



Renewable Energy Policy Briefing

Will Canada meet its 2030 clean energy goals? Look to natural gas, electric cars, and carbon pricing for clues

The federal government wants to move to a low-carbon economy, and electricity generation will be a critical part.

BY JOLSON LIM

The federal government eyes increasing the share of non-emitting electricity generation to 90 per cent by 2030—but will Canada get there?

Probably not, according to experts who spoke to *The Hill Times*. But Canada may get close. Industry officials and researchers said the federal government needs to, at the very least, follow its low-carbon economic plan. They also looked to whether natural gas generation will continue to increase and if currently-stalled demand for electricity will change due to the electrification of cars.

And a lot can happen in 12 years, they say.

Too much natural gas?

As it stands, one of the reasons why Canada will likely miss the 2030 target is because of the availability of cheap natural gas that has offset coal.

Natural gas has helped cut carbon emissions by burning at a rate two times as clean, but at the same time, has swallowed up some of the demand opened up by provincial efforts to end coal-fired power by 2030. Meanwhile, nuclear and hydro power face high capital costs and political and safety concerns.

Renewables continue to face competition from natural gas despite plummeting costs for development in recent years, and electricity demand nationwide has remained constant, according to Patrick Bateman, policy director at the Canadian Solar Industries Association.

As a result, the “need for new electricity generation has not lined up with the need to invest in new generation capacity” and growth of solar has stalled over the last two years, he said.

A January report by consulting firm EnviroEconomics concluded that natural gas generation is well above a level consistent with the 90 per cent target. It concluded Canada is on pace to produce twice as much natural gas generation by 2030 as it does now.

“There’s no doubt both renewables and natural gas will replace coal,” said Dave Sawyer, head of policy at EnviroEconomics, and one of the report’s authors. “It’s just a question of how much each.” “Without question, if Canada is going to meet that 90 per cent target, they need to build more renewables and less natural gas for electricity generation,” said Sarah Petrean, senior policy adviser at Clean Energy Canada.

However, Natural Resources Minister Jim Carr (Winnipeg South Centre, Man.) recently endorsed a report from his



Power lines running in a rural patch near Kincardine, Ont. The federal government is eyeing 90 per cent of electricity generation by 2030 to come from non-emitting sources. *The Hill Times* photograph by Kristen Shane

department’s Generation Energy advisory council that had cutting emissions in the natural gas sector as a way to move toward a green economy.

While also signalling a push for renewables, the report doesn’t include a call to move towards 100 per cent generation from zero-carbon emission sources. A recent NEB report also projected natural gas will generate 17.5 per cent of Canada’s total electricity by 2040. That figure was at 9.3 per cent in 2016.

Electric vehicles may complicate things

Non-emitting electricity generation, mostly from hydro, make up more than 80 per cent of Canada’s power, putting the country within reasonable striking distance to reach its 2030 goals.

Compare that the United States, where government statistics indicate only 37 per cent of electricity is produced from renewables or nuclear power.

At it stood in 2016, hydro generated almost 60 per cent of Canada’s electricity, according to the latest NEB figures. Solar, wind and biomass made up 7.3 per cent of all of Canada’s generated electricity. Nuclear power comes in at 14.6 per cent. Coal and natural gas each accounted for 9.3 per cent of all electricity generated, while oil and diesel made up 0.5 per cent.

Despite the advantage, the EnviroEconomics’ own figures found that Canada gets 78 per cent of its electricity from non-emitting generation, and is only forecast to reach 80 per cent by 2030 if it follows through on its climate plan.

It concluded that growth in renewables would have to annually double to be on a path to 90 per cent. Coal phase-out would have to accelerate as well.

“Government is doing a lot and they need to continue on that trajectory,” Mr. Sawyer said. “[But] we’ve got to be prepared to expand the toolbox.”

“The direction might get us another five per cent of the way there,” Ms. Petrean said.

But McGill University professor Chris Barrington-Leigh said we shouldn’t fixate too much on the target. It’s all about reducing greenhouse gas emissions in the end, he emphasized, and Canada

may soon see major changes to the electricity landscape.

Two variables he noted were efforts to move towards electrifying transportation and potential advancements in technology that could cut costs and accelerate renewable growth.

He said different studies predict that as much as 55-85 per cent of Canada’s fleet of vehicles will electrify in the next two decades, which could increase overall electricity demand. Energy efficiency may also push Canadians toward using less electricity at the same time.

“We’re planning for a very rapidly expanding electricity market but with huge uncertainty,” he said. “When you have a target that’s based on a fraction of the electricity market, that’s not really the target you want to be chasing.”

The Liberal government sprawling climate plan includes billions of dollars in “green infrastructure” spending, receiving all its energy needs from renewables by 2025, and providing \$200-million for emerging higher-risk renewable energy technology projects.

