Developing a Commission jurisdictional specific cost-effectiveness test for distributed energy resources incorporating CETA

Workshop #2

Docket UE-210804

Monday, August 1, 2022, at 9:00 a.m.

Virtual Workshop Reminders

- This a public workshop. The presentation will be recorded and posted.
- **MUTE your microphone when you're not speaking**
- Use chat to ask questions during the presentation
- Use chat or raise hand to speak during Q & A

NSPM BCA Process
Workshop #2

Washington UTC Workshops

Jennifer Snyder, WA Utilities & Transportation Commission (UTC)
Tim Woolf and Courtney Lane, Synapse Energy Economics
Julie Michals, E4TheFuture

August 1, 2022

Today's Meeting Agenda

Brief Refresher on BCA Framework (15 min)

- NSPM BCA framework
- Where/how does energy equity fit into decision making process
- Objectives for today's workshops (and upcoming workshop topics)

Consistency in BCA across DERs (30 min)

- Concerns raised in stakeholder comments
- Key concepts on what 'consistency' means
- Example of using a consistent BCA test across DERs

Applicable Washington Policy Goals (30 min)

- Policy inventory - feedback from stakeholders
- Applicability to electric, gas utilities
- Review and discussion on priority policies and relevant impacts

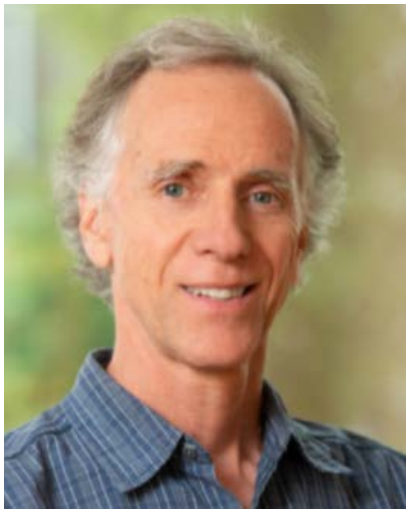
Current BCA Practice in WA (25 min)

- PSE presentation
- Review/discuss key missing impacts

Q&A and Next Steps (20 min)

- Review next workshop topics - key issues and challenges

Today's Speakers/Moderator



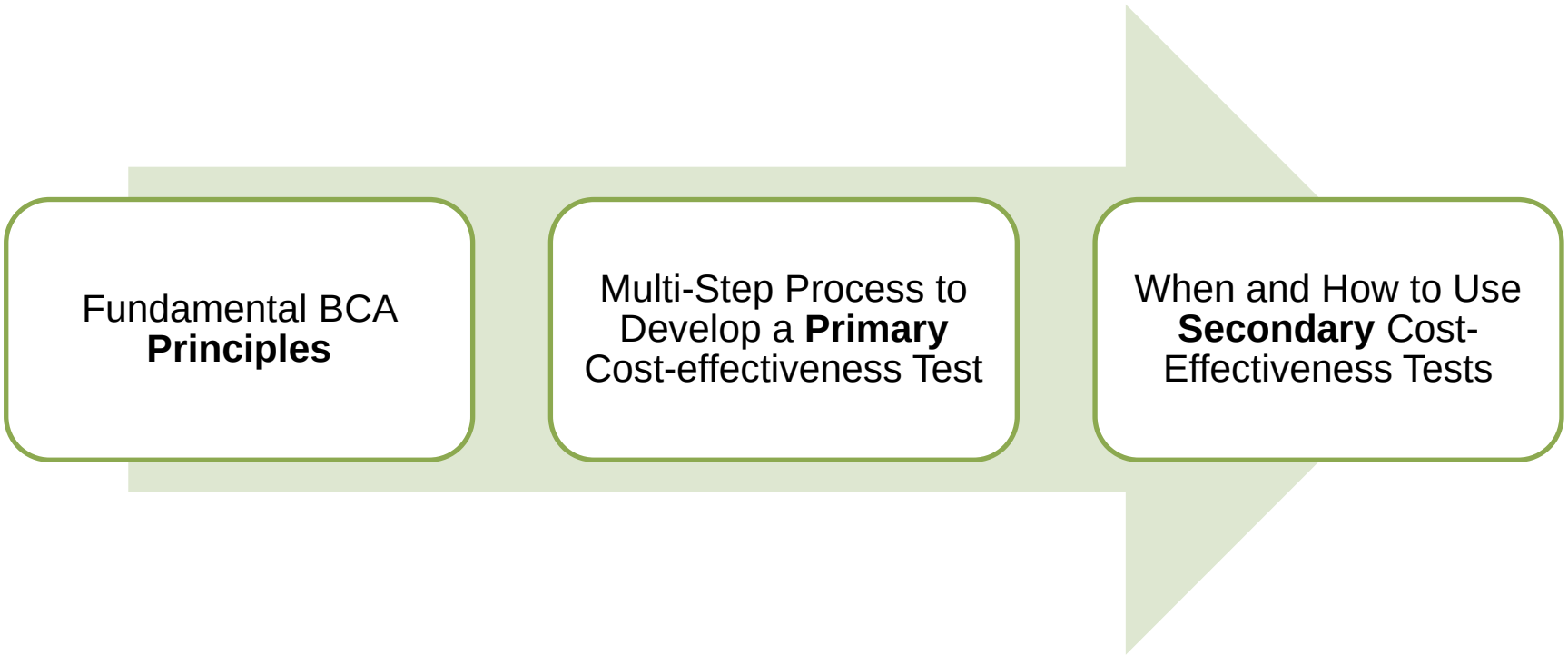
Tim Woolf
Vice President
Synapse Energy Economics
Lead Author – NSPM

