

National Standard Practice Manual

for Assessing Cost-Effectiveness
of Energy Efficiency Resources
(Edition 1)

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NATIONAL STANDARD PRACTICE MANUAL

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Guidelines for cost-effectiveness testing

Drivers... |

Traditional tests (from CA Standard Practice Manual) often don't address pertinent state policies

Traditional tests often modified by states in ad hoc manner absent clear principles or guidelines

Efficiency is not accurately valued in many jurisdictions

Lack of transparency on why tests are chosen and how they are applied.

NSPM: Purpose

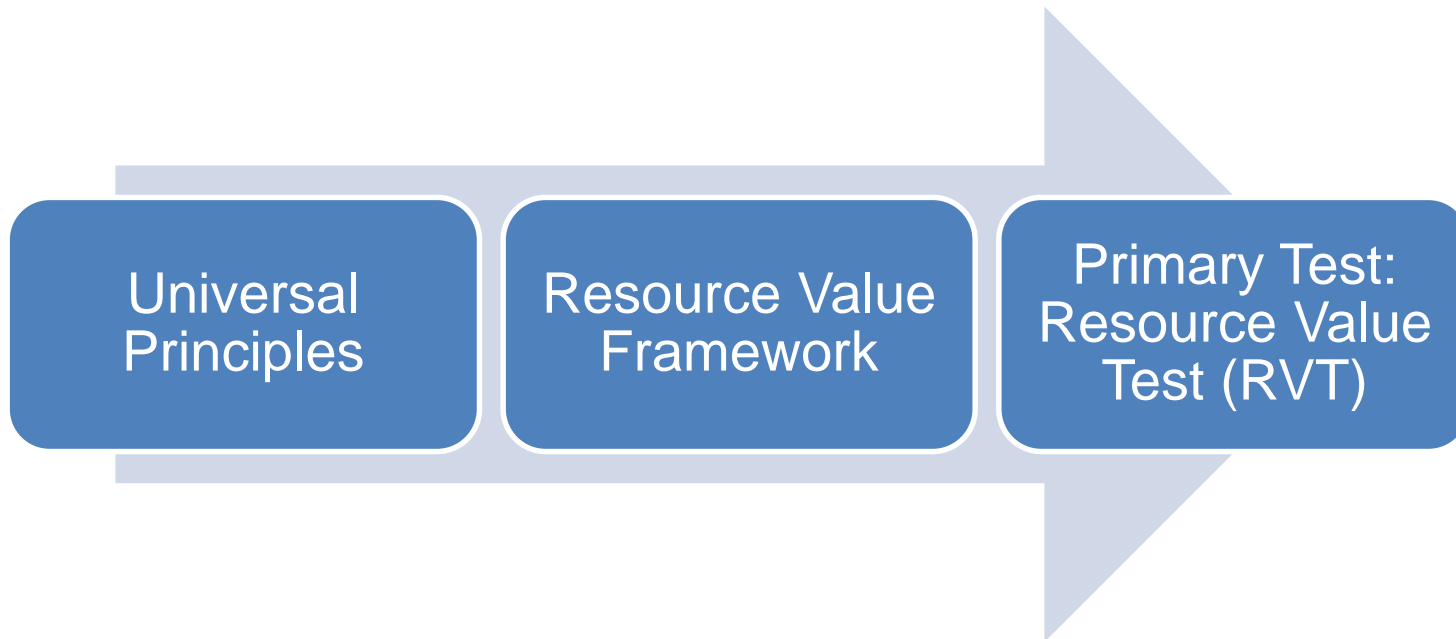
- Defines policy-neutral *principles* for developing cost-effectiveness tests.
- Establishes a framework for selecting and developing a *primary test*
- Provides guidance on *key inputs*

NSPM: Scope

- Focus is on utility customer-funded energy efficiency resources
- Addresses 1st order question: “which EE resources merit acquisition?”
- Principles and framework apply to all other resources (including other types of distributed energy resources)

NSPM provides a foundation on which jurisdictions can develop and administer a cost-effectiveness test, but does not prescribe “the answer”

