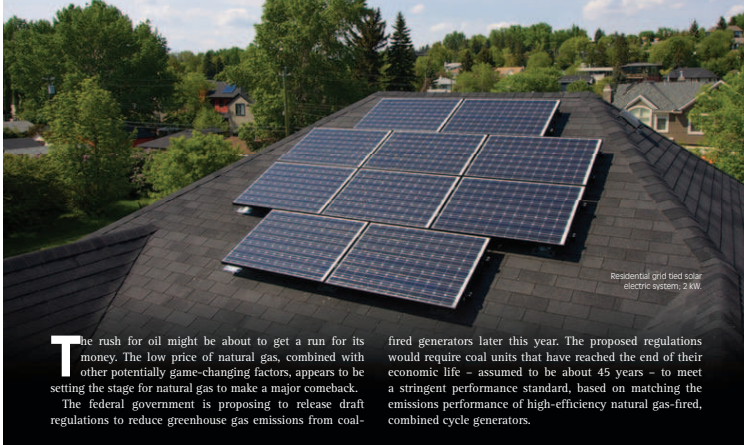


Crude Alternatives

Oil may face increasing competition from natural gas and renewable energy in the economy of the future

BY DEREK SANKEY | ALL PHOTOS COURTESY OF SKYFIRE ENERGY



Residential grid-tied solar electric system, 2 kW.

The rush for oil might be about to get a run for its money. The low price of natural gas, combined with other potentially game-changing factors, appears to be setting the stage for natural gas to make a major comeback. The federal government is proposing to release draft regulations to reduce greenhouse gas emissions from coal-

fired generators later this year. The proposed regulations would require coal units that have reached the end of their economic life – assumed to be about 45 years – to meet a stringent performance standard, based on matching the emissions performance of high-efficiency natural gas-fired, combined cycle generators.



Child Development Centre, University of Calgary, 43.4 kW grid-tied solar electric system (largest system in Alberta)

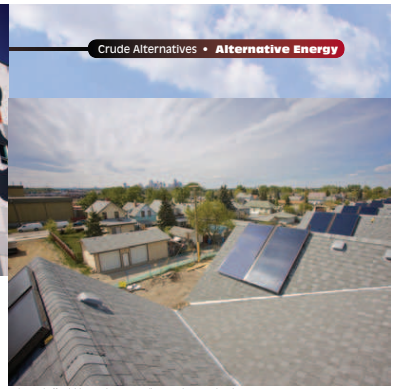
The regulations, which would be published later this year, would take effect on July 1, 2015. "If these regulations are enacted, then this will likely mean the end to coal-fired generation in Canada," says Kent Brown, president of BluEarth Renewables Inc. in Calgary. Almost all of Alberta's power plants are coal-fired. Even though his company is focused on renewables, as opposed to natural gas, he still views it as a positive move.

"Shale (natural) gas will drive more base load generation to natural gas power plants and, when combined with renewable energy plants – wind, hydro, solar, geothermal, biomass – it results in a cleaner, more cost-effective solution," says Brown, referring to the recent trends to multi-stage fracturing techniques that are unlocking new deposits of natural gas previously inaccessible, although not without controversy.

In places such as New York and around the U.S., as well as in Canada in places such as Quebec, shale deposits and the techniques used to exploit the resource has met with strong opposition because it's a new technology and questions have been raised about its environmental impact. It's still a fossil fuel, after all, and still produces some CO2 emissions and the impact of extracting the resource. "There are still some issues with the extraction of these coal bed methane reserves, as far as the fracturing that's required (and) getting into the water supply," says Dave Vonesch, a partner with Calgary-based SkyFire Energy Inc.

Then there's Asia. Demand for natural gas in Asia is growing at a rate of double that of oil – about four per cent compared to less than two per cent for oil. There are also clear signals from U.S. lawmakers that they wish to include a greater degree of reliance on natural gas and less on foreign oil from the Middle East. "Renewable energy, combined with natural gas electricity generation, will certainly help with U.S. national energy security," says Brown. "However, cars and trucks run on gas, which is from oil." A longer-term strategy could be to change entire fleets and consumer vehicles over to natural gas and electric, on some meaningful scale, thereby reducing emissions further.

Vermlion Energy's co-founder Jeff Boyce is now leading Sure Energy, and recently donated \$1.5 million to the University of Ottawa Institute of Technology to examine the use of natural gas as an alternative fuel for the transportation



Ingelwood Affordable Housing, 10-2 collector solar water heating systems

sector in Canada. The planned liquefied natural gas terminal in Kitimat, B.C., would give the resource another boost as exports ramp up to Asian markets.

When it comes to the business of wind power, Vonesch admits it's frustrating to be a renewable energy operator in Alberta. "We've lost hope in some ways," he says. "The energy minister has told us he doesn't want to favour one industry over another, which is kind of funny." The government's focus to date has largely been on greening the hydrocarbon industry through carbon capture and storage.

"It takes a certain leadership for us to take this new direction," says Vonesch. "We're subsidizing the coal industry (and) oil and gas exploration ... and nothing for renewable energy. Forget incenting solar and wind; let's start with an even playing field. Right now, we're competing with subsidized, coal-fired electricity and a lot of exploration costs of oil and gas are still subsidized provincially and federally. Our best argument is to even the playing field first and I think there's a lot of support for that."

Organizations such as the Canadian Wind Energy and Solar Energy Associations (CanWEA and CanSIA) are the two prominent lobby and advocacy groups for the respective industries in Canada, which have made some progress in advancing renewable energy sources, although the country still lags European nations.

"In a lot of ways, Europe is the leader and certain states in the U.S., and now Ontario is an emerging leader, as well, because of the investment we're seeing there," says Vonesch. It's not that the technology is any different on either side of the ocean. "The big and obvious difference is that the governments are behind the (renewables) industry there, while here there is absolutely no sign of that in Alberta at all."

That's why Vonesch is tackling the challenge at a local, municipal level. Medicine Hat has an incentive program for solar, Edmonton just completed a project and SkyFire is

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"What is most needed today in order to advance renewables ... is policy to support the purchase of power from projects on a long-term basis..."
~ Kent Brown

working with several municipalities to examine opportunities to feed directly into the power grid with its solar projects.

In Calgary, the city has made great strides in supporting renewable energy. "We're seeing more movement on a local and municipal level," says Vonesch. Cities, including Calgary, sign a sole source contract – the City of Calgary uses all renewable energy sources to power its electrical needs – and pay a premium for going green – a model that has greatly benefited the early-stage wind producers.

"Municipalities are already paying a premium for green energy, so we're looking at ways in which that might be applied on an even more local level, as far as getting that energy being produced within the city where it's being used," he says, noting most of the demand for renewables has come from municipal governments, post-secondary schools and other public institutions.

There is also an increasing level of awareness among the trades, which are being trained in the next generation of technology. "A lot of the electrical engineers are becoming more familiar with the technology," Vonesch says, adding his company goes into electrical engineering companies and educates them about it.

What's lacking right now is political will and leadership, says Brown. "If subsidies were to end for coal, natural gas and nuclear generation, then most renewable generation would be competitive today," Brown says. "What is most needed today in order to advance renewables ... is policy to support the purchase of power from projects on a long-term basis – 20 years or more. This allows the projects to obtain the necessary debt financing and provides consumers with long-term electricity price stability, while reducing pollution and CO2. We are leaders in conventional oil and gas and unconventional oilsands energy," he says. "We have the opportunity to be the leader of energy – all energy, that is."



Ralph Klein Legacy Park, 2.2 kW grid-tied solar electric system

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