The centerpiece of the Liberal government’s strategy is nationally-backstopped carbon pricing, set to begin next year, and it’s something the solar and wind industry are banking on to help their growth going forward.

Carbon pricing may anchor growth

Industry and experts believe carbon pricing is essential and can gradually tilt Canadians to change their economic behaviour to favour lower-carbon emitting energy as other sources are taxed.

Such changes would produce the right market conditions for renewables to thrive by making it more expensive to generate electricity that produces carbon emissions.

“Think about it like a speeding ticket,” Ms. Petrean said. “You don’t want somebody to speed so you make it really expensive if they do.”

Mr. Bateman said “the carbon pricing backstop is the core part of everything.”

“We’ll begin to see a shift from emitting sources to non-emitting sources,” he said. “We see that as the most efficient and cost effective

approach to doing this.”

Putting a price on carbon with a set schedule “will ultimately provide predictability to investors,” said Jean-François Nolet, vice-president of policy at the Canadian Wind Energy Association.

But political uncertainty surrounds carbon pricing, as the federal Conservatives has strongly opposed carbon pricing, while the Liberals have received backlash from the provinces. Premier Doug

Ford recently announced Ontario would abandon its cap and trade system and vows to fight the backstop in court.

The federal government is still determining its exact carbon pricing scheme for the electricity market. But as a tool itself, Mr. Sawyer’s said his own output-based carbon pricing scenarios suggest there won’t be a major impact on lowering fossil fuel-based generation. His analysis was published in a recent report.

“It’s only a partial price and that doesn’t really flip the natural gas-renewables story enough,” he said.

Are new subsidies needed?

In the last 10 years, the provinces have provided generous incentives for renewable generation, including Alberta’s successful Renewable Electricity Program.

Harper-era federal programs such as the \$1.4-billion 14-year ecoEnergy For Renewables program that subsidized 104 projects, have also been helpful, Mr. Nolet said.

Such initiatives have helped firmly plant wind and solar in the electricity market. Wind as a share of the country’s electricity generation has risen from 0.2 per cent in 2005 to 4.7 per cent in 2016.

However, clean energy investments have hit a snag in Canada. New data from Bloomberg New Energy Finance suggests new private-sector investment in clean energy has dropped by half in the last three years, compared to 2012-14.

According to Mr. Sawyer, there was a “wind-down period” of incentives and then a “wait-and-see” period for investors in 2016 on what kinds of new programs would be offered particularly in Alberta where much growth has been centred and the province with the cheaper wind power costs.

But the wind industry, according to Mr. Nolet, doesn’t necessarily need subsidies anymore, preferring a low-carbon market approach as a way to spur further growth.

“We don’t need subsidies. We don’t need government support,” he said. “What we need is access to markets and carbon pricing.”

Ms. Petrean said she’s not opposed to tax breaks, but said it doesn’t solve the ongoing problem of increasing the number of renewable projects built.

And despite the investment decline, Mr. Sawyer’s own analysis shows Canada is still expected to see strong growth in renewables.

“That reflects the current state of play with carbon and energy policy,” he said.

Federal programs now centre around research and development, recently providing \$229-million to two departments to continue their core clean energy and transportation innovation programming.

But changes are coming at the provincial level, where the bulk of incentives for renewables come from. Ontario recently gutted rebate programs for solar retrofitting and electric cars last week.

Premier Ford is also cancelling 758 renewable energy projects. Some renewable companies are already eyeing Western Canada to set up, as Mr. Ford vowed in his July 12 Throne Speech to end renewable programs in an effort to cut hydro rates.

But Mr. Sawyer said he’s hopeful progress will continue, because provincial and federal governments tend to balance each other out.

“We’re a federation. We’ve got multiple layers of responsibility. When one [government] backs away, others step in.”

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Share of electricity generation in Canada by source, 2005 vs. 2016

Share of generation, 2016

Oil and diesel: 0.5 %
Natural gas: 9.3 %
Coal: 9.3 %
Nuclear: 14.6 %
Solar: 0.5 %
Biomass: 2.0 %
Wind: 4.7 %
Hydro: 58.8 %

Share of generation, 2005

Oil and diesel: 1.8 %
Natural gas: 6.8 %
Coal: 16.1 %
Nuclear: 14.4 %
Solar: <0.1 %
Biomass: 1.3 %
Wind: 0.2 %
Hydro: 59.5 %

Percentage change, as share of overall generation

Oil and diesel: -1.3 %
Natural gas: +2.5 %
Coal: -6.8 %
Nuclear: +0.2 %
Solar: +0.5 %
Biomass: +0.7 %
Wind: +4.5 %
Hydro: -0.7 %

Percentage change, by source

Oil and diesel: -72.2 %
Natural gas: +36.8 %
Coal: -42.2 %
Nuclear: +1.3 %
Solar: ∞ %
Biomass: +53.8 %
Wind: +2250 %
Hydro: -1.2 %

—Figures from the National Energy Board