

# Dockside Green reaches well beyond the three Rs

Going well beyond the three green principles of reduce, reuse and recycle, Dockside Green is set to be North America's first greenhouse gas neutral community.

Located on a 15-acre former industrial site in the City of Victoria, Dockside Green is a planned development that will consist of residential, industrial and commercial tenants. Its goal? To achieve the platinum level for sustainable development in accordance with the Leadership in Energy and Environmental Design (LEED)

To enhance energy conservation, each residential and commercial tenant at Dockside will be equipped with a meter to measure cold water, hot water, heat and electrical consumption. The metering concept aligns with Dockside's goal of minimizing its environmental footprint and provides tenants with an individual user pay system whereby they only pay for what they use. In turn, the access to detailed consumption information helps promote energy savings.



## DOCKSIDE GREEN

rating system. With the collaborative support of partners like Terasen, Dockside Green is well on track.

### Using a community energy system

Community energy systems distribute thermal energy using a pipeline system which eliminates the need for individual boilers or furnaces. At Dockside Green, a biomass gasification energy system is being employed to deliver energy to the community.

The system, built by Nexterra, creates low-cost heat through a thermo-chemical process known as 'starved air combustion'. This technology transforms locally sourced wood waste—municipal tree trimmings, mill scraps, pine-beetle damaged lumber—into energy. The process provides sufficient heat to create 'syngas'. Burned in a boiler just like natural gas, syngas will create heat for space and hot water needs for the 1.3 million square feet of Dockside Green's residential, office, retail and industrial space. In future, a sewer waste heat recovery system may also supplement the biomass system and utilize an otherwise wasted energy source.

### Clean measures

Dockside Green's biomass gasification system requires less than 3,000 tonnes of wood waste annually (just a few truck loads per week). This raw fuel will create enough energy to meet Dockside Green's heating needs as well as the needs of neighbouring residential and commercial projects.

In total, the combined energy efficient measures at Dockside Green could result in up to a 5,215 tonne reduction of greenhouse gas emissions annually.

### Sharing the wealth

Dockside's community energy system will create a surplus of thermal energy, providing heat and hot water to both on-site and off-site customers. Extending the use of the thermal energy system to neighbouring developments will generate economies of scale and provide the surrounding community with access to the environmentally friendly energy sources generated at Dockside.



## Nexterra's gasifier technology – how it works

### 1. Fuel in-feed

Locally sourced wood waste (including recycled clean wood construction and municipal tree trimmings) is loaded into the fuel bin and conveyed to a metering bin near the gasifier.

### 2. Gasifier

Fuel enters the gasifier and goes through several stages including drying, pyrolysis (chemical change brought about by heat), and gasification. The wood is converted into synthetic "syngas" that can be used like natural gas.

### 3. Oxidizer

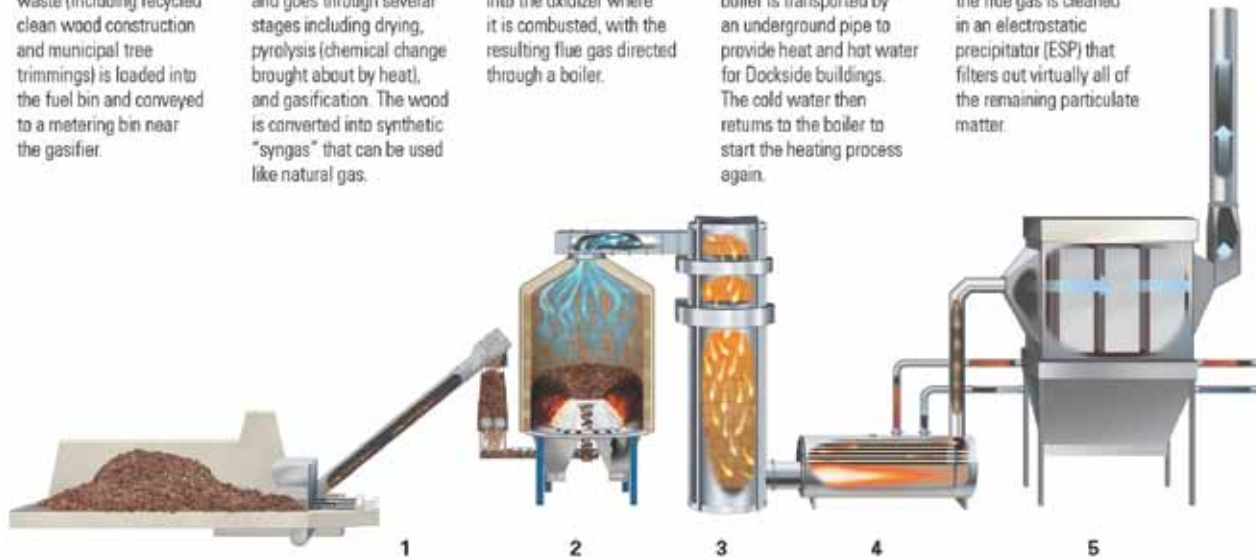
The syngas is conveyed into the oxidizer where it is combusted, with the resulting flue gas directed through a boiler.

### 4. Boiler

Hot water from the boiler is transported by an underground pipe to provide heat and hot water for Docksider buildings. The cold water then returns to the boiler to start the heating process again.

### 5. ESP

After exiting the boiler, the flue gas is cleaned in an electrostatic precipitator (ESP) that filters out virtually all of the remaining particulate matter.



## Partners working together

Terasen, Vancity Capital Corporation, and Corix Utilities Inc. jointly own and operate Docksider Green's community energy system. With commissioning of the biomass gasification plant, the energy system became



fully operational in June 2009. Together, the companies will operate the Community Energy Utility to the same high standard as other regulated utilities in the province.

Support for this project also includes \$2.2 million from Natural Resources Canada and a \$350,000 contribution from The Green Municipal Fund. This is an area where Terasen can provide assistance for developers by helping to navigate incentive application funding at all levels of government.

## Terasen advantage

From concept stage to reliable operation, Terasen has the expertise and resources to design and operate alternative energy systems in a safe, reliable manner. And, in ensuring competitive rates and maximum benefits for both on-site and off-site customers, Terasen meets the needs of the end-user.

## Interested in learning more?

Terasen's ownership of alternative energy systems is growing. With our expertise and experience, we can identify the right system for your development. Contact us for a free preliminary assessment to find out how your development can reduce its environmental footprint.

### Terasen

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