

Accounting for Energy Equity in Benefit-Cost Analysis of DER Investments

Julie Michals – E4TheFuture

NARUC ERE Staff Subcommittee Meeting
Nov 7, 2021

About NESP

The National Energy Screening Project (NESP) is a stakeholder organization that is open to all organizations and individuals with an interest in working collaboratively to improve cost-effectiveness screening practices for energy efficiency (EE) and other distributed energy resources (DERs).

Products include:

- NSPM for EE (2017)
- NSPM for DERs (2020)
- Database of Screening Practices (DSP)

NESP work is managed by E4TheFuture, with coordinated state outreach via key partners.

NESP work is funded by E4TheFuture and in part by US DOE.

<https://nationalenergyscreeningproject.org/>

NSPM BCA Principles

1. Recognize that DERs can provide energy/power system needs and should be compared with other energy resources and treated consistently for BCA.
2. Align primary test with jurisdiction's applicable policy goals.
3. Ensure symmetry across costs and benefits.
4. Account for all relevant, material impacts (based on applicable policies), even if hard to quantify.
5. Conduct a forward-looking, long-term analysis that captures incremental impacts of DER investments.
6. Avoid double-counting through clearly defined impacts.
7. Ensure transparency in presenting the benefit-cost analysis and results.
8. Conduct BCA separate from Rate Impact Analyses because they answer different questions.

NESP Goals on Energy Equity

- 1) Provide guidance to regulators and key stakeholders on where and how energy equity 'fits' into benefit-cost analysis (BCA) and rate impact analyses relative to other energy equity metrics.
- 2) Build understanding and consistent application across jurisdictions; and
- 3) Coordinate with other key national initiatives, and as informed by state efforts and developments.

Accounting for Energy Equity in BCAs

Energy Equity Metrics:

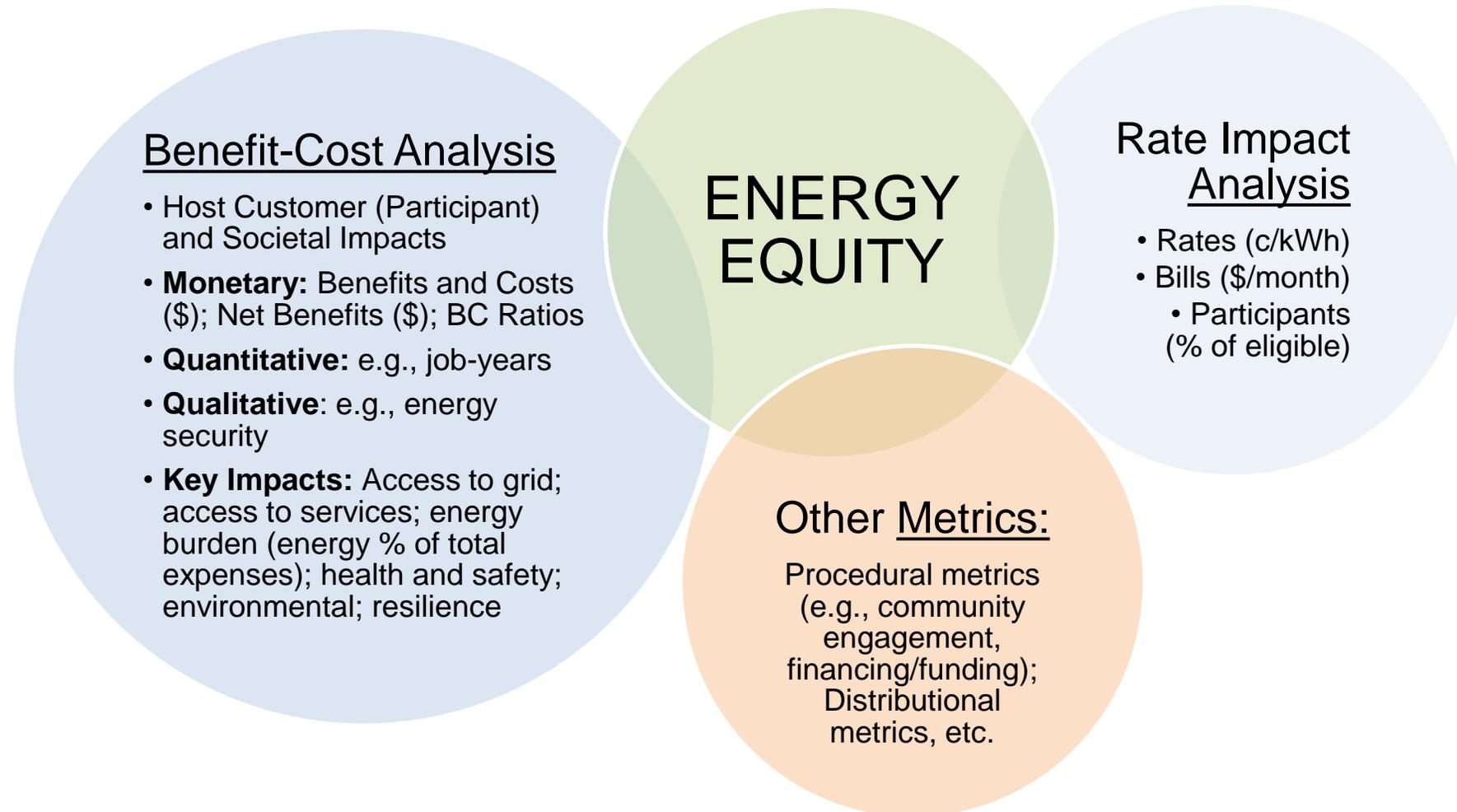
- Converge with rate and bill analysis;
- Converge with benefit-cost analysis; and
- Are addressed by **many other metrics outside of above analyses**

