Renewable Energy Question #22: Michigan law currently contains provisions for incentive renewable energy credits, and advanced cleaner energy credits. What impact has the provisions for incentive renewable energy credits and advanced cleaner energy credits had on renewable energy in Michigan? What has been the impact of similar provisions in other jurisdictions?

The use of credit multipliers can be an effective strategy for states to accomplish specific economic, resource diversity, or environmental goals under their renewable electricity standards. When designed properly, they can recognize and value unique benefits such as local economic development or grid reliability. They can also incentivize certain technologies or investments at a lower risk of cost impact to consumers. However, establishing multiplier values at levels that will stimulate the intended investment without overvaluing it can be challenging and requires ongoing management. Furthermore, by their very nature credit multipliers reduce the overall RES requirements, and can erode the support for new renewable energy development. This underscores the importance of proper policy design and evaluation.

P.A. 295 contains several provisions for both incentive renewable energy credits and advanced cleaner energy credits that can be used to help utilities meet Michigan's 10 percent by 2015 renewable energy standard. Incentive renewable energy credits provide multipliers for renewable energy credits (RECs) from renewable energy systems that are (1) solar generated electricity; (2) on-peak production or successfully stored to be used during peak demand times; and (3) constructed using Michigan labor or Michigan-made equipment.

As the Michigan Public Service Commission (MPSC) found in its 2012 and 2013 reports on the implementation of P.A. 295, a significant number of renewable energy projects are receiving incentive credits (IRECs) for using Michigan-made products and utilizing Michigan-based labor. Between 2009 and 2012, IRECs made up 10% of the total credits created – about 190,000 RECs total. Since one IREC equals 0.1 REC, this represents 1.9 million MWh of renewable energy generation that qualifies for the IREC multiplier. As the MPSC 2013 report discusses, renewable energy manufacturing is responding to demand for IRECs by continuing to invest in Michigan.

Several states include credit multipliers for in-state development of renewable energy resources or for distributed generation, typically not to exceed a certain size. Incentive credits are also given for community-scale projects, and Delaware and Arizona offer incentive credits for facilities using in-state manufacturing. Similar to Michigan, these incentive credits are a contributing factor to the amount of renewable energy developed in those states, and the impact of the incentive credits is largely dependent on the exact multiplier used. Michigan's incentive credits for in-state manufactured products and Michigan labor are within the range offered by other states, typically 0.1 to 0.5 credits per MWh.

The solar IREC that provides an additional 2 RECs for every MWh of solar generated electricity is also providing some incentive for Michigan utilities to develop solar PV resources. Both DTE and Consumers have successful distributed solar programs. Between DTE and Consumer Energy's distributed solar programs, more than 25 MW of solar capacity is projected to be installed in Michigan by 2015. The

multiplier credit, combined with falling prices for solar systems, appears to be helping to drive this investment.

Several additional states, including Arizona, Delaware, Nevada and Oregon, also offer incentive credits specifically for solar generated electricity, ranging from an additional 0.5 to 3 additional credits for each MWh of generated electricity. There is some question, however, as to whether credit multipliers are the best policy strategy for stimulating solar energy development. In its 2010 report, "Supporting Solar Power in Renewables Portfolio Standards: Experience from the United States," the Lawrence Berkeley National Lab found that while both approaches have their advantages and disadvantages, issuing multiple credits to solar technologies is not as effective as solar carve-outs at promoting solar technology development. LBNL concluded that multipliers provide less certainty for solar developers than do solar carve-outs, and "to the extent that they do stimulate solar development, they do so at the expense of reducing the effective RPS percentage."

The 1/5 incentive credit available in Michigan for renewable energy capable of being distributed during peak-demand times (either generated on peak or able to be stored until peak) may be a factor in decisions about where to site renewable energy facilities, but is probably not driving additional renewable energy development in Michigan. Solar systems (and wind to a lesser degree) will generate electricity during peak times (as defined by the Michigan legislature), and renewable energy facilities may be able to coordinate with Michigan's Ludington pump-storage facility to take advantage of this IREC opportunity, but given the current availability of inexpensive RECs to meet compliance obligations, a 1/5 incentive credit per MWh of generation is likely not large enough to drive additional renewable energy development in Michigan.

