Evaluating Renewable Programs: Is it Just Like Energy Efficiency?

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Renewable program growth is driven by renewable portfolio standards and direct customer interest in green power. As these programs have become larger and use more ratepayer dollars, public utility commissions have either begun requiring or will soon require evaluations of the impacts of these programs. In the field of energy efficiency (EE), utility program evaluation is a well developed skill. But, are these skills applicable to renewable program evaluation?

The answer is yes, in some cases. They are applicable, for the most part, in the case of distributed renewables. In the case of utility scale renewables, the M&V aspects of evaluation are not usually needed, however, attribution analysis can be required. Understanding the distinction between distributed and utility-scale renewables is essential.

Distributed Renewables are More Like EE, but Special Skills are Required

Distributed renewables are typically located on the customer-side of the meter. They can include (depending on the local definition) photovoltaics, small wind, biomass, geothermal heat pumps, solar water heating, and daylighting. Because these technologies reduce customer load, EE evaluation techniques tend to be applicable. Installations and installation quality must be verified. With PV, azimuth, angle, insolation, and shading must be examined. Impacts can potentially be measured with billing analysis. Annual and hourly energy production can be simulated with engineering models, although different models may be required than those used for EE. Renewable systems can be metered, or may include integral meters, as with some PV systems. Issues of retention and degradation of savings can be important with these systems. The same types of benefit-cost tests, such as the total resource cost test, are often used for these programs.

Utility Programs Require Different Skill Sets

Utility-scale renewables are less likely to require similar types of program evaluation. These systems are large capital investments, with some wind projects now approaching 1,000 MW. Measurement of production is done precisely by meters, verification of installation is not typically an issue, nor is retention. With payment based on delivered energy, degradation of system performance is also not usually a significant concern.

One issue related to utility-scale renewables that can and has required program evaluation skills is attribution. That is, would the projects have been built without ratepayer money? However, standard EE attribution methods may not appropriate because of small sample sizes and long, complex decision-making processes. Interviews with developers can be useful, but interviews with these parties require different skill sets than are used to interview residential or even commercial customers.