

The National Energy Efficiency Registry

*Michael Li, U.S. Department of Energy
Pat Stanton, E4TheFuture*

ABSTRACT

The creation of a National Energy Efficiency Registry (NEER) has the potential to catalyze new levels of investment in energy efficiency (EE). NEER will be a place where energy savings from across the country can be documented, aggregated and exchanged.

NEER will be similar to the renewable energy registries for renewable energy generation and will bring EE closer to parity with renewable energy by developing robust protocols and reporting standards that will support development of financial instruments representing verified EE savings. Such instruments can be used to demonstrate compliance with energy efficiency resource standards (EERS) and environmental regulations and, ultimately, to support the “Utility of the Future” vision of performance based procurement of EE.

This paper will:

- Identify key features and functions of NEER
- Summarize key issues core to establishing NEER
- Present options for NEER governance and operations
- Describe how NEER will catalyze greater investment in EE
- Describe how NEER can facilitate the use of EE as a compliance tool in the context of the Clean Power Plan (CPP)

Introduction

With rigorous protocols, robust data Quality Assurance/Quality Control (QA/QC) protocols and standardized reporting formats, NEER has the potential to catalyze new levels of investment in addition to facilitating EE use as a compliance pathway for environmental regulations. NEER will be a place where energy savings from across the country can be documented, aggregated, commoditized and exchanged.

Under a cooperative agreement with the U.S. Department of Energy (DOE 2015), awardee Tennessee and its project partners – Georgia, Michigan, Minnesota, Oregon, Pennsylvania, The Climate Registry (TCR) and the National Association of State Energy Officials (NASEO) – are developing a foundation for NEER. The project partners are in a multi-state stakeholder process to develop principles and operating rules for NEER. The partners will also provide a roadmap for states to employ NEER functionality to transparently document EE project measurement and verification (M&V), better recognize public and private sector investments in EE, and serve state energy and environmental planning efforts. Additional investments and commitments from users will be needed for wide implementation of NEER.

The first draft of the NEER principles and operating rules will be distributed to the stakeholder working group in June 2016, after the publication date for this paper. A copy of this document will be available on the project website (TCR 2016).

Why NEER Now?

EE stakeholders have watched with envy as development of registries, that support compliance with Renewable Portfolio Standards (RPS) and voluntary green power markets, have not only quantified and commoditized the non-energy benefits of renewable energy generation for compliance purposes, but have also dramatically reduced transaction costs for private investment.¹ Arguing that the non-energy benefits combined with avoided energy purchases make EE a better value than renewables, advocates – particularly those interested in EE financing – have struggled to find the “secret sauce” that could bring comparable liquidity and investment to EE that wide acceptance of Renewable Energy Credits (RECs) has brought to renewables.²

While REC markets continue to face the challenge of balkanization caused by individual state policies regarding which types of projects qualify for RPS compliance, they have been very effective due to the confluence of two public policies that have eluded advocates for comparable Energy Efficiency Credit (EEC) markets:

1. A universally accepted public policy for the measurement and reporting of the quantity of RECs to be issued to qualified projects. Standard measurement protocol is an essential ingredient that has made REC markets possible.³ The lack of such consensus for how to measure and report the avoided energy of EE projects on a national scale has stymied development of tradeable credits in the EE sector.
2. At least one significant regulatory compliance program to drive registry participation and activity.

Beginning in 2015 this landscape changed, opening the possibility for an EEC market to take advantage of compliance instruments analogous to RECs. In August 2015, the U.S.

¹ This National Renewable Energy Laboratory (NREL) white paper provides a retrospective analysis on RPS benefits and impacts, including the cost of implementing RPS for compliance as opposed to the costs of not doing so, the environmental benefits, and other impacts, such as the benefit to society. See <http://www.nrel.gov/docs/fy16osti/65005.pdf>.

RAP wrote a white paper on how existing policy and RECs will make it easier for states to comply with the Clean Power Plan, since certificates are “quantifiable, non-duplicative, permanent, verifiable, and enforceable.” See <http://resource-solutions.org/site/wp-content/uploads/2015/07/Navigating-EPAs-Clean-Power-Plan-for-Compliance-with-Renewable-Energy.pdf>.

