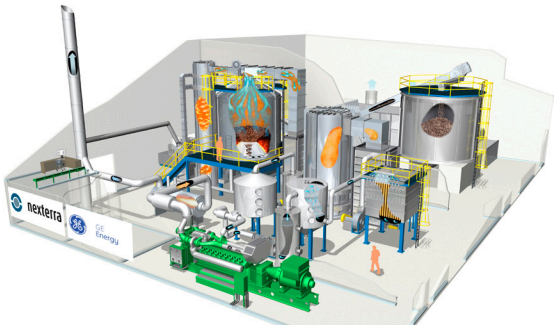


Figure 4: Configuration of 2 MWe IC Engine Based CHP System

- Output: Power, Combined Heat and Power
- Systems Size: 2 to 10 MWe + 3 to 15 MWt (9 to 45 MMBtu/hr)
- System Efficiency (HHV): Combined Cycle electrical 30%; CHP up to 60%
- System Efficiency (LHV): up to 64% depending on fuel/project specifics
- Fuel Types: Wood Residuals, Clean Construction Debris, Biosolids (planned)
- Fuel Feed: 35 – 140 tonnes per day (bone dry)
- Fuel Moisture Content: 6 – 60% moisture
- Fuel Size: 7.5 cm (3 inches) or less in all dimensions
- Projects: University of British Columbia (Demonstration)

NEXTERRA'S GASIFICATION SYSTEMS – FEATURES AND BENEFITS

Nexterra's gasification systems are fully automated, reliable and are "built to last". The table below sets out some of the key features and benefits of Nexterra's technology.

Features	Benefits
Low Air Emissions Tight process control reduces emission formation (PM, VOC, CO, NOx).	• Easier permitting and public acceptance • Lower cost for emission controls
Fuel Versatility Precise process control allows system to handle fuels with varying moisture levels and sizes.	• More fuel supply options to reduce fuel costs and fuel procurement risk • Avoids problems such as "ash klinkering"
Robust Automated Control Systems Integrated state of the art PLC control system.	• Quick response time and reporting • High uptime and reliability • Minimal operator intervention • Fewer unscheduled maintenance outages
Design Simplicity System has very few moving parts.	• Proven uptime of greater than 90% • Lower lifecycle and maintenance costs • Lower parasitic loads
Syngas Versatility: "It's a Gas" Syngas can be fired directly into boilers, kilns or engines.	• Potential to re-use existing energy assets • Utilize gas in high-efficiency conversion systems (internal combustion engines)
Green Fuels and Chemicals Syngas (CO & H2) is a building block for high-value fuels and chemicals.	• Gasification enables the conversion of renewable waste feedstocks into high value "green chemicals" or "green fuels"

WASTE BIOMASS FEEDSTOCKS

Nexterra's gasification systems can process many challenging renewable waste feedstocks while still meeting the tightest emissions regulations.

Nexterra's systems have been demonstrated to operate reliably on a range of woody biomass feedstocks including bark and chips, and construction and demolition debris (Class A to C wood wastes in the UK). Nexterra's broad fuel specification allows for the use of feedstocks with varying moisture content (6 – 60%) and size (up to 75 mm/3 inches). Nexterra also has a number of other potential feedstocks under development including biosolids, agricultural residues and solid recovered fuel (SRF).

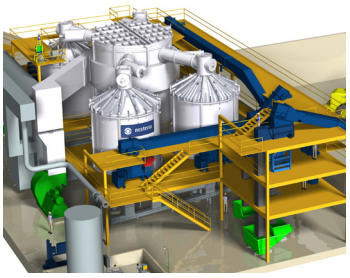
WOOD/BARK

WOOD/CHIPS

CLEAN C&D

BIOSOLIDS

NEXTERRA PROJECTS



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

- Nexterra's 1st project in the United Kingdom
- Project Developer: Carbonarius
- Location: Tyseley Resource Recovery Center, Tyseley, UK
- Project Management / EPC: MWH
- Combines Nexterra's gasification system with a steam turbine to produce electricity
- Capacity: 10 MWe (gross) of electricity
- Nexterra Scope of Work: Supply of biomass gasification and steam generation systems from fuel handling to emissions control
- Fuel: Locally sourced, non-recyclable Class A-C waste biomass fuels
- Investors: Balfour Beatty plc, Foresight, Green Investment Bank, Eternity, GPC Fund
- Operation Date: 2016

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

- Capacity: 10 MWt (35 MMBtu/hr) and 2 MWe of electricity system generates heat and power
- Nexterra Scope of Work: Supply only of turnkey gasification system
- Fuel: Locally sourced wood residue (up to 60% moisture content)
- Displaces 85% of current natural gas consumption
- GHG Reduction: 14,000 tons/year, equivalent to taking 3,500 cars/yr off the road
- Project Partners: DeMaria Building Company, HGA Architects
- Operation Date: 2014

