



QUARTERLY OCTOBER 2021

WELCOME!

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Welcome to the Fall issue of the NESP Quarterly. To start, I'd like to introduce Natalie Fortman who joined E4TheFuture this month to support all things related to the National Energy Screening Project (NESP). With a background in evaluation at Opinion Dynamics, Natalie will help states build an understanding of the National Standard Practice Manual (NSPM) and manage the Database for Screening Practices (DSP).

With this issue, we bring you a flavor of the many exciting developments in the DER valuation space. As we work with states to apply the NSPM benefit-cost analysis (BCA) framework to DER investments, we are clarifying the NSPM process and building understanding on a range of BCA issues.

You will also find new and forthcoming resources, and webinar and conference events in this edition.

As always, please share any questions or comments about NESP's work at: NSPM@nationalenergyscreeningproject.org.



Photo: Julie Michals

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Demystifying the NSPM – Action on the Ground

We sometimes hear practitioners or other stakeholders refer to the NSPM as prescribing a certain test, or that the NSPM advocates for inclusion of societal impacts, or that it only applies to programs and not to other regulatory contexts. None of these are accurate statements. Below is an example of current NSPM application, and links to case studies in other states where the NSPM has been applied.

MARYLAND: The **EV BCA Group** continues its process to develop a primary cost-effectiveness test for utility EV investments using the NSPM BCA framework (see our [June 2021 newsletter](#)). The Group convened in July, August and October to provide comments on versions of the proposed Maryland Joint-Utilities (MD-JU) **Electric Vehicle Benefit/Cost Analysis Methodology** (prepared by Gabel Associates). The draft proposal sets forth the BCA framework guided by the NSPM principles, defines the full range of impact factors, and then ‘maps’ them to program use-cases (Managed Residential Charging; Multi-family Charging; and Public Charging). The proposal summarizes whether impacts are likely a cost or benefit for the different use cases using a **Maryland EV Jurisdiction Specific Test (JST)**, and separately shows whether the program investment/strategy would lead to an increase or decrease in rates. The NSPM helped the EV BCA Group go through a *process* to identify what impacts should be accounted for to ensure alignment with the state’s policies, and to consider BCA and rate impact implications as separate—yet concurrent—analyses. The NESP provided technical assistance to commission staff via Chris Neme of Energy Futures Group. A final report is due next month.

What the NSPM is...

The NSPM provides guidance to help states:

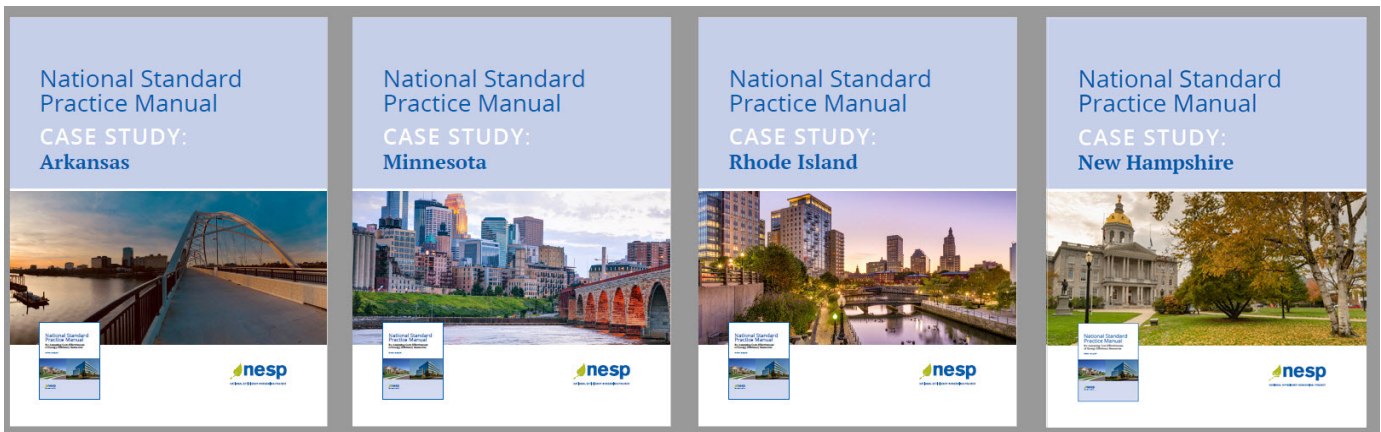
- refine, improve, or develop a primary test using the foundational principles to guide the BCA process
- understand the full range of utility system impacts
- understand the full range of potential non-utility system impacts (depending on their applicable policies)
- understand key factors that affect whether a(n) impact(s) is likely to be a net benefit or cost for a specific DER or combination of DERs

What the NSPM is not...

