



*National Association of  
State Energy Officials*



## DER INTEGRATION & COMPENSATION INITIATIVE

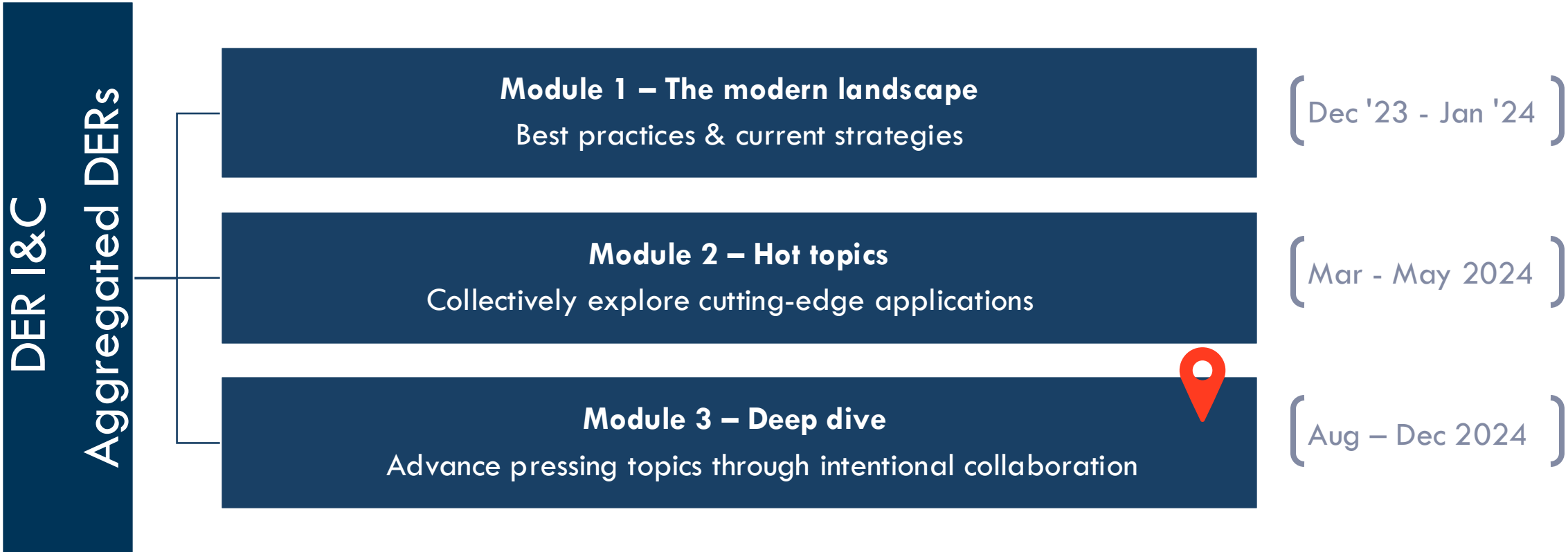
## PLANNING FOR A MODERN DISTRIBUTION SYSTEM

## WORKSHOP #3

October 10, 2024

# Overview of the DER I&C Initiative

The DER I&C Initiative 2023-24 curriculum is designed around three sequential modules



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# Planning for a Modern Distribution System

Convene and support state members to help build their capacity to effectively plan for and navigate changes across the distribution system.

## **Objectives:**

- Inform key state decision makers
- Raise and evaluate risks and opportunities of options
- Bring different perspectives to the table

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# Workshop Series Arc

**Workshop 1** *August 13 2-4:30 pm EDT*

**Foundations of Modern Distribution Planning**



**Workshop 2** *September 17 2-4:30 pm EDT*

**Tools & Analysis for Distribution Planning (Part 1)**



**Workshop 3** *October 10 2-4:30 pm EDT*

**Tools & Analysis for Distribution Planning (Part 2)**



**Workshop 4** *November 20 2-4:30 pm EDT*

**Leveraging Grid Planning to Inform Decision Making**

# Today's Agenda

## Objectives:

- Workshop participants understand how to assess utility decisions, or proposed decisions, in IDSP processes using tools and analyses.
- Workshop participants walk away with at least one tool or analysis they can utilize to meet their state's policy objectives.

## Agenda:

| Time (ET)   | Session  |
|-------------|--|
| 2:00-2:10pm | <b>Welcome and Introductory Poll:</b> Overview of today  |
| 2:10-3:05pm | <b>Micro-Presentations:</b> Expert speakers and state practitioners will discuss how they evaluate utility's: <ol style="list-style-type: none"><li>1. NWS Screening Methodologies and CBA Frameworks</li><li>2. Proactive Investment Decision-Making</li><li>3. Hosting Capacity Analysis</li><li>4. Resilience Assessments</li></ol> |
| 3:05-3:35pm | <b>Breakout Session #1:</b> Join a breakout on one of the four topics  |
| 3:35-3:45pm | <b>Break</b>   |
| 3:45-4:15pm | <b>Breakout Session #2:</b> Join a breakout on one of the four topics  |
| 4:15-4:30pm | <b>Reflection, closing, and what's ahead</b>   |

# Working Norms

- **Please participate!**
- **Be present**
- **Respect confidentiality**
  - For breakout sessions we will use the *Modified Chatham House Rule*: you can say who was there, what was said, but not who said what
- **Consider ex parte**
  - If you are concerned about *ex parte* communications during break-out sessions, you are welcome to switch rooms at your discretion

# Four IDSP Topics For Evaluating and Assessing Utility Decisions

## NWS Screening Methodologies and CBA Frameworks

What is needed for an effective screening process for NWS, and how can NWS be compared to traditional investments' costs and benefits?