Courtney Lane
Senior Associate
Synapse Energy Economics

Julie Michals
Director of Valuation
E4TheFuture
NESP Project Coordinator

Refresher on BCA Framework

NSPM BCA Framework



What Do Cost-effectiveness Tests Tell Us?

Primary Test Answers Question:

Which resources have benefits that exceed costs and therefore may merit utility acquisition or support on behalf of their customers?

Secondary Tests Tell Us:

How will DERs affect utility system costs (if the Utility Cost test is used as a secondary test)

How much will it cost to achieve certain policy goals

How to treat DERs that are marginally cost-effective

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.

NSPM 5-step Process

Defining a Primary Cost-Effectiveness Test

STEP 1 **Articulate Applicable Policy Goals**

Articulate the jurisdiction's applicable policy goals related to DERs.

STEP 2 **Include All Utility System Impacts**

Identify and include the full range of utility system impacts in the primary test, and all BCA tests.

STEP 3 **Decide Which Non-Utility System Impacts to Include**

Identify those non-utility system impacts to include in the primary test based on applicable policy goals identified in Step 1:

- Determine whether to include host customer impacts, low-income impacts, other fuel and water impacts, and/or societal impacts.

STEP 4 **Ensure that Benefits and Costs are Properly Addressed**

Ensure that the impacts identified in Steps 2 and 3 are properly addressed, where:

- Benefits and costs are treated symmetrically;
- Relevant and material impacts are included, even if hard to quantify;
- Benefits and costs are not double-counted; and
- Benefits and costs are treated consistently across DER types

STEP 5 **Establish Comprehensive, Transparent Documentation**

Establish comprehensive, transparent documentation and reporting, whereby:

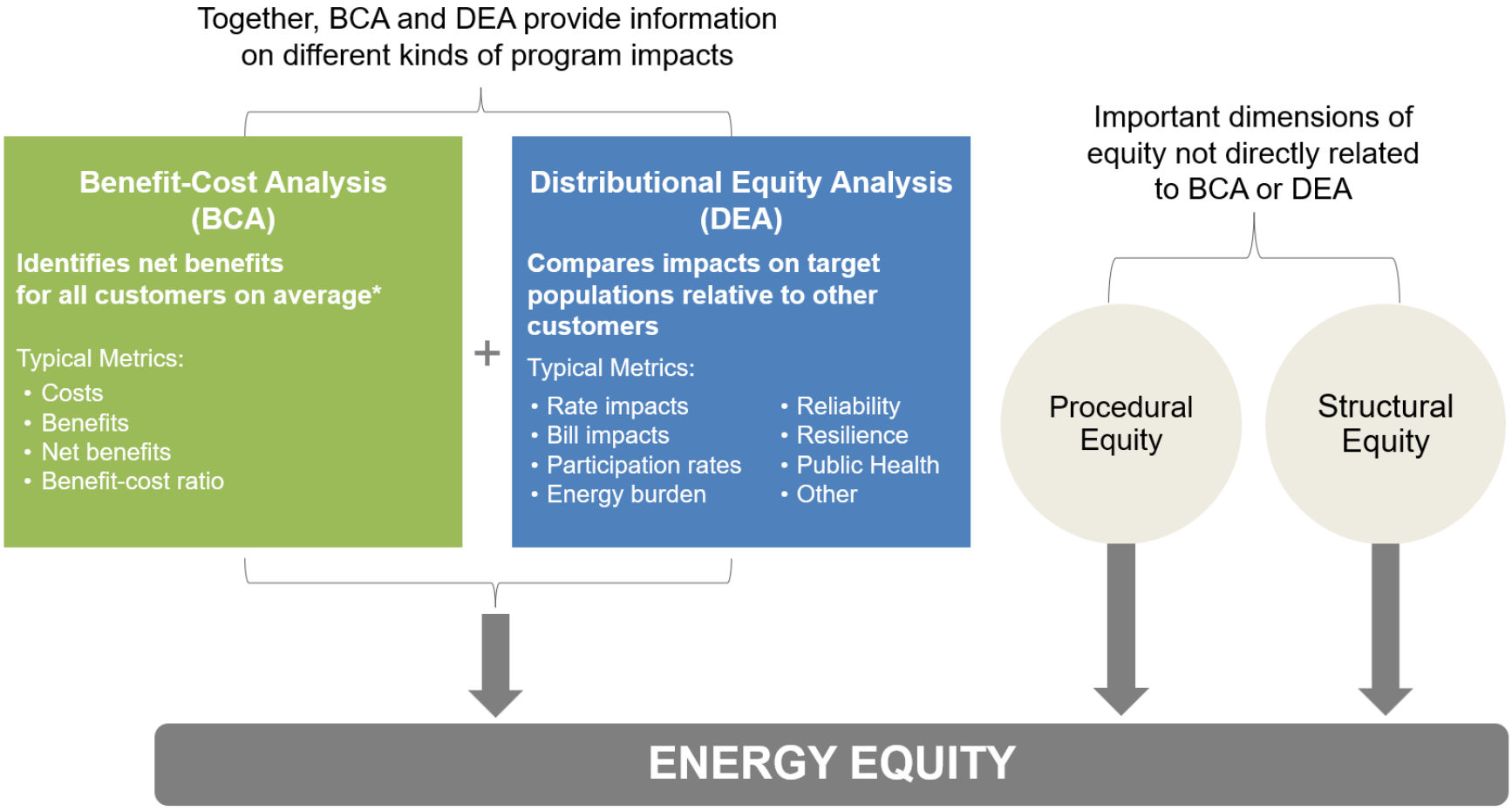
- The process used to determine the primary test is fully documented; and
- Reporting requirements and/or use of templates for presenting assumptions and results are developed.

What about Energy Equity?

- Distributional equity requires assessing *which customers* experience the costs and benefits of utility programs and investments.
- BCAs are not designed to address distributional equity.
  - BCAs designed to measure costs and benefits *on average* across utility system, broad customer categories, host customers, or society. For example:
    - Avoided costs (i.e., benefits) - typically a blend of avoided costs experienced by all customers – no distinction made for customer categories/target populations. Not possible to distinguish net benefits to target populations.
  - One exception: DER programs designed to serve target populations (e.g., low-income programs) can be evaluated separately from other programs to show whether those programs will provide net benefits to that population. *But this says nothing about how all the other DER programs will affect the target populations.*
- BCAs can help address distributional equity issues if they are supplemented with a *distributional equity analysis* (DEA).