Key Questions/Considerations:

- *How should equity considerations be used to make decisions about utility DER and other resource investments?*
 - Importance of not over-relying on BCA and rate impact analyses, or ‘cherry picking’ metrics (NARUC CPI)
- *How can double-counting be avoided?*
- *What level of level of guidance would be most helpful to commissions?*

How we are thinking about this....

Energy equity analysis addresses equity in all aspects of the energy system, including its benefits, burdens, costs, and participation.



Host Customer Impacts

Energy equity touches many of these impacts, but to what extent and how do we measure?

Host Customer Impact	Description
Host portion of DER costs	Costs incurred to install and operate DERs
Interconnection fees	Costs paid by host customer to interconnect DERs to the grid
Risk	Uncertainty including price volatility, power quality, outages, and operational risk related to failure of installed DER equipment and user error; this type of risk can depend on the type of DER
Reliability	The ability to prevent or reduce the duration of host customer outages
Resilience	The ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions
Tax incentives	Federal, state, and local tax incentives provided to host customers to defray the costs of some DERs
Non-energy Impacts (NEIs)	Benefits and costs of DERs that are separate from energy-related impacts

Host Customer Non-Energy Impacts (NEIs)

Host Customer NEI	Description
Transaction costs	Costs incurred to adopt DERs, beyond those related to installing or operating the DER itself (e.g., application fees, customer time spent researching DERs, paperwork, etc.)
Asset value	Changes in the value of a home or business as a result of the DER (e.g., increased building value, improved equipment value, extended equipment life)
Productivity	Changes in a customer's productivity (e.g., in labor costs, operational flexibility, O&M costs, reduced waste streams, reduced spoilage)
Economic well-being	Economic impacts beyond bill savings (e.g., reduced complaints about bills, reduced terminations and reconnections, reduced foreclosures—especially for low-income customers)
Comfort	Changes in comfort level (e.g., thermal, noise, and lighting impacts)
Health & safety	Changes in customer health or safety (e.g., fewer sick days from work, reduced medical costs, improved indoor air quality, reduced deaths)
Empowerment & control	Satisfaction of being able to control one's energy consumption and energy bill
Satisfaction & pride	Satisfaction of helping to reduce environmental impacts (e.g., key reason why residential customers install rooftop PV)
Power/ Quality	Refers to the ability of electrical equipment to consume the energy being supplied to it e.g., improved electrical harmonics, power factor, voltage instability and efficiency of equipment.
DER Integration	The ability to add current and future DERs to the existing electric energy grid.
Reduced Utility Bills	Only relevant if using a <i>Participant Cost Test</i>

Societal Impacts

Energy equity touches all of these impacts, but to what extent and how do we measure?

Type	Societal Impact	Description
Societal	Resilience	Resilience impacts beyond those experienced by utilities or host customers (e.g., loss of critical services, loss of assets, business interruption costs, impact on GDP)
	GHG Emissions	GHG emissions created by fossil-fueled energy resources
	Other Environmental	Other air emissions, solid waste, land, water, and other environmental impacts
	Economic and Jobs	Incremental economic development and job impacts
	Public Health	Health impacts, medical costs, and productivity affected by health
	Low Income/Vulnerable Populations: Society	Poverty alleviation, environmental justice, reduced home foreclosures, etc.
	Energy Security	Energy imports and energy independence

Quantifying Energy Equity Impacts in BCA

- Many states use alternative BCA thresholds (i.e., < 1.0) that allow for funding low-income EE programs that are not cost-effective:
 - Does not include equity considerations nor an assessment of whether the equity benefits are worth the additional equity costs
- Equity impacts can be hard to quantify, but value is not zero:
 - NSPM principles: alignment with goals, symmetry in treatment of benefits and costs, consistency across BCA for DERs
 - Short-term/immediate methods: proxy values (% adders) or qualitative assessments
 - Forthcoming NESP guidance (Q1 2022):
 - **Methods, Tools, and Resources** – *A Handbook for Quantifying Distributed Energy Resources Impacts for Benefit-Cost Analysis*

NESP Coordination with Other Initiatives to Help Standardized Energy Equity Metrics

- Biden-Harris Administration **Justice40 Initiative**
 - [US DOE Office of Economic Impact and Diversity](#)
- [Energy Equity Project \(EEP\)](#)
- [ACEEE Leading with Equity Initiative](#)
- [Equity in Clean Energy Economy \(ECEE\) Collaborative](#)
- [Initiative for Energy Justice](#)
- NARUC CPI – whitepapers and roundtables
- And Others

For more information:

NSPM for DERs and supporting resources:

<http://www.nationalenergyscreeningproject.org/>

Stay informed with the [NESP Quarterly](#) Newsletter

Questions?

Julie Michals, Director of Valuation – E4TheFuture

jmichals@e4thefuture.org