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## Proactive Investment Decision Frameworks

How to decide on long-term investments based on utility forecasts and uncertainty.

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## Hosting Capacity Mapping and Data Sharing

What data should be included in an effective hosting capacity map, and what level of granularity is needed for it to be useful for stakeholders?

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## Resilience Investment Decision Frameworks

How to prioritize investments in resilience to effectively balance risk and ratepayer impacts.

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# Polls

1) NWS Screening Methodologies and CBA Frameworks

2) Proactive Investment Decision Frameworks

3) Hosting Capacity Mapping and Data Sharing

4) Resilience Investment Decision Frameworks

## Poll 1

For each topic, rate **how experienced you think utilities in your state are with this topic** on a scale of 1-5.

## Poll 2

For each topic, rate **your own experience in effectively evaluating utility decisions on this topic** on a scale of 1-5.

### Instructions

Go to  
[www.menti.com](https://www.menti.com)

Enter the code

63 95 01 8



Or use QR code

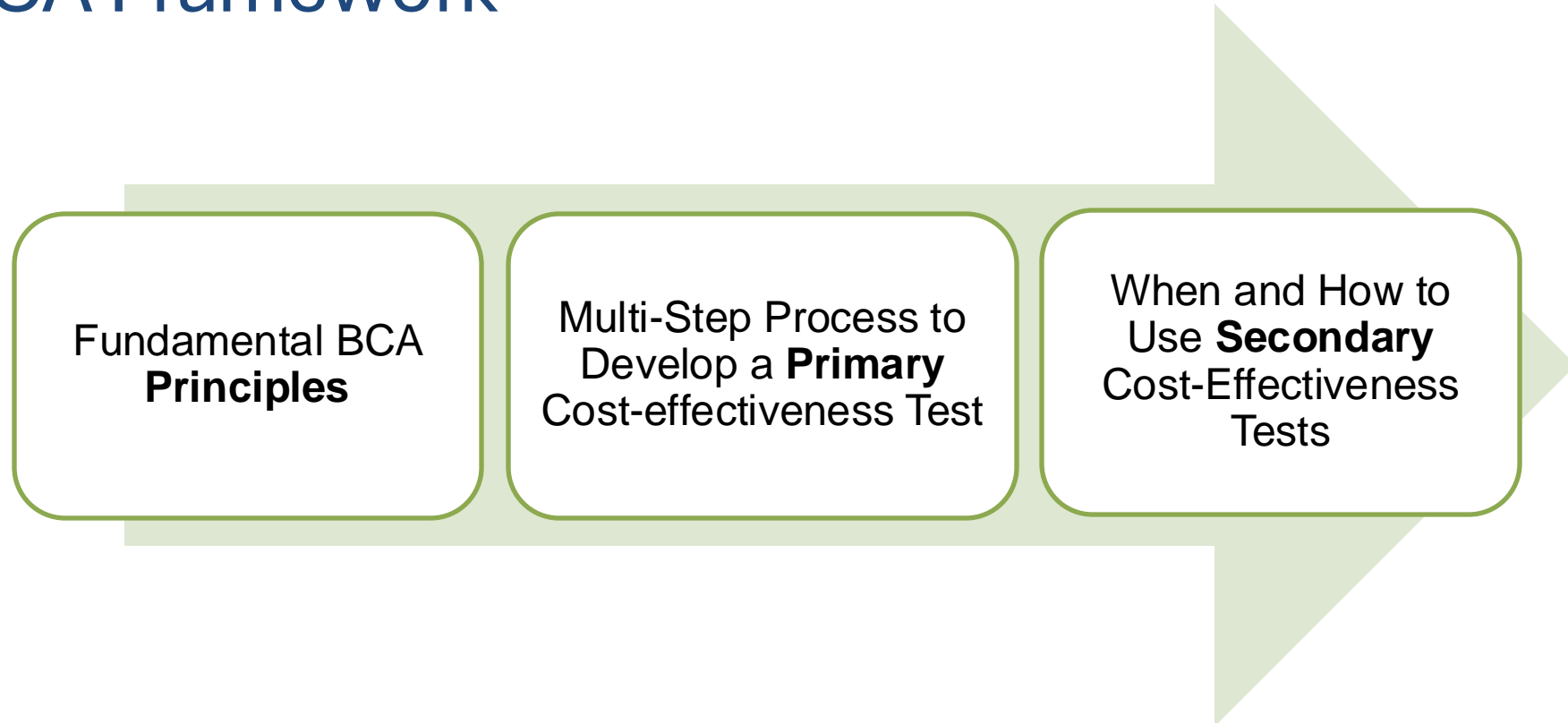
Benefit-Cost Analysis of  
Non-Wires Solutions (NWS)  
Using the National Standard Practice Manual (NSPM)

**NARUC-NASEO IDSP Workshop**

October 10, 2024

Chris Neme, Energy Futures Group

# NSPM BCA Framework



Together, the above framework components can guide development of (or modification to) a jurisdiction's primary cost-effectiveness test, and selection of secondary tests.

# Fundamental NSPM Benefit-Cost Analysis 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 cost-effectiveness 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** as they answer different questions.

# The Bottom Line(s)...

1. A state's primary cost-effectiveness test should include:
  - a) All utility system impacts
  - b) All non-utility system impacts related to state energy policy goals
    - For example, if a state has a goal to reduce GHGs, impacts on GHGs should be valued. Otherwise, your BCA is not optimizing for all the things that matter to you.
  