The NSPM does not:

- prescribe any specific cost-effectiveness test, nor favor any cost-effectiveness test
- advocate for inclusion of any specific non-utility system impacts, because states determine relevant impacts by ensuring alignment with their specific policy goals/objectives
- adhere or restrict states to theoretical definitions of traditional tests (e.g., the TRC, UCT, or SCT)

You can view other NSPM state application examples at [NSPM Case Studies](#) and see [State NSPM References](#) to find examples of commissions recommending use of the NSPM principles in the context of DG Tariffs (KY), Non-wires Solutions (CO), and more.

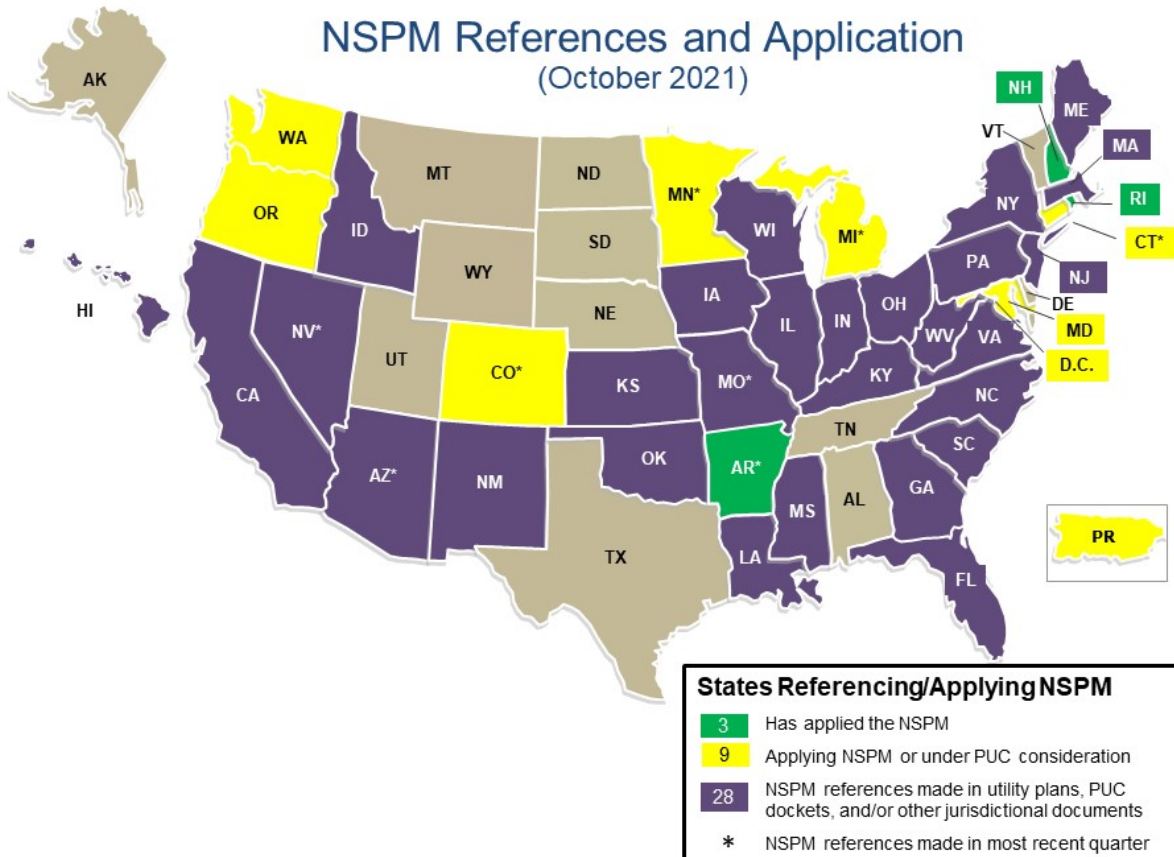


Jurisdictions Addressing BCA Practices

In the past quarter, a number of jurisdictions are starting (or continuing considerations) to modify their BCA practices in one or more DER related regulatory contexts and have referred to the NSPM as a guidance resource. These include:

1. **Minnesota** ([Docket 21-566](#)), where the Center for Energy and Environment recommends that the Minnesota PUC adopt and apply the framework outlined in the NSPM to develop a jurisdiction specific test. This test should then be applied to evaluate innovative resource investments and plans through the Natural Gas Innovation Act (NGIA).
2. **Colorado** ([Proceeding 21A-0096E](#)), where the Commission cites the NSPM as an appropriate starting place to develop a definition of “net beneficial” regarding whether a transition to performance-based regulation (PBR) would be net beneficial and notes several states that have utilized the NSPM framework. The Commission also indicates it will be helpful to review the NSPM as they consider PBR for DERs.
3. **Arizona** ([Docket RU-00000A-18-0284](#)), where Advanced Energy Economy recommends that the Arizona Corporation Commission utilize the NSPM framework to develop a BCA approach to meet the jurisdiction’s needs in the context of the ACC’s review and updating of its energy rules with regard to its Energy Modernization Plan.