BCA vs DEA – Complementary Analyses

We will address DEA topic in more depth in later workshop



*Non-utility system impacts can be accounted for in BCAs if consistent with the jurisdiction's policy goals, but inclusion of these impacts in BCA does not provide a measure of equity across target populations.

Consistency in BCAs across DERs

Stakeholder Feedback

- Alliance for Transportation Electrification
  - EV impacts may include flexible load management techniques, demand response, vehicle-to-grid
  - Societal benefits: LMI mobility, resiliency
  - Nascent industry and lack of data
- NW Energy Coalition
  - DERs that build a utility's load (e.g., transportation electrification) come with different costs and benefits for a utility than a DER that sheds or moves load

NSPM Principle #1: Consistency in BCA across DERs

Importance of Consistency

- Consistent BCA framework reduces risk of either over or under-investing in a resource (or combination thereof)
- Siloed approach to valuing different DERs can be complex and overwhelming for commissions, utilities and stakeholders
- Allows for analysis of multiple-DER initiatives

Consistency Still Allows for Unique Characteristics of each DER

- A consistent BCA framework does not require all impacts to apply to all DERs
- The framework accounts for differences in DER technologies and use cases
- Policy framework should be comprehensive, but all policies may not apply to all DERs
- It may not be possible to develop quantitative values for each DER.
  - Impacts may need to be addressed qualitatively due to data limitations
  - The framework can be adopted overtime as industry changes

Example 1: Utility System Benefits & Costs

Type	Utility System Impact	EE	DR	DG	Storage	Electrification
Generation	Energy Generation	●	●	●	●	●
	Capacity	●	●	●	●	●
	Environmental Compliance	●	●	●	●	●
	RPS/CES Compliance	●	●	●	●	●
	Market Price Effects	●	●	●	●	●
	Ancillary Services	●	●	●	●	●
Transmission	Transmission Capacity	●	●	●	●	●
	Transmission System Losses	●	●	●	●	●
Distribution	Distribution Capacity	●	●	●	●	●
	Distribution System Losses	●	●	●	●	●
	Distribution O&M	●	●	●	●	●
	Distribution Voltage	●	●	●	●	●
General	Financial Incentives	●	●	●	●	●
	Program Administration Costs	●	●	●	●	●
	Utility Performance Incentives	●	●	●	●	●
	Credit and Collection Costs	●	●	●	●	●
	Risk	●	●	●	●	●
	Reliability	●	●	●	●	●
	Resilience	●	●	●	●	○

● = typically a benefit
● = typically a cost
● = either a benefit or cost depending on application
○ = not relevant for resource type

Example 2: Sample Impacts and DER Use Cases

Category(	Type	Impact	EE	DR	EV
Electric Utility System Impacts	Generation	Energy Generation	Benefit	Will depend if DR only shifts load or impacts consumption	Cost
		Capacity	Benefit	Benefit	Cost or Benefit if paired with demand flexiblity, TOU rates
		RPS/CES Compliance	Benefit	N/A if no change in sales	Cost (increased electricity sales)
		Market Price Effects	Benefit	Benefit	Energy = cost Capacity = benefit if paired with demand shifting
		Ancillary Services	N/A	Benefit	Cost or benefit if V2G enabled
	General	Risk	Benefit	Benefit	Cost due to increased electricity consumption
		Reliability	Benefit	Benefit	Cost without DR/time shifting. V2G could great benefit.
		Resilience	N/A	Benefit	N/A except for V2G mode that creates a benefit
Societal Impacts	Societal	Greenhouse Gas Emissions	Yes	N/A or could be cost depending on timing	Yes
		Public Health (critical air pollutants)	Yes	N/A or could be cost depending on timing	Yes
		Economic Development and Jobs	Yes	N/A	Yes
		Energy Security	Yes (for other fuels)	N/A	Yes
Host Customer Impacts	General	Measure Costs (Host)	Cost	N/A	Yes
		Interconnection Fees	N/A	N/A	Yes
		Other Fuel (oil, propane, gasoline)	Yes (for other fuels)	N/A	Yes
		Tax Incentives	Depends on meausure	N/A	Yes (depends on vehicle type)
		Asset value (property value)	Benefit (ex. weatherization)	N/A	Yes
		Productivity (includes O&M)	Yes	Potential Cost	Yes
	Low-income	Comfort	Yes	N/A	No
		Health & safety	Yes	N/A	No
		Mobility	N/A	N/A	Yes (depends on type of program)