2. This test should be applied consistently to all regulatory decisions on resource investment choices, including:
  - a) System-wide ratepayer-funded programs (e.g., efficiency programs)
  - b) Bulk power planning (e.g., IRPs for vertically-integrated utilities)
  - c) Distribution system planning – ***including consideration of NWS***

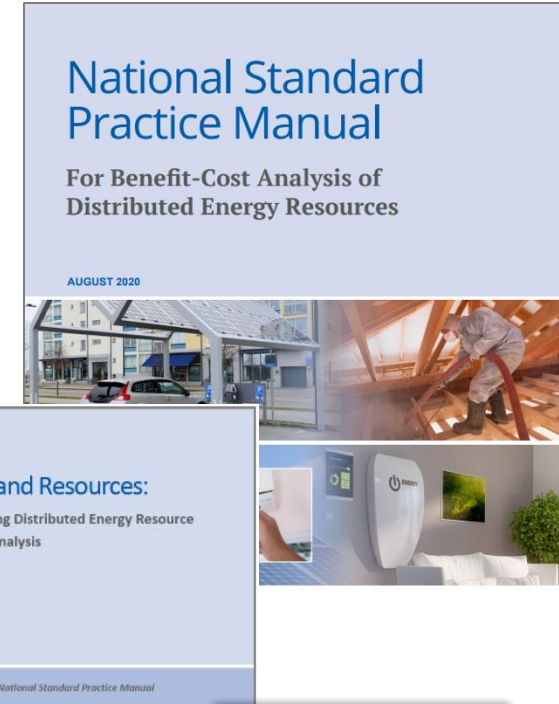
*If different tests, which include different categories of impacts, are used for different types of decisions, the result can be economically inconsistent and irrational decisions.*

# National Energy Screening Project NSPM and Supporting Publications

## National Standard Practice Manual (NSPM) for Benefit-Cost Analysis of Distributed Energy Resources (2020)

Developed by [National Energy Screening Project](#) (NESP), a project of E4TheFuture.

- NSPM builds on the California Standard Practice Manual (CaSPM), last updated in 2001
- CaSPM focuses on EE, NSPM addresses all DERs and in different regulatory contexts
- NSPM companion documents include:
  - [Methods, Tools & Resources – A Handbook for Quantifying DER Impacts in BCA](#) (2022)
  - [Distributional Equity Analysis Guide](#) (May 2024). DOE published, co-funded with E4TheFuture



**Thank you!**

**Questions?**

Chris Neme – [cneme@energyfuturesgroup.com](mailto:cneme@energyfuturesgroup.com)

# Benefit-Cost Analysis of Non-Wires Solutions (NWS)

Lessons learned from NY DPS

**Schuyler Matteson, NY DPS**

## Proactive investment decision-making

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Planning for a Modern Distribution System

Jeff Deason and Guillermo Pereira

October 10, 2024

*This work was funded by the U.S. Department of Energy under Contract No. DE-AC02-05CH11231.*



# Risks that proactive distribution system investments must manage

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- Risks of being early:
  - ▣ **Sub-optimal investment:** actual load growth diverges from expected such that a different investment would have been best
  - ▣ **Inappropriate cost allocation:** eventual users are different from anticipated users
  - ▣ **Stranded electricity distribution system assets:** lower-than-expected load growth yields fewer kWh over which to spread investment costs over time
  
- Risks of being late:
  - ▣ **Sub-optimal investment:** need to move quickly results in rushed decision process
  - ▣ **Delayed energization:** capacity insufficient to serve new customer demand, slowing pace of electrification
  - ▣ **Revenue loss or delay to electric utilities** due to delays
  - ▣ Continued **direct fuel technology lock-in**
  - ▣ **Unmet policy goals** due to delays and lock-in



# Risk mitigation approaches

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- Access to granular grid data
  - [A number of states](#) are publishing hosting capacity maps; CA [AB 2700](#) requires collection and publication of EV fleet data
- Third-party analysis or validation of load forecasts and distribution system investments
  - CA [SB 410](#) requires third-party review of the utility's practices for energizing load and planning for load growth
- Requirements to consider non-wires alternatives
  - MN [Integrated Distribution System Planning requirement](#) to include Non-Wires Alternative analysis
- Electrification-ready zones to encourage electrification where capacity is available
  - NY PUC proceeding 23-E-007: utilities propose to [identify and promote "areas of capacity"](#) for EV and MHDEV
- Cost recovery mechanisms that provide faster resolution of distribution system investments
  - CO [SB 24-218](#) Grid Modernization Adjustment Clause
- More thorough and forward-looking distribution system planning, considering electrification scenarios and leveraging probabilistic analysis
  - May include ensuring proactive investment actions align and coordinate with broader distribution system planning
- Incentives that reward distribution system right-sizing
  - May include the development of incentive mechanisms that consider asset utilization and energization time



## State actions – *Legislative*

| State | Law Number                | Year | Scope  | Summary of the action  |
|-------|---------------------------|------|--|--|
| CA    | <a href="#">AB 2700</a>   | 2022 | Transportation electrification                               | This law required utilities to proactively plan and build grid upgrades to address emerging EV load. The utility must identify those investments in their rate case for commission approval.   |
|       | <a href="#">SB 410</a>    | 2023 | Transportation and building electrification                  | This law required the commission to establish reasonable energization periods and to ensure utilities have adequate cost recovery mechanisms for energization costs.   |
| CO    | <a href="#">SB 24-218</a> | 2024 | Transportation and building electrification, and DER         | This law required utilities to upgrade the distribution system to meet transportation and building electrification, and DER growth. It requires utilities to adopt cost caps on customers' responsibility for upgrades and the commission to create a dedicated cost recovery mechanism. |
| MA    | <a href="#">H.5060</a>    | 2022 | Transportation and building electrification, DER, and others | This law required utilities to proactively upgrade the distribution system to accommodate increased electrification and other state policy goals (e.g., reliability, RE/DER adoption).   |



