Illinois Climate Change Advisory Group
7/3/2007

Subgroup: Power/Energy
Policy Name: #7 Small Renewable Distributed Generation: rules, legislation, incentives
Policy Type: Mixed: Illinois Commerce Commission rules, legislation, incentives
Estimated 2020 Reductions Compared to BAU: 1.88 million metric tons CO2

Affected sectors, subsectors or entities (As the case may be)

Sector: Electric
Subsector: Industrial, Commercial, Residential
Entities: Illinois electric utilities and customers

Description

Note that Large DG/ CHP issues are now dealt with under Policy #14 in the Commercial Industrial and Agriculture group: boiler standards and incentives for CHP

Encourage adoption of small-scale renewable distributed generation (DG) by adopting a menu of policies including all of the following:

- ICC adopt federal standards for interconnection
- establish by legislation a requirement that utilities offer net metering
- require utilities to offer real-time pricing (RTP) programs
- exempt such systems from state and local sales taxes
- increase/ expand the scope of state incentives for such systems
- require utilities to assign 15 year RPS credit value in first year / provide this amount as payment to system owner upon installation
- set binding goal for percentage of power that should come from small renewables by 2020 (1% to 2% of sales)

Background:

Federal interconnection standards: Illinois is required under the Energy Policy Act of 2005 (EPACT) to consider adopting the federal standards for interconnection and net metering. The Illinois Commerce Commission (ICC) is currently addressing the interconnection rule under docket number 06-0525 and will complete its deliberations by August 2007.

Net metering: Legislation (SB 680) passed the General Assembly requiring utilities and alternative retail electric suppliers to offer net metering starting April 1, 2008 to customers that install renewable generating facilities for the primary purpose of offsetting the customer's own electric demand. Systems up to 2,000 kW in size are eligible. Utilities and ARES may cap net metering at 1% of their peak demand.

Real Time Pricing: Commonwealth Edison and Ameren are currently conducting a real-time pricing (RTP) pilot program that has a target of recruiting 130,000 residential customers. The ICC is required to evaluate its costs and benefits after four years. The utilities also offer RTP to large customers.

Tax exemptions: Currently, small solar and wind systems are not exempt from state and local taxes (generally 6.25%). Every large utility-scale wind farm built to date in Illinois has benefited, however, from Enterprise Zone designation and, therefore, has been exempt from such sales taxes. Legislation passed in the 1980s does prohibit tax assessors from increasing property valuations based on the (higher) value of renewable energy systems.

State incentives:

- DCEO currently offers rebates of 30% for small PV or solar thermal systems up to a maximum of $10,000; cost of the program in FY07 was $1M and demand has been growing rapidly.
- On a pilot basis, DCEO also currently offers grants of 50% for small wind systems that can demonstrate a viable wind resource, have at least one acre of land, and obtain appropriate zoning approvals.
- DCEO also currently offers grants for solar thermal systems of 30% with a maximum of $400,000. FY07 expenses will be between $1M and $2M. Solar thermal can be used for hot water for pools, laundries, and similar commercial uses, as well as for various chilling and dehumidifying applications.
- All states with large solar programs spend considerably more on such incentives.
- Complimentary federal tax credits for solar are 30% for residential with a maximum value of $2,000, and 30% for businesses with no cap; both expire December 2008, unless renewed.

RPS assignment of value to first year and/or set-aside goal for small renewables: RPS language currently active in the Legislature (such as SB 1184, Harmon, and HB 1871, Nekritz, each of which have passed a chamber) does not include any set aside for small DG or any firm assignment of value for small DG in the first year.

Other states, typically in the Southwest but also including Maryland and New Jersey, have included set-asides within their renewable portfolio standards for solar (none for "small DG" per se). New Jersey and Maryland both have goals representing 2% of total electric load.

Rough estimate of reductions from BAU in 2020

For purposes of the CCAG analysis, we have assumed that by 2020 the total package of small renewable DG policies and incentives results in 1.5% of electric demand being met by new small distributed renewable energy systems. If electric demand grows at 1.3%/year to 158 million MWh, DG would represent 2.37 million MWh. If half that DG is photovoltaics and half small wind (with capacity factors of 15% and 30% respectively),

1,200 MW of renewable DG capacity would be required. In total, DG incentives could reduce Illinois carbon dioxide emissions **by 1.88 million metric tons** by 2020. These benefits are based on an average emissions rate of about 1.75 pounds/kWh from the Shaw Group study on the environmental benefits of the Governor's Sustainable Energy Plan, which shows that coal generation predominantly, but not exclusively, will be displaced. The Shaw study also shows that more than half of these emission reductions would occur outside of Illinois because of the regional nature of the electric dispatch system.

The total cost of installing 1,200 MW of DG is approximately $7.3 billion (assuming $8/W for PV and $4/W for small wind). Assuming continuation of the current 30% federal tax credit for PV and 1.9 cents/kWh investment tax credit for wind, costs of $5.5 billion would need to be borne within Illinois by some combination of customer financing and public benefits funding.

Because the production of PVs is itself energy intensive, the final carbon reduction may need to be adjusted. According to the National Renewable Energy Laboratory (report FS-520-24618), PVs generally need to operate for 1-4 years before generating the amount of power required to produce the panels.

Timetables, duration and stringency

The interconnection and net metering rules will be in place by April 2008. The current RTP program could continue to be offered after the initial four-year pilot. If the 1,200 MW of DG are installed over the 12-year period of 2009-2020, that is 100 MW per year.

Barriers to implementation

The major barrier to the incentives and to an RPS set-aside for small DG would be the costs.

Interstate Cooperation

All states are required to consider adopting the federal interconnection and net metering standards for distributed generation.