Applicable WA Energy Policies
(and relevant impacts)

Applicable Policy Goals

Thanks to stakeholders who filled in inventory spreadsheet!

- There was significant overlap in policies identified in stakeholder inventory.
- All categories of impacts are covered under two umbrella policies:
  - Clean Energy Transformations Act
  - Climate Commitment Act.
- While CETA only applies to electric utilities, the CCA policy goals similarly cover the broad suite of relevant impact categories.

Applicable Policy Goals – Umbrella Policies

Impact type	Impact category	**Electric policy, statute, or decision**	**Gas policy, statute, or decision**
Utility System	**Electric Utility System (or Gas Utility) Impacts**	Clean Energy Transformation Act, Climate Commitment Act- all DERs	Climate Commitment Act - all DERs
Other Fuels	**Other Fuels (gas, oil, propane)**	CETA, CCA - all DERs	CCA - all DERs
Societal	**Resilience**	CETA, CCA - all DERs	CCA - all DERs
	Energy Security	CETA, CCA - all DERs	CCA - all DERs
	GHG Emissions	CETA, CCA - all DERs	CCA - all DERs
	Other Environmental	CETA, CCA - all DERs	CCA - all DERs
	Public Health	CETA, CCA - all DERs	CCA - all DERs
	Economic Development/ Jobs	CETA, CCA - all DERs	CCA - all DERs
	Energy Burden/Equity	CETA, CCA - all DERs	CCA - all DERs
Host Customer	**Host Customer (non-low Income)**	CETA, CCA - all DERs	CCA - all DERs
	Host Customer Low-Income	CETA, CCA - all DERs	CCA - all DERs

Draft Regulatory Goals Identified by Commission in Docket U-210590

- Resilient, reliable, and customer-focused distribution grid
- Customer affordability
- Advancing equity in utility operations
- Environmental improvements

Applicable Policy Goals Identified by Public Counsel

- Reduce natural gas use
- Prioritize the maximization of family-wage job creation
- Ensure that all customers are benefiting from the transition to a clean energy economy
- Equitable distribution of energy benefits and reduction of burdens to vulnerable populations and highly impacted communities
- Long-term and short-term public health, economic, and environmental benefits
- Reduction of costs and risks
- Energy security and resiliency
- Encourage the development of new safe, clean, and reliable energy resources to meet demand in Washington for affordable and reliable electricity
- Value of combined heat and power (CHP)
- Coordinated and strategic planning of non-wires alternatives (NWA)
- Cybersecurity and data privacy
- Reduce motor vehicle air pollution and GHG emissions
- Reduce statewide GHG emissions
- Data transparency and standardization
- Reduce building GHG emissions

Applicable Policy Goals cont.
and Relevant Impacts

Discussion:

- Focus today is on '*what's relevant and should be accounted for, one way or another*' i.e., value is not zero
- Some impacts may be more relevant to some DERs vs others, or will depend on use case
- Some impacts may be hard to quantify - we will review methodological options in future workshop, not today

Methodologies and Inputs to Account for All Relevant Impacts (Including Hard-to-Quantify Impacts)

Approach	Application
Jurisdiction-specific studies	Best approach for estimating and monetizing relevant impacts.
Studies from other jurisdictions	Often reasonable to extrapolate from other jurisdiction studies when local studies not available.
Proxies	If no relevant studies of monetized impacts, proxies can be used.
Alternative thresholds	Benefit-cost thresholds different from 1.0 can be used to account for relevant impacts that are not monetized.
Other considerations	Relevant quantitative and qualitative information can be used to consider impacts that cannot or should not be monetized.