## State actions – Regulatory

| State | Docket Number                       | Year | Scope  | Summary of the action   |
|-------|-------------------------------------|------|--|---|
| CA    | <a href="#">A 23 05 010</a>         | 2023 | SCE Rate Case, including electrification load growth                               | This rate case includes \$1.5 billion in investments to support load growth, including transportation electrification, and consideration of different cost recovery mechanisms for proactive investments.   |
|       | <a href="#">R 23 12 008</a>         | 2023 | Transportation electrification   | This proceeding focuses on proactive planning for transportation electrification and will include the development prioritization criteria for planning needs.   |
|       | <a href="#">Resolution E-5167</a>   | 2021 | Transportation electrification   | This resolution enabled utilities to use their line extension policies to future-proof service connections for electric vehicle loads of non-residential customers by including additional capacity to avoid the need for upgrades in the future. |
| CO    | <a href="#">23M-0464EG</a>          | 2023 | Beneficial electrification and DER   | This proceeding included a study of barriers to electrification and DERs and identified short- and long-term improvements needed to serve load growth.  |
| MA    | <a href="#">24-10, 24-11, 24-12</a> | 2024 | Electric Sector Grid Modernization Plans for National Grid, Eversource, and Unitil | These proceedings include utility proactive investment proposals to address load growth and consideration for adequate cost recovery mechanisms.  |
| MN    | <a href="#">23-452</a>              | 2023 | Xcel IDP/TEP, transportation electrification                                       | This proceeding considers the need for proactive grid investments to address EV load growth.  |
|       | <a href="#">23-452</a>              | 2023 | Electrification and DER  | This proceeding established a commission-led workgroup to establish a proactive investment cost allocation framework for electrification and DERs growth.   |
| NC    | <a href="#">E-7, SUB 1276</a>       | 2023 | Duke Rate Case, transportation electrification                                     | This rate case includes \$26 million in proactive investments to serve EV fleet customers.  |
| NY    | <a href="#">23-E-007</a>            | 2023 | Transportation electrification, MHDEV focused                                      | This proceeding focuses on developing a proactive approach to deploying grid infrastructure for MHDEVs.   |
|       | <a href="#">24-E-0364</a>           | 2024 | Transportation and building electrification  | This proceeding focuses on developing a proactive approach to deploy grid infrastructure to meet transportation and building electrification needs.   |

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# Massachusetts Electric Sector Modernization Plan Order

Brief Summary of Selected Aspects of the Massachusetts DPU  
Order issued August 29, 2024

(D.P.U. 24-10, D.P.U. 24-11, D.P.U. 24-12)

NARUC-NASEO Planning for a Modern Distribution System Cohort



# ESMP Statutory Requirements

- In 2022, the Massachusetts legislature established G.L. c. 164, §§ [92B-92C](#), requiring the electric companies operating in Massachusetts to each submit an Electric Sector Modernization Plan (ESMP) with the DPU every 5 years and created the Grid Modernization Advisory Council (GMAC).
- The statute requires each company to develop an ESMP to proactively upgrade its electrical distribution system and, where applicable, transmission system to:
  1. Improve grid reliability, communications, and resiliency;
  2. Enable increased, timely adoption of renewable energy and distributed energy resources;
  3. Promote energy storage and electrification technologies necessary to decarbonize the environment and economy;
  4. Prepare for future climate driven impacts on the transmission and distribution systems;
  5. Accommodate increased transportation electrification, increased building electrification and other potential future demands on distribution and, where applicable, transmission systems; and
  6. Minimize or mitigate impacts on the ratepayers of the Commonwealth, thereby helping the Commonwealth realize its statewide greenhouse gas emissions limits and sub-limits under Chapter 21N.



# ESMP Statutory Requirements Cont'd.

- Each ESMP filed with the DPU must also include:
  1. A summary of all proposed and related investments, alternatives to these investments and alternative approaches to financing these investments that have been reviewed, are under consideration or have been approved by the DPU previously;
  2. Identification of customer benefits for all proposed investments and alternative approaches to financing those investments;
  3. Three planning horizons for electric demand, including a 5-year and 10-year forecast and a demand assessment through 2050; and
  4. A list of each Grid Modernization Advisory Council recommendation, including an explanation of whether and why each recommendation was adopted, adopted as modified, or rejected.



# ESMP Filings and Order

- The electric distribution companies (EDCs) filed their first ESMPs with the DPU on January 29, 2024.
- DPU issued an [order](#) approving the inaugural ESMPs with modifications on August 29, 2024, and identified several next steps to implement the ESMPs.
- DPU's review and approval involved statutory interpretation and whether the filings complied with the requirements of Section 92B.
- DPU found that the ESMPs will provide a strategic roadmap for the EDCs' investments in their electric distribution and transmission systems to enable an affordable, equitable clean energy transition.
- DPU's approval of the ESMP does not approve any costs or specific investments. DPU will determine the parameters of a new ESMP cost recovery mechanism in a subsequent phase of the ESMP proceedings.
- The following slides describe selected elements of the ESMPs; this is not a comprehensive summary of the ESMPs or the DPU order. Other topics include, for example, Forecasts and Demand Assessments, DER Interconnection and Long-Term System Planning, Integrated Energy Planning, and Equity & Stakeholder Engagement.