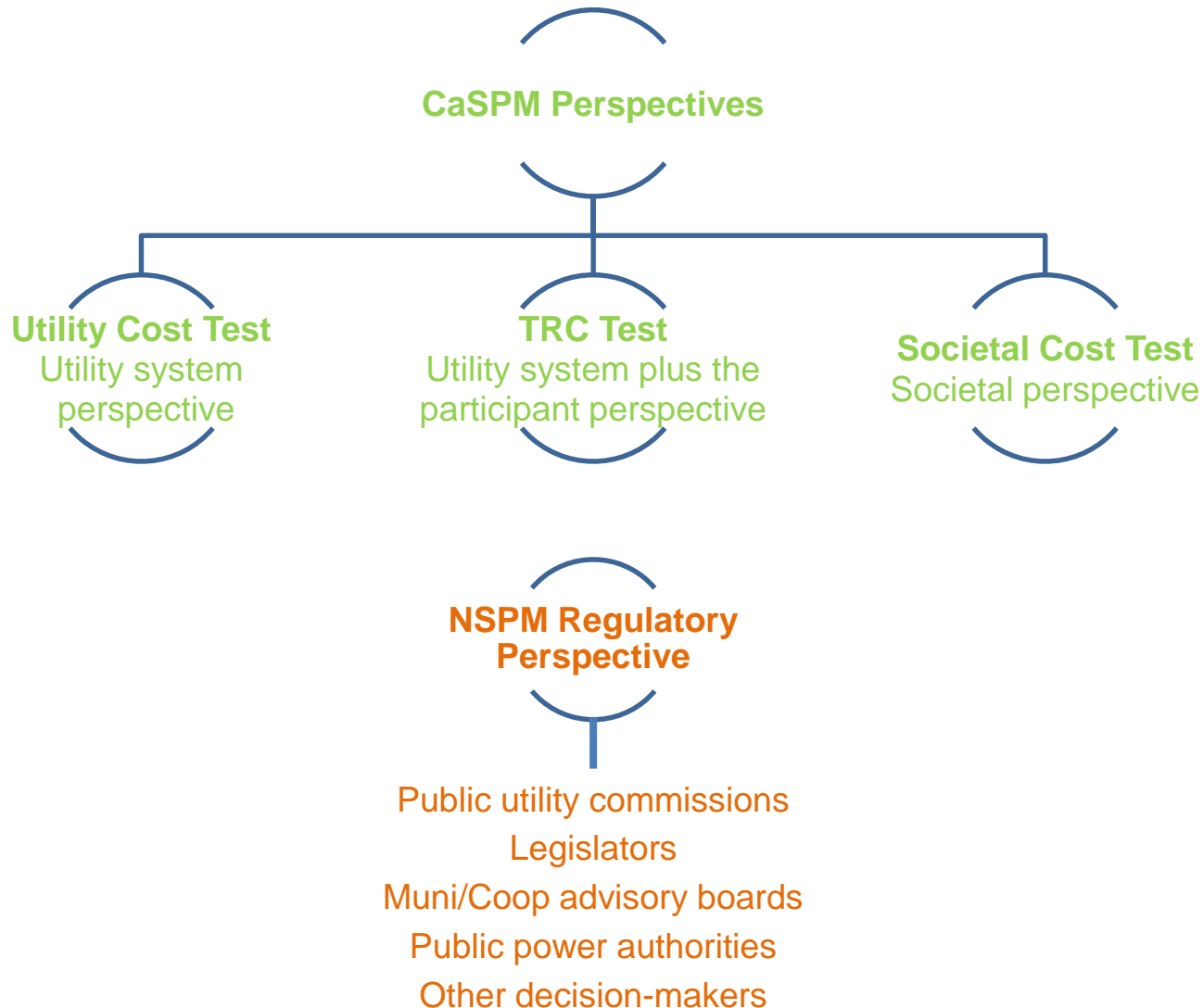
Developing Your Primary Test Using the Resource Value Framework



NSPM Principles

1. Recognize that energy efficiency is a resource.
2. (*Articulate and*) Account for applicable policy goals.
3. Account for all relevant costs & benefits (*based on applicable policies*), even if hard to quantify impacts.
4. Ensure symmetry across all relevant costs and benefits (*as identified under #3 above*).
5. Conduct a forward-looking, long-term analysis that captures incremental impacts of energy efficiency.
6. Ensure transparency in presenting the analysis and the results.

Cost-Effectiveness Perspectives



Connecticut Application of NSPM Framework

Key Questions to Consider (to 'test your test')

Test CT Alignment with Key NSPM Principles

- Does current CT primary test include key impacts of policy interest to the state?
 - What are types of policies to consider (legislative, orders, other)?
 - Any impacts included that maybe should not be?
 - Any impacts not included that maybe should be?
- Is the full range of utility system impacts included?
- How could CT account for any missing utility or non-utility impacts
 - What methodologies approach(es) could be used?
 - If participant costs fully included, but benefits are not, what are options to address this asymmetry?