² The Environmental Defense Fund initiated a program called the Investor Confidence Project, which aims to reduce transaction costs by “assembling existing standards and practices into a consistent and transparent process that promotes efficient markets by increasing confidence in energy efficiency as a demand-side resource.” See <http://www.eepformance.org/>.

Warehouse for Energy Efficiency Loans “WHEEL” is funded by the Department of Energy, and purchases and aggregates energy loans in a virtual financial warehouse. This in turn attracts large-scale investment to provide low-cost, large scale capital for state and local government and utility-sponsored residential energy efficiency loan programs. See https://www.naseo.org/Data/Sites/1/documents/committees/financing/documents/WHEEL_Primer.pdf.

CarbonCount is a scoring tool created by the Alliance to Save Energy designed to evaluate bond investments in U.S.-based, energy efficiency and renewable energy projects to determine how effectively they can be expected to reduce CO2 emissions per \$1,000 of investment. See http://www.ase.org/sites/ase.org/files/carboncounttm_paper_.pdf.

³ In 2014, NREL published a paper on what role RECs play in developing new energy efficiency projects. The paper also includes results from a NREL-issued questionnaire which indicates that respondents found RPS/REC purchases the most important incentive program to the development of projects. See <http://www.nrel.gov/docs/fy11osti/51904.pdf>.

Environmental Protection Agency (EPA) finalized the CPP and proposed a Federal Plan, which included a Model Trading Rule (MTR) (EPA 2015). Its evaluation, measurement, and verification (EM&V) guidance addresses both of the above public policy gaps for EE. Last year was the first time the EPA ever clearly articulated a set of minimum standards for reporting and verification of avoided MWh, for the related “avoided” environmental impacts to be considered “real” for purposes of compliance under the Clean Air Act. The MTR also requires that a state wishing to adopt CPP regulatory compliance programs utilizing EE must either build its own registry/tracking system or use the services of a registry such as NEER (EPA 2015, 64977).

By proposing these two previously elusive public policies, the MTR creates the necessary conditions to launch EEC markets. While the current stay on CPP implementation may result in a delay in EPA adoption of a final MTR (EPA 2016), the proposed regulatory and guidance framework form the basis for a broadly recognized EEC mechanism. The combination of DOE’s significant commitment to support development of governance structures, principles and operating rules for NEER and the proposed MTR represent significant federal actions that will likely drive consensus for transparent reporting of both EM&V methods and QA/QC protocols. In February 2016, the NEER steering committee directed the NEER policy team to draft principles and operating rules that would have the ability to be fully compatible with the CPP and existing and future state or federal or regulatory programs.

As a software platform, NEER’s power will be in the standardization and rigor of its reporting and QA/QC protocols. Its design is intended to be policy neutral. It is crucial for NEER to be a robust administrative tool designed to support compliance jurisdictions’ implementation of public policy. Just as the definition of what technologies qualify for a specific state’s RPS remains as the sole province of that state’s legislators and regulators, key eligibility standards and EM&V requirements in NEER will be set by compliance jurisdictions (either state or federal). It is envisioned that a NEER Certificate will provide full disclosure of the EM&V methods and QA/QC protocols of the EE project. Thus, just as RECs vary in value depending on type and location, it is envisioned that EECs will vary; the market will judge their value based on project quality.

What is unique about this moment is that for the first time a federal agency, the U.S. EPA, has proposed such standards for the use of EE as a pathway for compliance with the Clean Air Act. Therefore, the market will likely have a reference eligibility and M&V standard, based on a registry’s ability to be used for compliance with the Clean Air Act – a “gold standard” for project quality that could become the basis for private investment transitions.

This is an opportunity to be seized. With states facing increasing compliance requirements under the Clean Air Act (for regional haze, ozone, and toxic pollutants) a looming need to quantify and reward investments that reduce water consumption, and opportunities for direct procurement of EE MWh being discussed in forums such as the New York REV (DPS 2016), there is real urgency to build the infrastructure and tools to make EECs as common a public policy and investment tool as RECs.