# Planned and Proposed Investments

- The EDCs characterize base spending capital investment activities as **core investments**, i.e., planned investments funded through base distribution rates to maintain the safety and reliability of the electric distribution system in the normal course of business.
- In contrast, the EDCs identify proposed **ESMP investments** as accelerated, incremental investments that supplement and go beyond existing programs and core investments, and which the utilities deem necessary over the next five years to enable progress towards the Commonwealth's clean energy and decarbonization goals through electrification and distributed energy resources.
- DPU found this distinction to be reasonable and appropriate.
- DPU's review in the ESMP order is limited to the new, discrete, and incremental investments proposed in the ESMP, and as informed by the company's planned non-ESMP investments.
- DPU declined to require the EDCs to uniformly treat certain investment types as either core or ESMP; rather, DPU found that a measure of flexibility in ESMP investment planning, consistent with typical distribution system planning and grid modernization efforts in the state, is appropriate and warranted.



# Net Benefits Analysis

- Section 92B(d) requires that, in order to be approved, an ESMP must provide net benefits. DPU relied on statutory interpretation and DPU precedent on net benefits in other proceedings to guide our analysis.
- For purposes of the ESMP net benefits analysis, the DPU reviewed the costs and benefits of the proposed planning solutions in the context of strategic planning documents only, i.e., not for purposes of cost recovery.
- DPU determined that the net benefits requirement in statute (Section 92B(d)) only applies to the proposed ESMP investments.
- DPU found it appropriate to assess net benefits of a portfolio of investments (rather than considering the net benefits of specific investments or categories of investments separately).
- DPU found that the utilities have each established net benefits for their ESMPs using a reasonable method and inputs.



# Alternatives to Proposed Investments

- Alternatives may include changes in rate design, load management, and other methods for reducing demand, enabling flexible demand, and supporting dispatchable demand response.
- Alternatives may rely on customer-side, behind-the-meter decisions (e.g., managed charging) and can help to offset system load and to delay or, in some instances, eliminate the need for traditional infrastructure investments.
- For utility infrastructure investments and typical distribution system planning, and for larger projects in particular, alternatives may include non-traditional investments such as energy storage systems and virtual power plants or revisions to project scope and/or locations based on, for instance, community input, the results of detailed engineering analyses, or evolving system needs.
- DPU found the utilities have each sufficiently complied with the statutory requirements relating to alternatives to investments. Specifically, the records reflect that:
  1. The EDCs consider alternatives to investments as part of their typical distribution system planning processes, both in forecasting, as it relates to adjustments for programs like DERs, EVs, and EE, and in their consideration of capital and other investments; and
  2. Each EDCs's normal planning processes and planned investments informed the development of its ESMP and the proposed ESMP investments, including the corresponding alternatives considered or that would be considered by the company



# Grid Resilience to Climate-Driven Impacts

- An important element of each ESMP is the requirement to improve grid resilience and prepare for future climate-driven impacts.
- Activities to monitor and improve reliability and resiliency, include, for example, vegetation management and tree work, emergency response plans, asset management and pole replacements, targeted hardening of infrastructure, and undergrounding distribution cables.
- Each EDC also describes the development of a Climate Vulnerability Assessment for its distribution system, which will be used to target resiliency investments.
- An analysis of the potential impacts of climate change across various scenarios is integral to forward-looking distribution system planning and successful pursuit of the statutory objectives.
- DPU found the need for greater consistency in the climate vulnerability assessments prepared by the utilities. In its first biannual ESMP report, each company shall provide a description of its planned targeted resiliency investments.

# Hosting Capacity – Needs and Leading Practices



**Cody Davis, Senior Principal Engineer, Electric Power Engineers**

# Ideal Goals of Hosting Capacity (HC)

- **Direct DER applications to “good” locations**
  - Sites with available capacity (easy)
  - Sites where system modifications are likely to be cost-effective (hard)
- **Empower DER applicants with enough information to make decisions and set expectations**

**Overall Goal: Lower application volume, higher rate of success**

# How Hosting Capacity Can Be Used

## Developer Guide

- **Understand potential upgrade costs at varying DER sizes**
  - Based on size at which different HC criteria are violated
  - E.g., “Upgrade regulator controller” Vs “Upgrade Substation Transformer”
- **Understand interconnection timeline due to queued DER**
  - Based on number and size of applicants ahead in queue
- **Determine site feasibility across multiple constraints**
  - Hosting Capacity, Land Suitability, Zoning, etc
  - Needs relatively high geographic granularity
  - Data export / tabular format eases data source integration/comparison

# Assessing HC Effectiveness

- **Is the information provided locationally specific enough to be useful?**
- **Is the information up to date enough to be trusted?**
- **Is enough information provided to empower developers to site and size DER applications effectively?**