Test Application

- To what extent is CT practice consistent with NSPM guidance on *applying* cost-effectiveness tests?
 - Selection of discount rate
 - Application level
 - etc.

STEP 1

Identify and Articulate Applicable Policy Goals

Laws, Regulations, Orders, Guidelines	Policy Impacts Reflected in Laws, Regulations, Orders, etc.							
	Least-Cost	Fuel Diversity	Risk	Reliability/Resilience	Low-Income	Environmental	Econ Dev / Jobs	Public Health
PSC statutory authority	X			X				
Low-income protection	X		X	X	X			X
EE or DER law or rules	X	X	X	X	X		X	
State energy plan	X	X	X	X	X	X	X	
Integrated resource planning	X	X	X	X	X	X	X	
Renewable portfolio standard		X				X	X	
Climate change		X	X			X		X
Environmental protection		X	X			X		X

Each jurisdiction has a constellation of energy policy goals embedded in statutes, regulations, orders, guidelines, etc. This table illustrates how such documents might establish applicable policy goals.

STEP 2

Include All Utility System Impacts in the Test

- The foundation of every test
 - Central to principle of treating efficiency as a resource
 - Should be comprehensive
- “Utility system” = all that’s necessary to deliver electric or gas service
 - See discussion later for lists of costs, benefits

STEP 2

Examples of Utility System Impacts

Utility System Costs	Utility System Benefits
• EE Measure Costs (utility portion – e.g. rebates)	• Avoided Energy Costs
• EE Program Technical Support	• Avoided Generating Capacity Costs
• EE Program Marketing/Outreach	• Avoided T&D Upgrade Costs
• EE Program Administration	• Avoided T&D Line Losses
• EE Program EM&V	• Avoided Ancillary Services
• Utility Shareholder Performance Incentives	• Wholesale Price Suppression Effects
	• Avoided Costs of RPS Compliance
	• Avoided Costs of Environmental Compliance
	• Avoided Credit and Collection Costs
	• Reduced Risk
	• Increased Reliability
	• Increased Resilience

- *This table is presented for illustrative purposes, and is not meant to be an exhaustive list.*
- *Some categories of benefits are potentially overlapping; care must be taken to ensure no double-counting of benefits.*

STEP 3

Decide Which Non-Utility System Impacts to Include

- Determine via transparent process open to all stakeholders.
- Stakeholder input can be achieved through a variety of means:
 - rulemaking process,
 - generic jurisdiction-wide docket,
 - working groups or technical sessions,
- Address objectives based on current jurisdiction policies
 - be flexible to address new or modified policies adopted over time.
- May wish to incorporate input from other government agencies
 - department of environmental protection
 - department of health and human services

STEP 3

Illustrative Non-Utility System Impacts

Impact	Description
Participant impacts	Impacts on program participants, includes participant portion of measure cost, other fuel savings, water savings, and participant non-energy impacts
Impacts on low-income customers	Impacts on low-income program participants that are different from or incremental to non-low-income participant impacts. Includes reduced foreclosures, reduced mobility, and poverty alleviation
Other fuel impacts	Impacts on fuels that are not provided by the funding utility, for example, electricity (for a gas utility), gas (for an electric utility), oil, propane, and wood
Water impacts	Impacts on water consumption and related wastewater treatment
Environmental impacts	Impacts associated with CO2 emissions, criteria pollutant emissions, land use, etc. Includes only those impacts that are not included in the utility cost of compliance with environmental regulations
Public health impacts	Impacts on public health; includes health impacts that are not included in participant impacts or environmental impacts, and includes benefits in terms of reduced healthcare costs
Economic development and jobs	Impacts on economic development and jobs
Energy security	Reduced reliance on fuel imports from outside the jurisdiction, state, region, or country

This table is presented for illustrative purposes, and is not meant to be an exhaustive list.

STEP 3

Whether to Include Participant Impacts

- Is a policy decision (based on jurisdiction's policy goals)
 - Policies may support inclusion of certain participant impacts (e.g., low-income, other fuels, etc.), but not necessarily all participant impacts
- If participant costs are included, participant benefits should also be included (to ensure symmetry and avoid bias), even hard to quantify benefits
- Key questions to consider:
 - Why does it matter what participants pay?
 - Why should non-participants pay for benefits to participants?