Moving forward with a broadly accepted NEER Certificate will support specific program compliance instruments such as the Emissions Rate Credit (ERCs) or Allowances proposed in the MTR (EPA 2015, 64970-64971), and will serve the same foundational role as certificates issued by existing renewable tracking systems. Certificates which represent all non-energy attributes can support multiple compliance programs, multiple jurisdictions and multiple pollutants. This kind of flexibility to respond to evolving public policy goals accommodating changes both small and large, is proven to be invaluable to state policy makers.

New Policy Ground

While the project team is working hard not to reinvent the wheel – carefully researching lessons learned from registries in the U.S. and beyond – gaps in registry best practices exist, which NEER will creatively address.⁴ Among these are:

- How should NEER manage multiple years of avoided energy consumption?
- How will NEER address both electricity use and on-site fossil fuel combustion?
- Will NEER be asked to screen applications to determine if there are multiple requests for the same end user? If so, how – and over how many years? If such requests are identified by NEER, can mere identification of multiple claims be the basis for rejecting a registration request or canceling an existing registration?

These challenges are unique to energy efficiency, so the NEER steering committee, advisors and stakeholders are discussing issues and identifying solutions even while broadly adopting best practices from existing registries.

Process for Adoption of NEER Operating Rules

In the first quarter of 2016, the NEER project team convened a small advisory committee which helped develop an initial draft of both model principles and operating rules by June 2016. Initial outreach to the broader stakeholder community began early in 2016 with webinars focused on specific issues, while stakeholder engagement on the overall strategy will begin after the release of drafts in early summer 2016.

Issue Papers

During the drafting process, the NEER project team synthesized research on EE tracking systems and initiatives, provided background and options for consideration by the steering and advisory committees for their input on the minimum criteria, functionality and/or services to be covered by the draft operating rules. Issue papers created by the project team provide background and recommendations for the route NEER should take. Such topics as the following are being addressed in issue papers, although the final list will evolve as research reveals additional gaps and advisors and stakeholders raise further questions:

Accreditation of independent verifiers. The MTR requires that an EE Provider use the services of an Accredited Independent Verifier at two points in the process: first, when the EE provider is applying for a determination that an EE project is eligible to have its output used as documentation for CPP compliance; second, when the EE provider is applying for a determination that the output (in MWh of avoided electric energy) of its EE project can be used as the basis for creation of compliance instruments (EPA 2015, 65100). Both of these determinations must be made by a regulator and can only be made

⁴ Italy and New South Wales, Australia both have adopted energy efficiency and greenhouse gas registries, named the [Energy Efficiency Certificates Register](#) and the [Greenhouse Gas Abatement Scheme](#), respectively.

after the documents have been certified by an Independent Verifier whose accreditation is accepted by that regulator. While common in the carbon offset markets, Independent Verifier Accreditation will be new in the EE arena. One question to consider is whether it would be of value to states to have NEER serve as an accreditation body.

Attribution of EE project or program ownership. The MTR requires that an EE Provider demonstrate that they have ownership rights to any CPP compliance instruments that might be created based on the MWh avoided electric energy of an eligible EE project (EPA 2015, 64997). While state EE oversight includes a long tradition of examining net versus gross savings, the concept of ownership rights for compliance instruments is new. Just one of many imaginable scenarios could be that CPP awards compliance instruments based on gross savings, but the Public Utility Commission (PUC) determines that an Investor-Owned Utility (IOU) should only be granted ownership of compliance instruments associated with net savings. In such a scenario, what entity would be entitled to the remainder of compliance instruments? Answering these questions well will become critically important if compliance instruments have significant value. States may find it valuable for NEER to establish standard documentation requirements for demonstrating ownership, while allowing a state the option to create its own requirements.

Managing vulnerabilities in asset registration. When an EE Provider registers an EE project, what level of scrutiny should be required to assure that the same EE savings are not either intentionally or unintentionally being claimed as part of another EE project? What protocols can be incorporated in NEER to mitigate these vulnerabilities?

Managing vulnerabilities in asset output reporting. What can go wrong in the EM&V calculations that are submitted to show the MWh of avoided electric energy, and what protocols can be incorporated in NEER to mitigate these vulnerabilities?