# State Practices and Examples

# State Comparison Overview

## Less Effective Map Characteristics

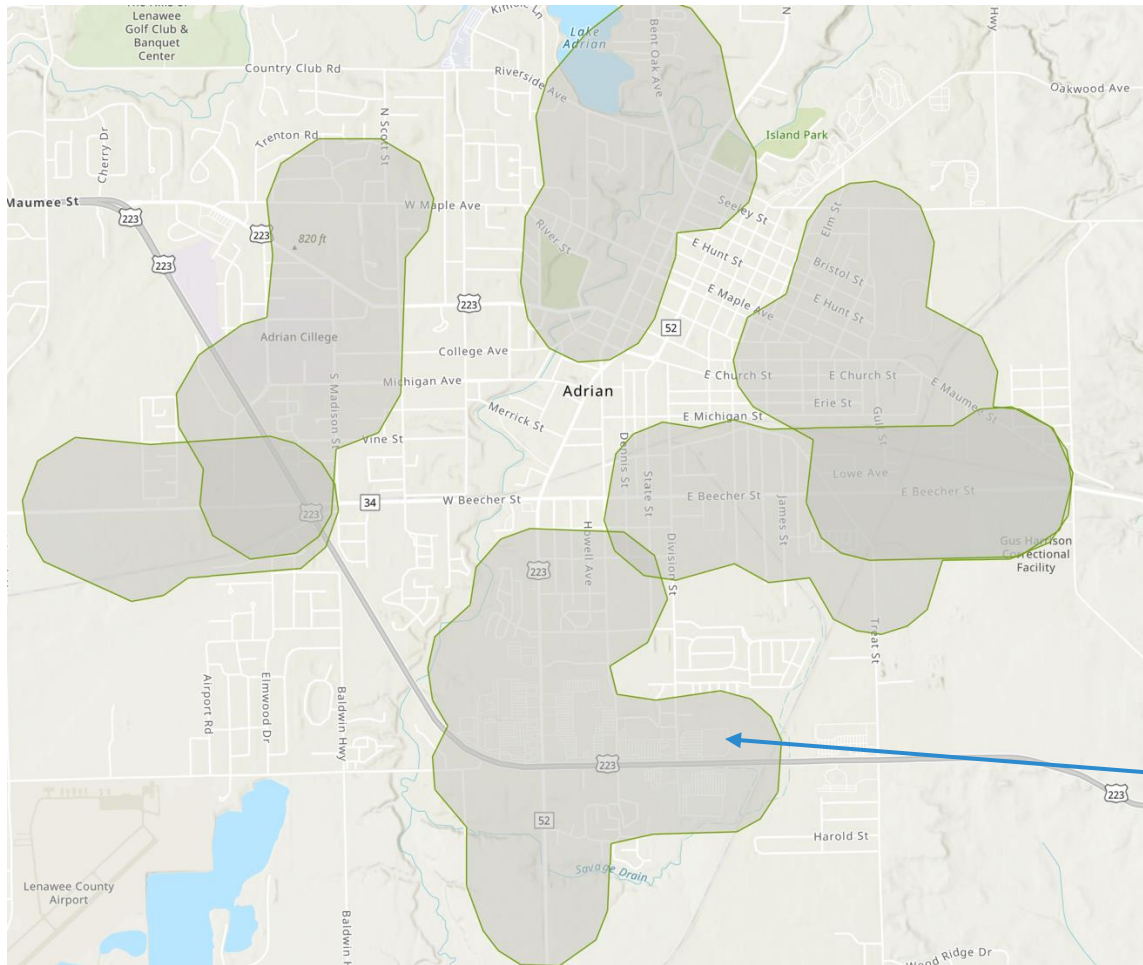
- Results blocks covering large areas (edge lengths in miles)
- Relatively little additional information provided
- Relatively infrequently refreshed (annual or slower)

## Most Effective Map Characteristics

- Results blocks cover small areas (edge lengths in 100s of feet)
- Most/all relevant information provided
- Information is relatively current (monthly or varies by type)

# Less Effective Map Example

## Consumers Energy (Michigan)

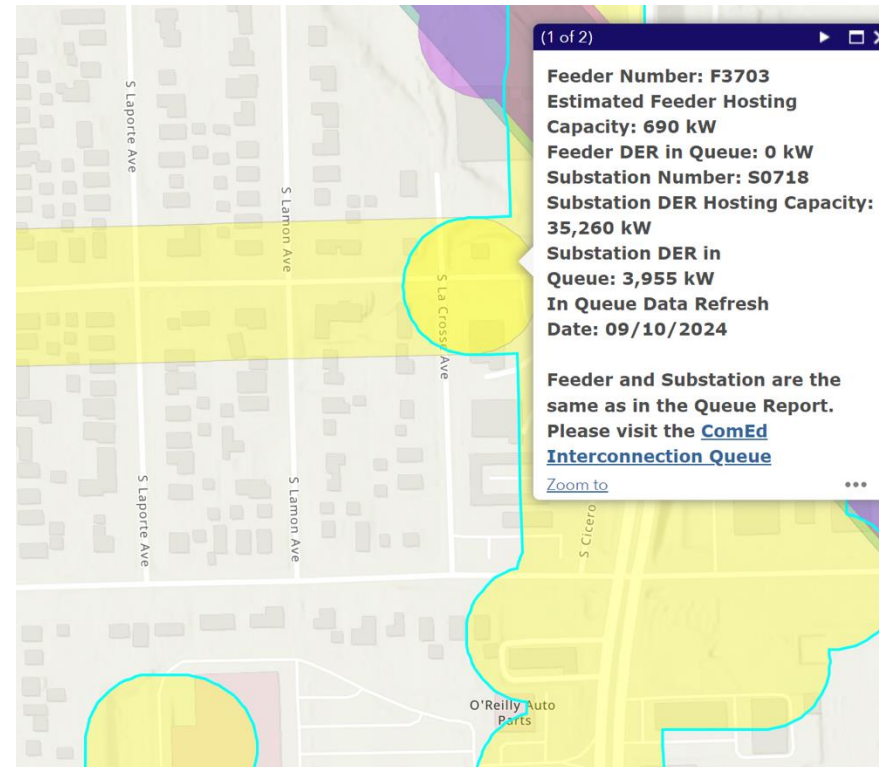
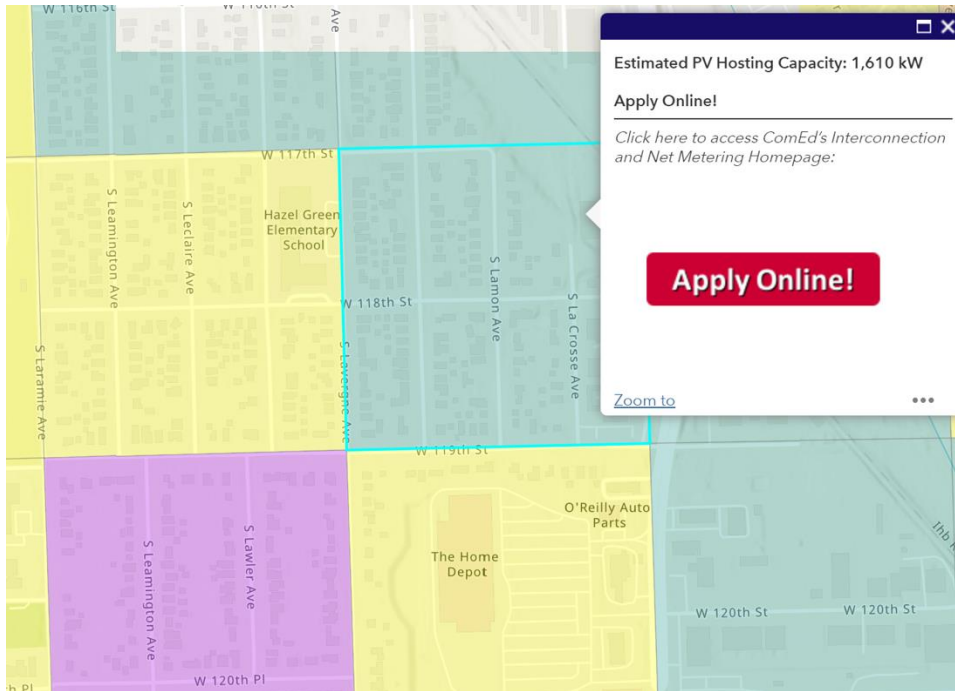