Regarding the use of advanced cleaner energy credits (ACECs) to comply with P.A. 295, the availability of ACECs and the various restrictions on their use does not appear to be having a significant impact on renewable energy in Michigan. According to the Michigan Renewable Energy Certification System Annual Report for 2011-2012, ACECs made up only 8% of total credits issued from 2009 to 2012, and that percentage dropped significantly in 2012 over 2011. The MPSC, in its 2013 report on the implementation of P.A. 295, states that no electric provider indicated that the percentage limits on the use of advanced cleaner energy resources has affected development of these resource, that advanced cleaner energy continues to be a small percentage of the Michigan renewable energy portfolio, and that the percentage limits on these resources for compliance are far from being met, indicating that renewable energy resources continue to be the preferred method for compliance with P.A. 295.

Across the country, a number of states allow non-renewable energy resources to count towards meeting alternative energy resource standards. Four states allow for non-renewable resources: Michigan, Ohio, Pennsylvania and West Virginia. All of these states plus four others (Connecticut, Hawaii, Nevada and North Carolina) allow energy efficiency to contribute to renewable energy standards. The level of impact that these provisions have on renewable energy development depends largely on the type of resources allowed and the cost-effectiveness of those resources compared with renewable energy. Generally, non-renewables and energy efficiency are being heavily utilized where allowed, particularly energy efficiency

which is very cost effective compared to just about any other available resource. Nearly all of these states provide a separate tier or cap on the amount that these resources can contribute. Energy efficiency levels are often capped at 25% or less of total RPS compliance, and non-renewable energy levels are typically capped at lower percentages, such as 10%.

When states seek to drive investments in efficiency or non-renewable resources through inclusion in a renewable energy standard, it is critical that (1) there be thoughtful caps in place to ensure that the goal of driving investment in renewable energy is not compromised, and (2) that there be rigorous protocols in place, particularly regarding energy efficiency, to verify the amount of energy generated or saved by these alternative resources.

Resources:

1) DSIRE database. Online at http://www.dsireusa.org/; accessed April 8, 2013.

2) Heeter, J. and L. Bird. 2012. *Including Alternative Resources in State Renewable Portfolio Standards: Current Design and Implementation Experience.* Golden, CO: National Renewable Energy Laboratory. Online at: http://www.nrel.gov/docs/fy13osti/55979.pdf, accessed April 4, 2013.

3) Quackenbush, J.D., O.N. Isiogu, and G.R. White. 2013. *Report on the implementation of the P.A. 295 renewable energy standard and the cost-effectiveness of the energy standards*. Lansing, MI: Michigan Public Service Commission. Online at *http://www.michigan.gov/documents/mpsc/Report_on_the_implementation_of_Wind_energy_resource_zones_2013_413124_7.pdf*, accessed April 5, 2013.

4) Quackenbush, J.D., O.N. Isiogu, and G.R. White. 2012. *Report on the implementation of the P.A. 295 renewable energy standard and the cost-effectiveness of the energy standards*. Lansing, MI: Michigan Public Service Commission. Online at *www.michigan.gov/documents/mpsc/implementation_PA295_renewable_energy2-15-2012_376924_7.pdf,* accessed March 24, 2013.

5) APX. 2013. Michigan Renewable Energy Certification System annual report for 2011 – 2012. Online at http://www.mirecs.org/resources/MIRECS-2011-Annual-filing-PUBLIC_Version2.pdf; accessed April 3, 2013.

6) Wiser, Ryan, and Galen Barbose. 2012. *Supporting Solar Power in Renewable Portfolio Standards: Experience from the United States*. Lawrence Berkeley National Laboratory. Available at: http://eetd.lbl.gov/ea/emp/reports/lbnl-3984e.pdf