The map below captures where NSPM references have been made to date – and the level of interest and application – in jurisdictions around the country in the context of DER valuation studies, cost-effectiveness testing or BCA dockets, distribution system planning and other regulatory contexts. For further details, visit [NSPM references](#).

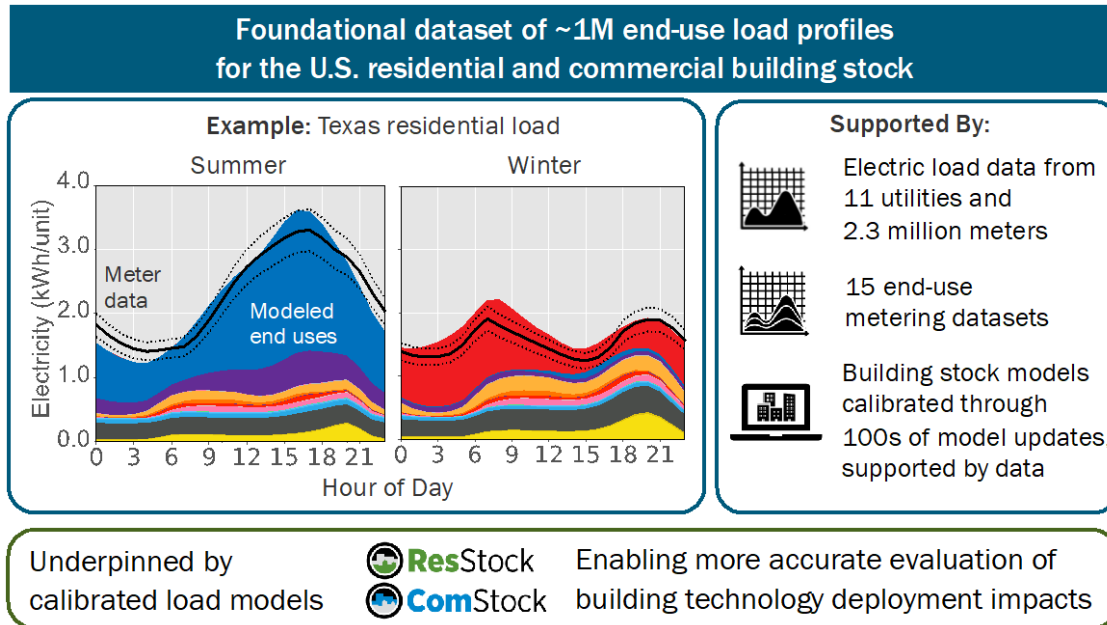


How Do Buildings Use Energy?

New Public End-Use Load Profiles for the U.S. Building Stock

End-use load profiles that describe *how* and *when* buildings use energy are critically important to utility planners, regulators, state energy offices, researchers, and building owners to understand ways to best manage energy use. For example, load profiles can identify energy-consuming activities that can be shifted to different times of the day to reduce peak loads that drive utility costs and to reduce customer bills.

For several years, researchers have used DOE's ResStock™ and ComStock™ models, developed and maintained by NREL, to understand building energy use. With support from DOE's Building Technologies Office, a three-year effort by researchers at NREL, Berkeley Lab, and Argonne National Laboratory calibrated and validated these models at an hourly scale for all major end uses, residential and commercial building types, and climate regions in the United States. With assistance from partners such as utilities, regional energy efficiency organizations, program administrators, and guidance from a large technical advisory group, researchers obtained hourly utility meter data from 11 utilities and more than 2.3 million customers. These data were used to inform hundreds of model updates, which significantly improved the models' accuracy and usefulness.



The new and improved load profiles will be available in three formats: via a web viewer, as downloadable spreadsheets, and in a detailed format that can be queried with big data tools. Utilities and others will be able to use these resources—together with tools such as Berkeley Lab's **forthcoming Time-Sensitive Value Calculator**—to estimate the value of energy efficiency, demand response, and other DERs for a wide range of timescales. **Such analysis can be used to guide utility resource and distribution system planning, research and development prioritization, and state and local energy planning and regulation, including BCAs** – where the calibrated models can be a foundation to develop *end-use savings shapes* that describe the difference in energy consumption between a baseline building and a building with an energy efficiency, electrification, or demand flexibility measure applied.