- **Very large geographic areas**
- **Some relevant information**
- **6 months old**

|                    |                           |
|--------------------|---------------------------|
| OBJECTID           | 434                       |
| Voltage            | 7.2/12.47 kV Wye Grounded |
| Analysis Date      | 4/18/2024                 |
| Capacity Available | 2 MW                      |
| Phase              | 3P                        |

# More Effective Map Example

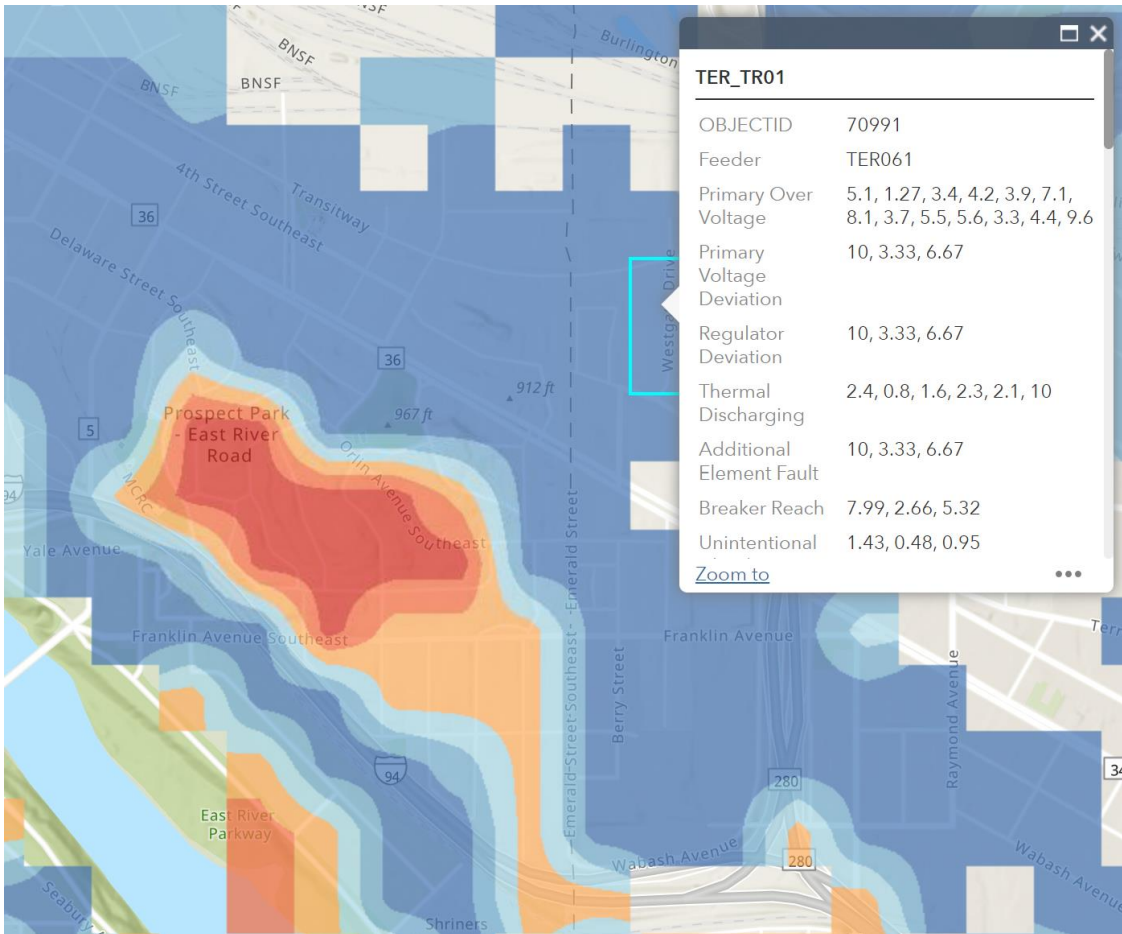
## Commonwealth Edison (IL)