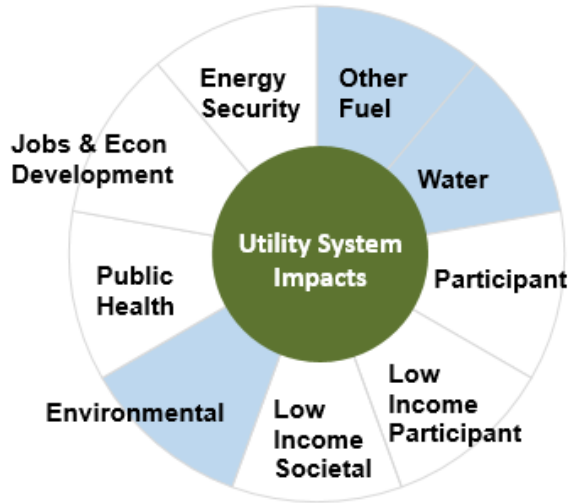
STEP 4

Ensure Symmetry Across Benefits and Costs

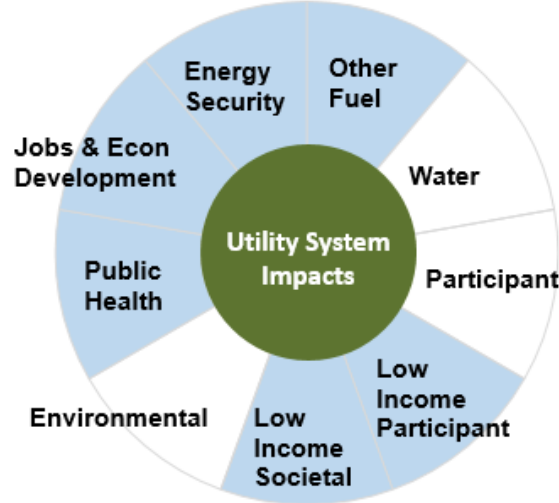
- Ensure that the test includes costs and benefits symmetrically
 - If category of cost is included, corresponding benefits should be too (e.g., if participant costs included, participant benefits should also be included)
- Symmetry is necessary to avoid bias:
 - If some costs excluded, the framework will be biased in favor of EE;
 - If some benefits excluded, the framework will be biased against EE.
 - Bias in either direction can result in misallocation of resources (over or under investment)
 - higher than necessary costs to meet energy needs
 - too little or too much investment in actions to achieve jurisdiction's energy related policies goals

Relationship of Resource Value Test (RVT) to Traditional Tests – Results May Align or Not