Future workshop to refer to Methods Tools & Resources (MTR) Handbook to help inform accounting for impacts: https://www.nationalenergyscreeningproject.org/resources/quantifying-impacts/

Current BCA Practice
PSE Presentation

PSE DER BCA Practice Review

August 1, 2022

PUGET SOUND ENERGY

Energy Efficiency BCA Model (Simplified)

$$\frac{\textbf{Benefits}}{\textbf{Costs}}$$

	TRC	UC
Benefits	Avoided Costs of Energy and Capacity Non-Energy Impacts (NEIs) 10% Conservation Credit	Avoided Costs of Energy and Capacity
Costs	PSE Administrative Costs Measure Costs	PSE Administrative Costs PSE Incentives

Energy Efficiency BCA Model (Expanded)

Integrated Resource Planning

Avoided Costs:
- Market Energy Prices
- T&D Losses
- Social Cost of Carbon
- Renewable (0-carbon) Premium
- Capacity Price (peaker plant)
- Capacity O&M
- Discount Rate

Load Shapes = Peak Coincidence Factor (for capacity)

10% NWPA Credit

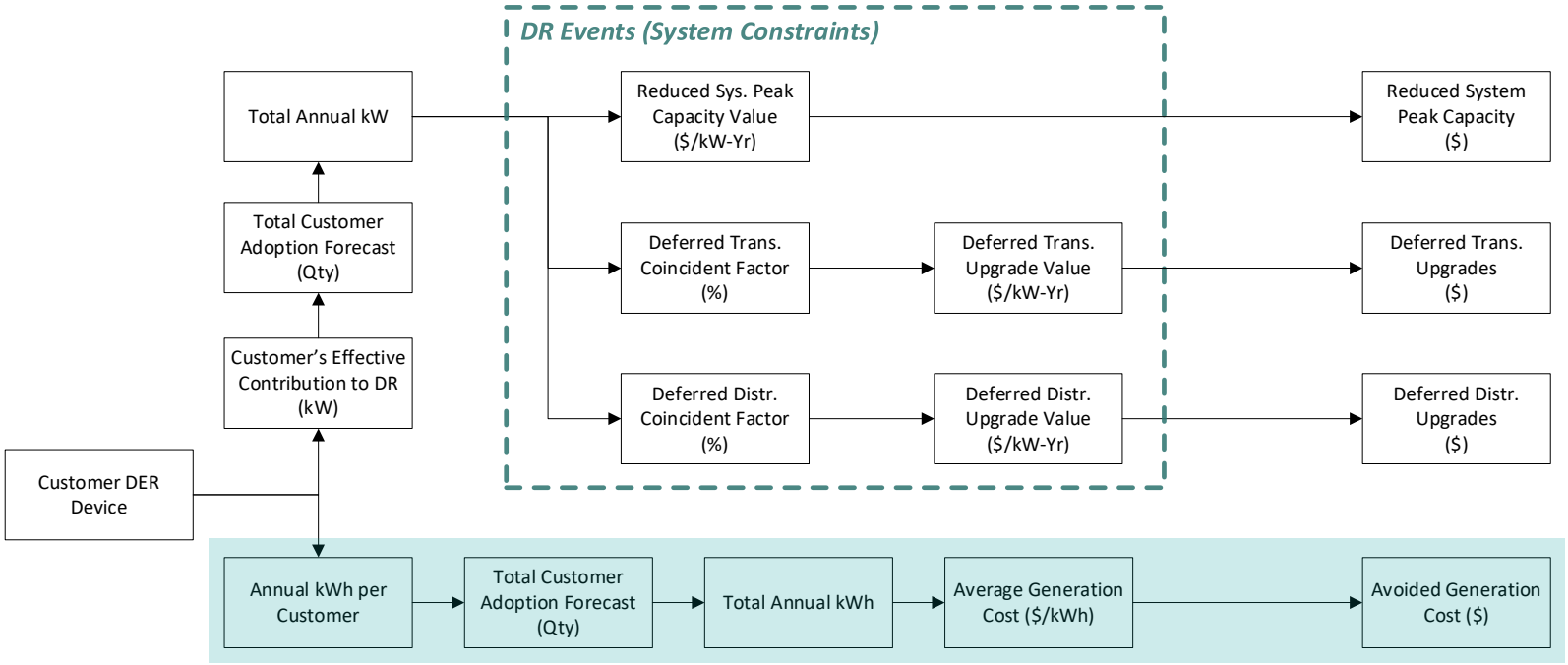
Energy Efficiency

Applicable Non-Energy Impacts (NEIs)
- O&M
- Noise Reduction
- Improved Home Comfort
- Local Avoided Costs
- Avoided Shutoffs/Collections
- Property Values
- Water Savings
- Productivity/Product Improvements
- Indoor Air Quality
- Health and Safety
- Lighting Quality

Costs:
- PSE Incentives to Customers
- Marketing, Labor, Overhead
- Measure Cost (Full or Incremental)
- EM&V
- Data & Outreach Tools
- Customer Market Research

PUGET SOUND ENERGY

CEIP DER BCA Model



New from MVP Model (Applies to Solar)

EVSE Investment Benefit-Cost Considerations

1. Calculate Net benefit for entire EV population in electric service area (see table).
2. Calculate EVSE Investment recovery for EVSE products & services
3. Net #2 from #1, result is benefit in excess of program cost. If positive, then investments do not unfairly burden non-EV drivers.

Cost-Benefit Valuation detailed in Docket UE-220066-67-PSE-Exh-WTE-1CT-1-31-22 beginning Page 51, lines 7.

Costs	Benefits
Marginal Energy Costs	Revenues from Electric Transportation
Marginal Generation Capacity Costs	Vehicle Operation & Maintenance Saving
Transmission & Distribution Costs	Avoided Direct Carbon Costs