Join a free webinar on October 28, 2021, at noon ET/9am PT to learn about a new publicly available dataset of calibrated and validated synthetic load profiles for U.S. residential and commercial buildings and what it can mean for policy and program design.

Presenters include:

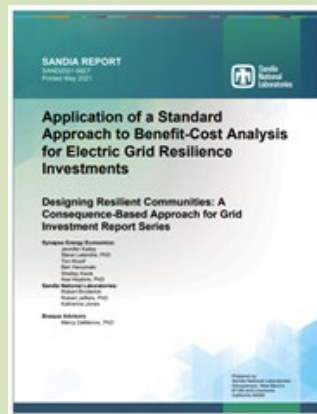
- David Nemtzw, Building Technologies Office, U.S. DOE
- Eric Wilson and Andrew Parker, National Renewable Energy Laboratory (NREL)
- Natalie Mims Frick, Lawrence Berkeley National Laboratory

Register [HERE](#)

BCA Assessment of Community Electric Grid Resilience

The NSPM BCA framework can apply to a range of regulatory contexts, including to assess the net benefits of DER programs, procurement of resources, pricing/rate design, planning, and infrastructure investments. As part of a research effort for Sandia National Laboratories (Sandia) on the integration of community and electric grid resilience investment planning for Designing Resilient Communities, Synapse Energy Economics has produced [a series of reports](#) to explore the challenges and opportunities to improve and address grid resilience, including in benefit-cost analysis (BCA), performance metrics, microgrids, and regulatory mechanisms.

The Synapse 2021 report on [Application of a Standard Approach to Benefit-Cost Analysis for Electric Grid Resilience Investments](#) sets forth how to evaluate the costs and benefits of a wide range of grid resilience investments in a comprehensive and consistent way, recognizing that the application of BCA to grid resilience investments is in the early stages of development. Grid resilience investment related costs and benefits are typically not fully identified, infrequently quantified, and almost never monetized. Without complete assessments of these impacts, regulators can be hesitant to approve some types of grid resilience investments.



The Synapse report provides the first application of the NSPM for DER framework to grid resilience investments and recommends identifying the resilience impacts of the investments and quantification of these impacts by establishing utility performance metrics for resilience. Proactive integration of grid resilience investments into existing regulatory processes and practices can increase the capacity of jurisdictions to respond to and recover from the consequences of extreme events.

Non-Energy Benefits of Distributed Energy Resources

The NESP's [Database of Screening Practices \(DSP\)](#) provides details on state cost-effectiveness practices for energy efficiency—but where and how are states valuing other DERs, in particular with regard to non-energy benefits (NEBs)?

In summer 2021, E4TheFuture's intern, Owen Connolly, was tasked to survey the landscape to research this question. The research purpose was twofold: 1) to inform NESP's current project being undertaken to document methods for quantifying DER impacts (see above); and 2) to help inform whether the NESP should expand the DSP to include other DERs.

Owen reviewed [47 sources](#) that referenced non-energy benefits of one or more DER types. His research identified the frequency of NEBs cited for different types of DERs in a selection of reports and state regulatory dockets, and the extent to which the sources describe a method(s) used to quantify the benefits.

Read Owen's full blog [HERE](#). And you can learn more about where and how states account for NEBs at the virtual [ACEEE Energy Efficiency as a Resource Conference](#) on October 26 (1:45-2:45pm ET) where Julie Michals will speak on **Societal Non-Energy Benefits in Cost-Effectiveness Testing**.

METHODS, TOOLS & RESOURCES HANDBOOK

For Quantifying DER Impacts

Coming Soon!

The NESP is making progress on developing a *Methods, Tools & Resources (MTR) Handbook* for Quantifying DER Impacts. This forthcoming resource (Jan 2022) will provide guidance on methods for calculating the full range of utility system impacts (electric, gas, and other fuels), non-utility system impacts (host customer and societal), as well as cross cutting variables, building on the NSPM. This work draws from existing and evolving practices for quantifying DER benefits and costs, identifies pros and cons of different methodological approaches, and addresses how impacts are relevant for different DER types. The example below shows the different options for calculating System Average Transmission Impacts, where for each option, the guidance sets forth key calculation steps, data sources, and examples where states have used the methods.