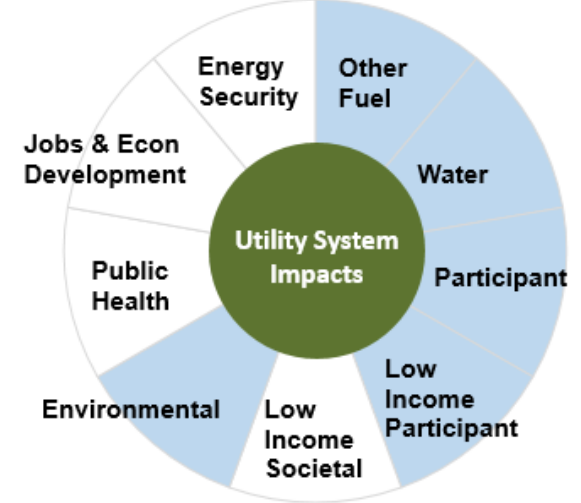
JURISDICTION 1: RVT



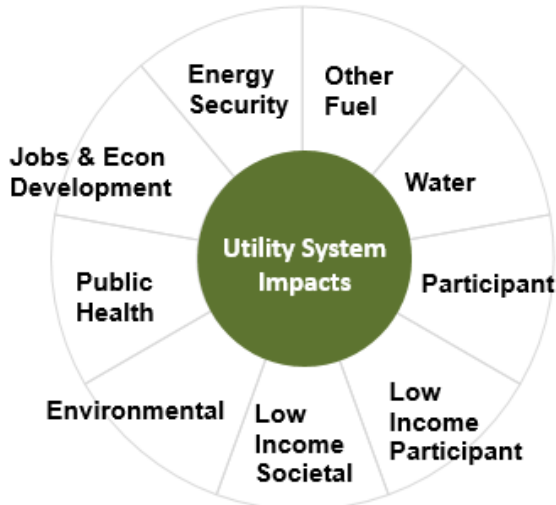
JURISDICTION 2: RVT



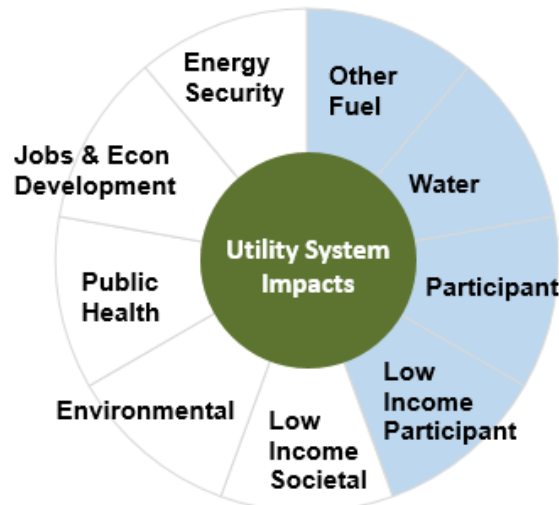
JURISDICTION 3: RVT



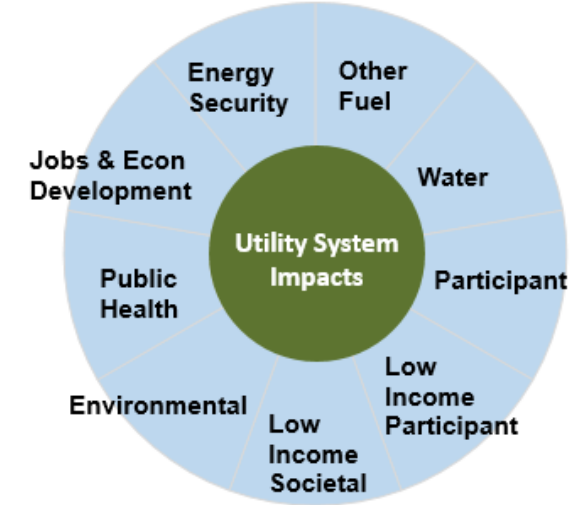
JURISDICTION 4: RVT = UCT



JURISDICTION 5: RVT = TRC



JURISDICTION 6: RVT = SCT



NSPM in Other States

Case Studies: RI, AR, MN (available soon), and WA in progress:

- Applicable policies documented by commission staff (15-20 pages) and/or other state agencies
- Gaps identified in accounting for impacts, plus inconsistencies across utilities in some cases
- Arkansas – self-scored its practice relative to NSPM principles
- Recommendations made for how to better align with NSPM. For MN, recommendation made to not include participant impacts (either costs or benefits)

<https://nationalefficiencyscreening.org/resources/case-studies/>

Other State References of NSPM: Many recommendations in state docket comments and publications to use NSPM -

<https://nationalefficiencyscreening.org/state-references/>

And 2 more items of potential interest:

- Database of State Efficiency Screening Practices (DSESP)
- NSPM for Distributed Energy Resources (DERs) – Scoping in process, 2019 project (NSPM Edition 2)

Database of State Efficiency Screening Practices (DSESP) – Launched November 11, 2018

Synapse and ACEEE research

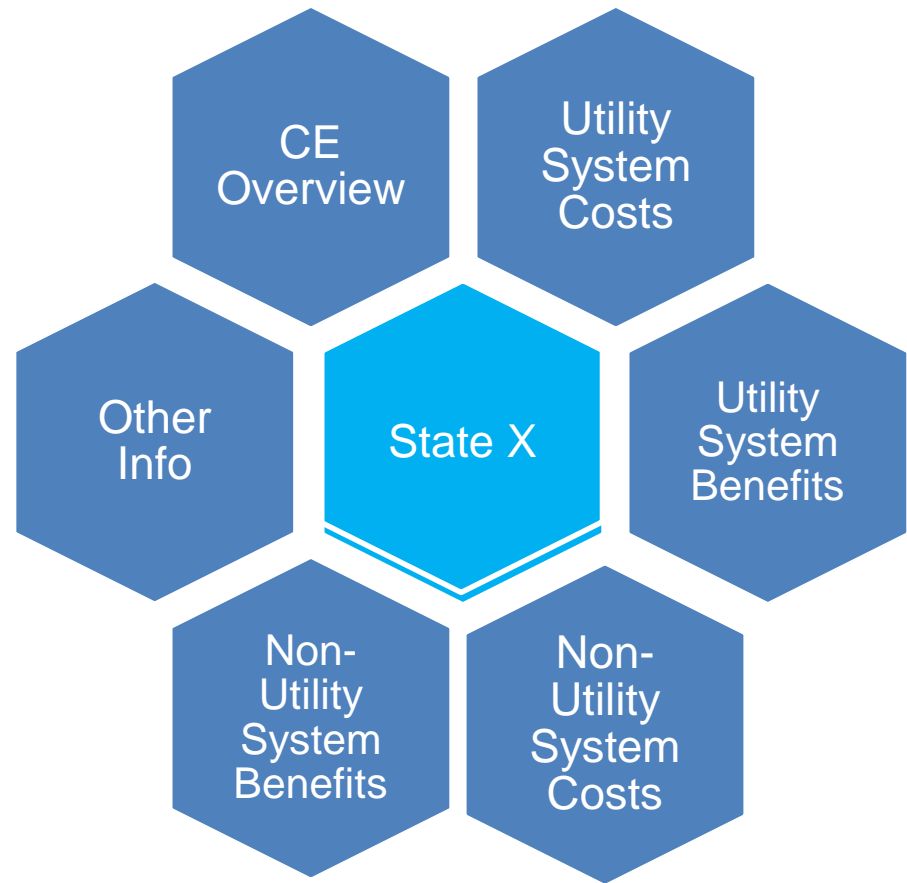
OVERVIEW:

> Help states access info on whether and how states account for different impacts

> Currently 20 states – more being added in 2019

> Comparison of state practices, with links to policy docs and resource docs (to studies etc)

> 2019 work to include review of study methodologies for different types of utility and non-utility system impacts, including gaps



<https://nationalefficiencyscreening.org/state-database-dsesp/>

NSPM for DERs (Edition 2)

Proposal for 2019 work

1.	Introduction and Purpose
2.	Foundational Issues for Benefit-Cost Analysis
3.	Energy Efficiency
4.	Demand Response
5.	Distributed Generation
6.	Distributed Storage
7.	Electric Vehicles
8.	Multiple-DER Analysis
9.	Integrated-DER Analysis
10.	Best Practices for Conducting BCAs
11.	Bibliography

NSPM for DERs

Different Levels of DER Benefit-Cost Analysis

- Single-DER analysis: where one type of DER is assessed relative to a fixed (i.e., static) set of alternative resources.
- Multiple-DER analysis: where multiple DERs are assessed and optimized relative to a fixed set of alternative resources.
- Integrated-DER analysis: where all electric resources, both distributed and utility-scale, are optimized.

NSPM – Appendix B

EE vs Distributed Energy Resources Utility System Impacts

		Energy Efficiency	Demand Response	Distributed Generation	Distributed Storage
Costs					
Utility System	Measure costs (utility portion)	●	◐	○	○
	Other financial incentives	●	●	◐	◐
	Other program and administrative costs	●	◐	◐	◐
	Evaluation, measurement, and verification	●	●	●	●
	Performance incentives	◐	◐	◐	◐
	Interconnection costs	○	○	●	●
	Distribution system upgrades	○	○	●	●
Benefits					
Utility System	Avoided energy costs	●	◐	●	◐
	Avoided generation capacity costs	●	●	●	●
	Avoided reserves or other ancillary services	●	●	●	●
	Avoided T&D system investment	●	●	●	●
	Avoided T&D line losses	●	●	●	●
	Wholesale market price suppression	●	●	●	●
	Avoided RPS or EPS compliance costs	●	◐	●	◐
	Avoided environmental compliance costs	●	◐	●	◐
	Avoided credit and collection costs	◐	◐	◐	◐
	Reduced risk	●	●	◐	◐

NSPM - Appendix B

EE vs Distributed Energy Resources **Non-Utility System Impacts**

		Energy Efficiency	Demand Response	Distributed Generation	Distributed Storage
Costs					
Non-Utility	Measure costs (participant portion)	●	●	●	●
	Interconnection fees	○	○	●	●
	Annual O&M	○	○	●	●
	Participant increased resource consumption	◐	◐	◐	◐
	Non-financial (transaction) costs	◑	●	○	○
Benefits					
Non-Utility	Reduced low-income energy burden	◐	◐	◐	◐
	Public health benefits	●	◐	●	◐
	Energy security	●	◐	●	◐
	Jobs and economic development benefits	●	●	●	●
	Environmental benefits	●	◐	●	◐
	Participant health, comfort, and safety	◐	○	○	○
	Participant resource savings (fuel, water)	◐	○	○	○

Thank you!

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Visit www.nationalefficiencyscreening.org