NEER instrument vintage. Commoditized compliance instruments represent one MWh of avoided electric energy which occurred during a specific time period, known as the vintage. Generally, the vintage, or date stamp, on a REC is month and year⁵. Traditionally, EE savings have been date stamped only by the year. What should be the minimum vintage that the NEER platform should be designed to support?

NEER functionality to include banking and multiyear reporting. Historically, public policies that have been implemented with compliance instruments (such as RECs and acid rain emission credits) have some provisions for the use of compliance instruments from multiple calendar years to be used for demonstrating compliance in one year. Registries often provide significant administrative tools to minimize the compliance review process for regulators. Would any of these approaches be appropriate for NEER?

⁵ This is true of most renewable energy registries in the United States, such as [NAR](#), [WREGIS](#), [NEPOOL GIS](#), and [PJM GATS](#).

NEER Stakeholder Engagement

While the stakeholder process has been designed to take full advantage of conference calls and webinars, the NEER project team understands the power of in-person conversations. The stakeholder process seeks to leverage existing conferences for ad hoc stakeholder gatherings throughout 2016. If stakeholders raise unanticipated concerns or present conflicting views about particular issues, “special topic” sub-stakeholder groups may be formed to work toward a resolution.

The NEER project team will host a dedicated stakeholder meeting in early 2017 to report on feedback it receives during the stakeholder process and seek final input on changes to the draft model principles, operating rules and key functional software requirements identified. Following this stakeholder meeting, the NEER project team will create revised draft v2 model principles and operating rules for the steering committee.

In mid-2017 the revised draft v2 model principles and operating rules will be posted publicly on the project partner organization websites with a mechanism for interested parties to submit feedback. This provides an opportunity for non-stakeholders to participate. The NEER project team will consolidate feedback from this public consultation process, identifying any major issues that should be addressed in the development of the final model principles and operating rules, which are scheduled to be presented to the steering committee for adoption in the fall of 2017.

Preparing a Roadmap

The NEER project team will develop a roadmap that will encapsulate findings and results of the prior tasks, include the final NEER model principles and operating rules developed by the steering committee, and identify potential pathways for voluntary state adoption and implementation. NASEO and TCR with partner/state support will synthesize this feedback into the roadmap, incorporating findings and insights from the prior tasks. Each partner state will, with NASEO and TCR support, identify state-specific road mapping opportunities, options and approaches for prospective registry implementation and for incorporating a registry into its energy planning processes.

The project team will perform outreach and disseminate final results and project outcomes. NASEO will organize a national webinar with TCR support. NASEO meetings and conferences will serve as the project’s primary dissemination channels. Additional opportunities will be sought by NASEO, TCR, and partner states to present at pertinent state, regional, and national forums. Reports will be posted on the NASEO website.

Bringing NEER to Fruition

The project team intends that the integration of model principles and operating rules and the project roadmap will present a compelling case for the additional funding that will be required to create final functional requirements and to implement a software platform that enables the National Energy Efficiency Registry to be used successfully nationwide.

References

- EPA (U.S. Environmental Protection Agency). “Federal Plan Requirements for Greenhouse Gas Emissions From Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations.” *Federal Register* 80, no. 205 (October 23, 2015): 64970-65100. <https://www.gpo.gov/fdsys/pkg/FR-2015-10-23/pdf/2015-22848.pdf>
- EPA (U.S. Environmental Protection Agency). “Regulatory Actions.” Last modified February 9, 2016. <https://www.epa.gov/cleanpowerplan/regulatory-actions>
- DOE (U.S. Department of Energy). “State Energy Program 2015 Competitive Award Selections.” Accessed June 2, 2016. <http://energy.gov/eere/wipo/state-energy-program-2015-competitive-award-selections>
- DPS (New York Department of Public Service) “About the Initiative.” Last modified January 28, 2016. www.dps.ny.gov/REV
- TCR (The Climate Registry). “Energy Efficiency.” Accessed June 2, 2016. <https://www.theclimateregistry.org/thoughtleadership/energy-efficiency/>