

Low-carbon energy systems costlier than gas-fed plants

But that will reverse over time, experts say

BY JEFF LEE, VANCOUVER SUN APRIL 20, 2015



Central Heat Distribution steam plant, serving Downtown Vancouver, is to be converted to handle renewable fuels.

Photograph by: City of Vancouver

As Vancouver encourages the creation of new low-carbon district energy systems, users of those utilities can expect to pay more in order to help the city reach its goal of reducing city greenhouse gas emissions by a third by 2020.

However, those district utilities, targeted for some of the city's densest neighbourhoods, are also making Vancouver a North American leader in both the reduction of greenhouse gases and the expansion of waste heat recovery systems.

But low-carbon utilities, such as the city-owned waste-heat system in South East False Creek and a biofuel-energy system proposed for Northeast False Creek by Ian Gillespie's Creative Energy, are about 10 per cent more expensive than conventional natural gas, according to Brian Crowe, the city's director of water, sewer and district energy.

"Of course it is cheaper to burn natural gas. It is cheaper to destroy the planet," said Mark Jaccard, an energy economist at Simon Fraser University. "For 25 years, the movements by energy experts, environmentalists and politicians who were interested in this has been around energy-efficiency. A criticism that people like me have is that you can't do just efficiency. You have to do fuel-switching. You can't just keep burning fossil fuels."

As new systems are developed that use fuel sources such as wood waste, they are showing cities there are ways to economically switch away from greenhouse gas-producing sources such as natural gas.

Jaccard, a former chair of the B.C. Utilities Commission, has done analysis for the B.C. and Canadian governments on what it would take to get to an energy system that doesn't produce greenhouse gases.

"Energy prices for you and I need to rise 25 to 30 per cent over the next 40 years, less than one per cent a year, to get to a zero-emission system," he said. "I would tell you that this increase in costs will be so gradual over a 25-year period that nobody will notice it."

According to a city report comparing neighbourhood utility rates, residents hooked to the city's False Creek utility pay about \$100 a megawatt-hour, according to Crowe. But the system also produces 66 per cent less carbon dioxide and other greenhouse gases than natural gas utilities, he said. Conventional electricity costs about \$104 a MWh, compared to \$90 a MWh for natural gas-fed boilers, according to Crowe. Customers of Creative Energy's old steam heat plant downtown, however, pay even less — about \$64 a megawatt hour — largely because the plant has been in place for nearly 50 years.

That may seem to offer little financial incentive for Creative Energy to convert to biofuel, but Gillespie has said he believes the change is necessary for environmental reasons. The old gas-fired plant is the city's single biggest source of greenhouse gases. Getting rid of it would eliminate about 70,000 tonnes of carbon dioxide annually.

Although Jaccard believes energy prices must rise, Crowe says that eventually the False Creek utility's waste heat recovery system will be cheaper than natural gas. "If you asked this same question a few years ago and used (the price) we thought natural gas would be at right now, it would already be cheaper than natural gas," he said. "So in the long run, we expect to be cheaper than natural gas."

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Energy costs

The effective rates charged by neighbourhood utility systems in B.C., per megawatt-hour:

South East False Creek (City of Vancouver), hot water from sewage waste heat, \$100

BC Hydro, electricity, \$104

FortisBC, natural gas, \$89

Creative Energy Ltd., steam from natural gas, \$64

UBC Campus system, steam from natural gas, \$83

SFU UniverCity Energy, hot water from natural gas, \$149

River District Energy Ltd., hot water from natural gas, \$104

PCI Marine Gateway, heating and cooling from geothermal, \$109

Source: City of Vancouver

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