Ancillary Services or Other Energy Supply Costs	Avoided Gasoline Costs
Incremental Vehicle Costs	Federal Tax Credits
Electric Vehicle Supply Equipment Costs	

Considerations for future modeling

- EVSE requires flexibility
  - Resource as a DER is developing
  - Perhaps not ready for standard cost test models
  - Alternatives available – PSE multi-year rate plan
- Aggregated DER participation in regional markets; FERC 2222
- Electrification and decarbonization: Added electric load costs offsets gas savings; makes CE difficult
- Existing and contemplated regulations for utility incentives to support DER development
  - EE: WAC 480- 109-100 (9)
  - EVSE: RCW 80.28.360
  - Performance Based Regulation Docket U-210590

Q&A and Next Steps

Follow-Up Workshops

Workshop #1 (May 10 – NSPM overview)

Workshop #2 (August 1 - today)

- Step 1: Identify and confirm Washington's applicable policy goals
- Discuss current DER BCA practices in Washington

Workshop #3 (September 20)

- Step 2: Identify all utility system impacts to include in BCA tests
- Step 3: Confirm non-utility system impacts to include in primary test
- Step 4: Ensure costs and benefits are properly addressed

After Workshop #3, Staff will prepare Straw Proposal for stakeholder comment and discussion at next workshop

Workshop #4 (late October)

- Discuss Straw Proposal comments on proposed primary BCA test
- Address methods for quantifying key impacts
- Discuss additional topics, e.g., secondary tests, discount rates

Workshop #5 (November)

- Accounting for Energy Equity, complementary analysis to BCA
- Step 5: Ensure transparency (BCA inputs, results, decision framework)

Homework Assignments

Review NSPM Part II: DER Benefits and Costs.

Be prepared to comment on and discuss:

- utility system impacts – identify all
- non-utility system impacts – specific impacts to include in a primary test

Contact Staff: Jennifer.Snyder@utc.wa.gov

Contact Information

Julie Michals, Director of Valuation – E4TheFuture

jmichals@e4thefuture.org

Tim Woolf, Sr. Vice President - Synapse Energy Economics

twoolf@synapse-energy.com

Courtney Lane, Senior Associate – Synapse Energy Economics

clane@synapse-energy.com