Ontario Energy Board

Commission de l'énergie de l'Ontario

Challenges of the "Green Economy" for Electricity Network Regulation

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The “green economy” approach to the power sector

- Green economy approach implies:
  - Emphasis on creation of green jobs, particularly manufacturing of renewable electricity generation equipment.
  - Willingness to pay what it costs to produce different forms of renewable electricity, regardless of relative cost effectiveness.
  - No *a priori* limits on the total capacity to be procured, regardless of
    a) amount required by the system or
    b) capability of transmission or distribution system to deliver the power from this generation.
- Main mechanism for procuring this electricity is through a “Feed-in Tariff” (FIT) program.

What is a Feed-in Tariff (FIT) Program?

- Pioneered in Germany, adopted in Spain and now in Ontario.
- Standard contracts are offered to all renewable generators wishing to connect to a transmission or distribution system, including standard prices and terms.
- Normally no cap or limit on the capacity to be purchased.
- Prices vary by technology, and may vary by size.
- Requirements for local content in the equipment, hence creating “green jobs” and a potential export industry.
- Renewable generators have a “right to connect”.

Ontario FIT prices

Technology	Capacity (MW)	Price (c/kWh)
Solar PV	≤ 0.01	80.2
Rooftop solar PV	0.01-0.25	71.3
Rooftop solar PV	0.25-0.50	63.5
Rooftop solar PV	>0.5	53.9
Groundmounted solar PV	0.01-10	44.3
On-shore wind	any size	13.5
Off-shore wind	any size	19
Waterpower	≤ 10	13.1
Waterpower	10-50	12.2
Biomass	≤ 0.5	13.8
Biomass	>0.5	13
Biogas	≤ 0.5	16
Biogas	0.5-10	14.7
Biogas	>10	10.4
Landfill gas	≤ 10	11.1
Landfill gas	>10	10.3

Renewable generation expansion in Ontario

- 1350 MW coming on stream 2010-2011 (nearly 500 MW solar)
  - Capacity allocated
- 2500 MW from Samsung (2012-2016)
  - Capacity allocated for 500 MW
- FIT program response 9000+ MW
  - Over 11000 MW of renewable generation (FIT + unallocated Samsung) with transmission capacity for 2500-4000 MW

Implications of the FIT program for network investments

- There is no such concept as “too much” renewable generation. More is better because it creates more demand for equipment and hence more “green jobs”.
- Thus prices have been sufficiently generous to lead to many applicants for FIT contracts.
- Most projects will proceed despite needing significant network investment.
- Transmission and distribution networks will have to be both expanded and upgraded to accommodate renewable generation.
- *The main drivers for network investment are renewable generators seeking FIT contracts, not integrated planning nor market price signals.*

The existential challenge: Is economic regulation needed in the green economy?

- Rate impacts (or delivering value to customers) not a primary "green economy" concern. For example:
  - The lack of limits on the total amounts to be procured.
  - Willingness to pay a few hundred percent more for solar power than for wind.
  - Willing to pay nearly double for residential solar over solar farm solar.
- Regulators normally close the gap between the utilities' private interest and the public interest by restraining utilities from overbuilding their networks, but governments want more investment in networks for the policy to be successful.
- Transmission and distribution are a smaller portion of total bill than generation.
- FIT policy has had greatest success in Germany where there was no regulator!

Regulatory policy can be helpful, if retooled

- We are still responsible for 30% of the bill!
- Regulators have many instruments that they can use to implement the new policy:
  - Oversight of network rates and investment.
  - Rules for allocation of existing connection capability.
  - Rules for allocation of connection costs.
- These can be “retooled” to meet the mandate to expand the system.
- One of the most important changes – transmission approval reform.

The regulatory challenge – making transmission planning approvals "work" in the FIT environment

- Integrated "central" planning won't work with FIT. In response to FIT prices, generators, not planners, determine how big their projects are, where they will be located, and when they will come forward.
- One possible response is to have transmitters start expanding the transmission system in places that the transmitter expects generators to locate "if you build it they will come".
- However, it would be very challenging for a regulator to approve construction of such lines if there are no demonstrable generation resources that will use them. The policy would become BEERON "Build Everything Everywhere Regardless of Need".

A two-stage approval process to overcome BEERON

- Central concept: separate approval stages for development versus construction
  - Stage 1: Following the identification of transmission options in a planning process, a regulatory proceeding identifies which transmitters are to develop the lines through a competitive process.
  - Stage 2: Once the designated transmitter has developed the option, and provided there is sufficient generator interest to justify the line, the designated transmitter seeks approval to construct the line. If interest is not sufficient, the transmitter abandons the line and recovers its prudently incurred costs from ratepayers.

What the two-stage process will enable

- Get transmitter working on developing the facilities, i.e., route planning, consultation, detailed engineering, environmental approvals at an early stage, overcoming “chicken and egg”.
- Provide comfort to transmitter that they will be able to recover development costs.
- Competitive process will ensure better value for consumers.
- Provide comfort to generation project developers that the transmission facilities are being developed, encouraging more projects.
- More projects means more likely to proceed.

Transmission planning and regulation

- Regulators can support the process while mitigating ratepayer risk by:
  - Recognizing uncertainty by allowing/requiring transmitters to develop transmission “options”.
  - Allowing recovery of costs of undertaking development related activities for transmission (detailed engineering, route planning, environmental impact assessment, consultation) so that projects can quickly move forward to approvals stage.
  - Make decisions on the appropriate size of projects at the approval stage.
  - Provide incentives for completing riskier projects.

Summary

- A “green economy” renewables policy will drive a large transmission and distribution network build.
- In response, regulators have to rethink how they regulate networks. Regulators have to consider how to get utilities investing in this infrastructure more quickly, while promoting outcomes that protect ratepayer interests.
- Existing regulatory tools can be adapted to ensure that the revised public policy mandate is met as cost effectively as possible.