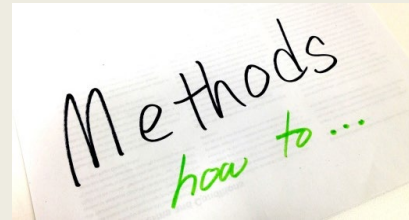
EXAMPLE (DRAFT): Methods for Calculating System Average Transmission Impacts

Option 1: Ratio of Cost to Load Growth. This method calculates the incremental transmission costs associated with load growth. Ideally this method should be based on a combination of historical and forecasted data. However, it is possible to look at historical only or projected only.

Option 2: Cost of Service Method. This method relies upon recent cost of service studies to identify incremental transmission costs.

Option 3: Publicly Available Transmission Costs Forecasts. This method involves using transmission costs published by RTOs and ISOs to estimate avoided wholesale transmission costs.

Option 4: Proprietary Tools for Developing Transmission Capacity Costs. This approach involves referring and selecting from various transmission cost data sources.



The MTR Handbook aims to serve as a one-stop-shop to make it easier for users to readily identify methods, tools, and supporting resources for how to quantify or account for DER impacts in their BCA applications.

BENEFIT-COST ANALYSIS EXAMPLES

For Various Use Cases

Coming Soon!

Smart Electric Power Alliance and ICF are developing real-world use cases, generalized into hypothetical examples. Modeling efforts are under way to develop detailed BCAs for:

- Distributed solar + distributed storage
- Electric vehicles (managed charging and rate design)
- EE + DR + building electrification (weatherization, smart thermostats, heat pumps)

Each case study will apply the NSPM for DERs to develop a primary cost-effectiveness test, and will address:

- Relevant industry context for BCAs (e.g., expected growth in EV deployment and impacts to the electric grid)
- BCA challenges related to the DERs being analyzed
- Current DER program examples
- Key BCA assumptions: profile of assumed utility & grid; baseline program and proposed program comparison (e.g., assumed operating profile); relevant policy context and goals; value streams included in the BCA, with explanation of any excluded impacts
- Description of data sources and summary of inputs
- Analysis results including BC ratios, supporting charts and graphics, and discussion of which variables drove the results and how those key factors/inputs might change by region/program



Inviting Your Feedback on NESP's Work!

The NESP is conducting a **stakeholder survey** to gather feedback and insights about: the value of the NESP's work and products to you and the industry; NESP's coordination with other national DER valuation efforts; and additional resources needed to support successful application of the NSPM for DERs. *Please watch for this survey this week* (check your junk/spam folder). If you don't receive the survey but are interested in responding, please contact NSPM@nationalenergyscreeningproject.org.

Upcoming NSPM-Related Events – Register soon!

- October 26 at 1:45-2:45PM ET. **Societal Non-Energy Benefits in Cost-Effectiveness Testing**. Julie Michals, E4TheFuture, [ACEEE Energy Efficiency as a Resource Conference](#) (virtual live)
- October 27 at 2:00-3:00PM ET. **Accounting for Interactive Effects: Assessing the Cost-Effectiveness of Integrated Distributed Energy Resources**. Courtney Lane, Synapse Energy Economics. [ACEEE Energy Efficiency as a Resource Conference](#) (virtual live)
- October 28 at 12:00noon ET. **How Do Buildings Use Energy? New Public End-Use Load Profiles for the U.S. Building Stock**. (See description from above of this new resource). Register [here](#).
- November 7 at 2:45-3:45PM ET: NARUC Annual Meeting - Staff Subcommittee on ERE Session (in-person). Julie Michals will be joining several other panelists to discuss topic on **equity and environmental justice in state commission roles and responsibilities**. Register at NARUC conference site: [Connecting the Dots](#)
- November 10 at 12:30-1:00PM ET. **Assessing Cost-Effectiveness: DER Benefit-Cost Analysis Case Studies**. Kate Strickland (SEPA) and David Pudleiner (ICF). [PLMA Fall Conference](#)
- December 15 at 1-2pm ET. Southeast Energy Efficiency Alliance (SEEA) webinar on **Developing a Cost-effectiveness Test for Utility Electric Vehicle Programs**. Stay tuned for registration information at <https://www.seealliance.org/events>
- January 18, 2022: NESP will co-lead a Benefit-Cost Analysis training workshop with Opinion Dynamics at the [2022 IEPEC Energy Optimization: Evaluation for a Clean & Equitable Future](#).

Your continued interest in the NESP's work is greatly appreciated.
Please contact us with any questions. See you next quarter!

Julie Michals, Director of Valuation – E4TheFuture
Natalie Fortman, Program Manager – E4TheFuture

NESP website: <https://www.nationalenergyscreeningproject.org/>
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The National Energy Screening Project (NESP) mission is to improve cost-effectiveness screening practices for distributed energy resources (DERs) and joins organizations and individuals with this common interest.