



Quesnel, BC is hoping to be home to the first of its kind community energy system in North America. The project has entered the final feasibility stage.

Tucked into the confluence of the Fraser and Quesnel Rivers in the interior of British Columbia, is a small but charming city called Quesnel, which is home to more than 10,000 people. Quesnel is also hoping to be home to what it claims will be the first of its kind community energy system in North America – a project that has been a dream of the city’s economic development corporation and is now entering its final feasibility stage.

The Quesnel Community Energy System (QCES) is a biomass system that will use waste heat and left-over residues from West Fraser

Timber Co. Ltd’s Quesnel sawmill to generate both heat and electricity. No trees or other forest biomass will be harvested solely to power the QCES. What makes this system unique is that although all the technologies proposed in the QCES are currently operational today (many in Europe), these existing installations either provide district heating only, power only, or are purpose-built, while the QCES takes advantage of existing systems and infrastructure to generate both heat and power. It is proposed that QCES purchase excess heat from West Fraser, and BC Hydro purchase the electricity generated under an Electricity Purchase Agreement.



Quesnel, BC sits at the confluence of the Fraser and Quesnel Rivers in the heart of the province. This photo, courtesy of the City of Quesnel depicts the scale of the community energy project.

The project is a result of visionary leadership on the part of Quesnel’s Economic Development Corporation. This group created the partnerships necessary to the project’s success working with Terasen Gas, West Fraser and BC Hydro, local government and provincial and federal government organizations. According to Quesnel Mayor Mary Sjostrom, the project has the potential to be a significant economic generator for the community in addition to supporting the city’s commitment to green energy. Quesnel is committed to being carbon-neutral by 2012.

The initial capital cost of the QCES is estimated at \$14 million, jointly funded by the City of Quesnel and Terasen Gas. The City of Quesnel, through its Economic Development Corporation, secured grant funding of \$4.13 million through BC’s Innovative Clean Energy Fund, with Terasen Gas funding the balance and acting as a major technical advisor. The federal government through Western Economic Diversification Canada provided \$150,000 of seed capital for research and development studies, the FCM Green Municipal Fund provided \$54,000 towards initial feasibility research and BC Hydro provided \$40,000 towards subsequent feasibility research. The BC Bioenergy Network have also been supportive in moving the project forward by contributing a \$200,000 forgivable loan to

help complete detailed engineering studies and business, legal, and financial frameworks that will finalize the project’s economic viability.

The community-based energy solution allows for the incorporation of new or alternative technologies – in this case, recovered heat and sawmill residuals. The QCES will be designed to achieve more than 90 percent energy efficiency. It would modify the existing biomass energy system at West Fraser’s Quesnel sawmill to generate 5.5 megawatts (MW) of heat to numerous industrial, municipal, commercial or multi-family residential buildings in Quesnel. It will also produce up to 1.7 MW of electricity, which is proposed for purchase by BC Hydro (through an Electricity Purchase Agreement) for re-sale, allowing it to provide its customers with access to a clean source of power.

About 40 per cent of all energy utilized through the project will be from recovery of waste heat; an estimated 9,000 tonnes of wood waste from milling operations will be burned to increase power and heat production.

According to plans, if the project proceeds, there will be numerous additional local economic, social and environmental benefits for all involved, including:

- providing a new non-property tax based revenue source for the city;
- a revenue stream for West Fraser provided in exchange for utilization of its infrastructure and for operational and maintenance services;
- creating jobs during the construction of the QCES and once the system is operational;

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- providing the capacity to serve the majority of large commercial and public sector heat users in Quesnel with a stable, carbon-neutral source of heating;
- retaining wealth in the local economy through retained energy payments from the buildings the QCES will serve;
- diversifying Quesnel’s economic portfolio – the district heating infrastructure can be expanded to provide carbon-neutral heat to new customers, such as food processors;
- meeting BC’s greenhouse gas reduction targets for publicly owned buildings at a reasonable cost; and
- providing an opportunity for BC Hydro, Terasen Gas and West Fraser to gain experience with organic Rankine cycle turbine technology.

In July 2010, in cooperation with West Fraser and BC Hydro, the City of Quesnel and Terasen Gas signed a letter of intent (LOI) to conduct the final feasibility work on the new renewable energy system in Quesnel. Detailed engineering work has begun to finalize analysis of the economic viability of the QCES and the required business, financial, and legal frameworks will also be completed. Ausenco Sandwell has been hired to do the final feasibility work, in cooperation with FVB Energy. This phase of the project should be concluded by late 2010. Approval from the BC Utilities Commission is required to proceed with the project and if obtained, the project is anticipated to be operational in 2012. 