UNIVERSITY OF BRITISH COLUMBIA, VANCOUVER, BC

- Capacity: 3 MWt (10 MMBtu/hr) and 2 MWe of electricity combined heat and power system
- Nexterra Scope of Work: Turnkey biomass CHP system
- Fuel: Locally sourced urban wood residue
- Combines gasification and syngas conditioning system with GE Jenbacher gas engine
- 1st demonstration of Nexterra's syngas-to-gas engine technology
- GHG Reduction: 4,500 tonnes/yr, equivalent to taking 1,100 cars/yr off the road
- Project Partner: GE Energy
- Operation Date: 2012
- Commercial IC Engine system scheduled to be available in 2014/2015

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

- Capacity: 21 MWt (65 MMBtu/hr) system generates steam to heat campus
- Nexterra Scope of Work: Supply only of turnkey gasification system
- Fuel: Locally sourced wood residue (10 – 50% moisture content)
- GHG Reduction: 20,000 tons/yr, equivalent to taking 4,500 cars/yr off the road
- Project Partners: Johnson Controls Inc.
- Operation Date: 2012

UNIVERSITY OF NORTHERN BRITISH COLUMBIA, PRINCE GEORGE, BC

- Capacity: 5 MWt (17 MMBtu/hr) system generates steam to heat campus
- Nexterra Scope of Work: Turnkey gasification system
- Fuel: Locally sourced wood residue (up to 60% moisture content)
- Displaces 85% of current natural gas consumption
- GHG Reduction: 3,500 tonnes/year, equivalent to taking 1,000 cars/yr off the road
- Operation Date: 2011

NEXTERRA PROJECTS

DOCKSIDE GREEN

DOCKSIDE GREEN RESIDENTIAL DEVELOPMENT, VICTORIA, BC

- Capacity: 2 MWt (7 MMBtu/hr) system generates heat and hot water for development
- Nexterra Scope of Work: Turnkey gasification system
- Fuel: Locally sourced, clean urban wood residue (moisture content: 20 – 55%)
- GHG Reduction: 3,500 tons/yr, equivalent to taking 850 cars/yr off the road
- Project Partners: Vancity Capital, Fortis BC Energy Services and Corix
- Operation Date: 2009

Kruger

KRUGER PRODUCTS LP, NEW WESTMINSTER, BC

- Capacity: 14 MWt (45 MMBtu/hr) system generates syngas that is fired directly into a boiler
- Nexterra Scope of Work: Turnkey gasification system
- Fuel: Locally sourced mill waste and/or clean construction debris (up to 60% moisture content)
- System displaces 54% of current natural gas
- GHG Reduction: 22,000 tonnes/yr, equivalent to taking 5,000 cars/yr off the road
- Operation Date: 2009

TOLKO INDUSTRIES LTD.

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

- Capacity: 11 MWt (38 MMBtu/hr) system
- Application: Process heat for veneer dryer and log conditioning vats
- Nexterra Scope of Work: Turnkey gasification system
- Fuel: Wood residues (hog fuel) from Tolko mill (25 – 55% moisture content)
- GHG Reduction: 12,000 tonnes/yr, equivalent to taking 3,000 cars/yr off the road
- Operation Date: 2006

NEXTERRA PRODUCT DEVELOPMENT CENTRE

Nexterra is continuously improving and expanding the capabilities of its proprietary gasification technology. These activities are undertaken at our Product Development Centre (PDC) located in Kamloops, BC, Canada.

In 2003, Nexterra constructed a 2.5 MWt/hr (8 MMBtu/hr) product development facility. Expanded significantly in 2007 and again in 2010, this commercial scale gasification plant facilitates Nexterra's research and development, product development, and project specific fuels and applications testing. The facility is staffed by a full-time contingent of engineers and operators, and is capable of 24/7 operations. The plant is available for customer site visits and project-related testing activities.

The PDC provides Nexterra with unique R&D capabilities. The product development team is comprised of experienced engineers, academics and technicians. In-house capabilities include fuel testing, process simulation modeling, direct firing syngas into boilers and lime kilns, testing new fuels such as biosolids, and syngas upgrading and tar removal for use in internal combustion engines. Future programs include syngas enhancement to potentially produce renewable hydrogen, bio-methane and other synthetic fuels.

WHY WORK WITH NEXTERRA?

Nexterra is a global leader in advanced biomass gasification systems with an experienced team of professionals to design, execute and support your biomass waste-to-energy project.

- Proven track record and strong customer references
- 150,000 hours of reliable commercial operation with over 90% uptime
- Ultra-low emissions even when using challenging waste fuels
- Expanding internationally with focus on Europe
- World-class product development and testing centre
- Experienced management team
- Blue chip alliance partners and investors

CUSTOMER RECOMMENDATIONS

"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

"Nexterra has established itself as an international leader in biomass gasification. Their new CHP System has tremendous potential to help UBC… achieve (our) green energy goals while reducing greenhouse gas emissions."

– John Hepburn, UBC Vice President of Research

"Our New Westminster mill is situated in an urban area, so we needed the cleanest technology available, and in a challenging economic climate, we also needed the most cost-competitive. Nexterra's biomass gasification system addresses both challenges, significantly reducing both greenhouse gas emissions and energy costs."

– Frank van Biesen, VP Technology, Kruger Products

"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 in Birmingham. 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, BAE Systems' Industrial Participation Director

NEXTERRA OWNERSHIP

TANDEM BDC

nexterra

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