- Mid-sized geographic areas
- More/Different relevant information
- 1 Month Old

# Highly Effective Map Example

## Xcel Energy (Minnesota)



|   |                         |
|---|-------------------------|
| OBJECTID                                  | 72875                   |
| Feeder                                    | MPK075                  |
| Primary Over Voltage                      | 8.1                     |
| Primary Voltage Deviation                 | 10                      |
| Regulator Deviation                       | 10                      |
| Thermal Discharging                       | 4.9                     |
| Additional Element Fault                  | 10                      |
| Breaker Reach                             | 10                      |
| Unintentional Islanding                   | 1.2                     |
| VSR Equipped                              | No                      |
| Feeder Technical Planning Standard        | Compliant               |
| Hosting Capacity                          | 1.2                     |
| Constraining Metric                       | Unintentional Islanding |
| Substation                                | Merriam Park            |
| Transformer Name                          | MPK_TR02                |
| Minimum Available Hosting Capacity (MW)   | 0.9                     |
| Min Constraining Metric                   | Thermal Discharging     |
| Maximum Available Hosting Capacity (MW)   | 1.2                     |
| Max Constraining Metric                   | Unintentional Islanding |
| Substation Transformer Minimum Load (kVA) | 3587                    |
| Transformer Absolute Min (kVA)            | 2750                    |
| Feeder Daytime Minimum Load (kVA)         | 1700                    |
| Feeder Absolute Min (kVA)                 | 1700                    |
| Actual Daytime Min Load                   | Yes                     |
| LTC or Regulator                          | LTC                     |
| Network or Radial                         | Radial                  |
| Substation Transformer Installed DG (kW)  | 10647                   |
| Substation Transformer Queued DG (kW)     | 147                     |
| Feeder Installed DG (kW)                  | 487                     |
| Feeder Queued DG (kW)                     | 0                       |
| Notes                                     |                         |
| Type                                      | 3 Phase                 |
| Phase                                     | ABC                     |
| OH/UG                                     | UG                      |
| Feeder Voltage                            | 13800 Volts             |
| Data Cutoff                               | 1/30/2024, 6:00 PM      |
| Latest Quarterly Update                   | 4/30/2024, 7:00 PM      |
| Shape__Area                               | 0.000002283913090650458 |
| Shape__Length                             | 0.0061357020010746055   |

- Small geographic areas
- Wealth of information
  - Circuit Info
  - Constraints
  - Queue Info
- 6 months old

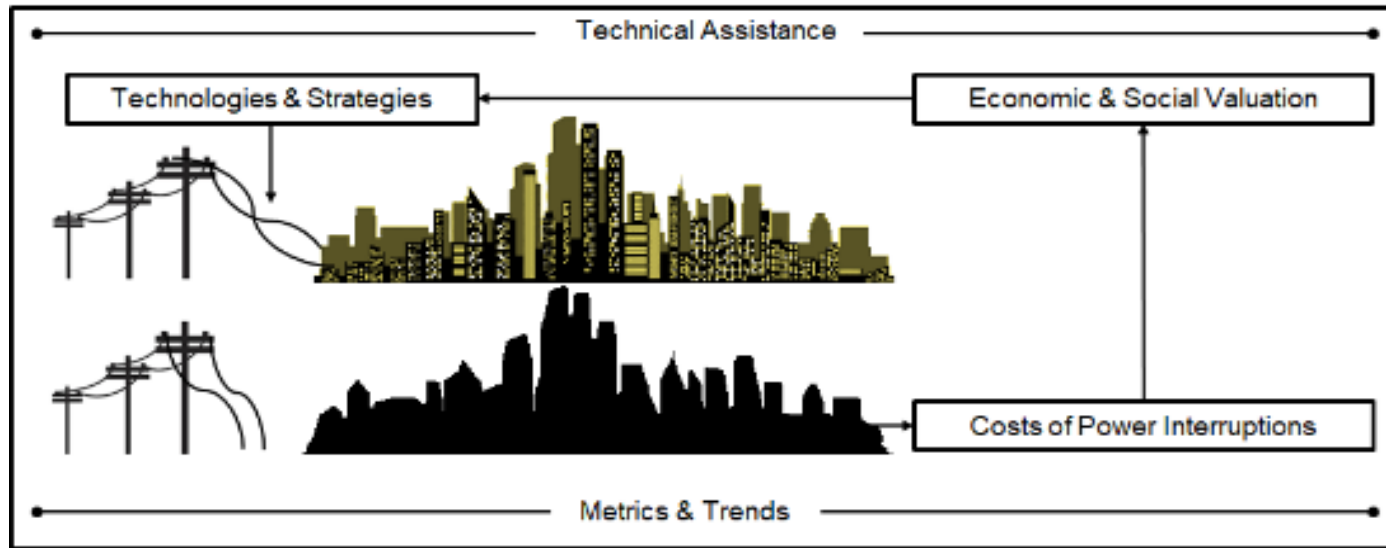


# Valuing investments in reliability (resilience)

Planning for a Modern Distribution System Workshop #3

**Pete Larsen, Energy Markets and Policy Department**

## Importance of metrics



**Metrics** are important because they allow key stakeholders to assess the performance of systems before or after an investment in reliability (resilience)

Some metrics (e.g., costs of power interruptions) are critical inputs into the value proposition for new projects...

## Examples of metrics

| State      | Metric   | Description  |
|------------|--|--|
| Nevada     | IEEE 1366 reliability metrics  | <ul style="list-style-type: none"> <li>SAIDI, SAIFI, CAIFI</li> </ul>  |
|            | Resilience metrics ( <i>proposed</i> )                                 | <ul style="list-style-type: none"> <li>Quantity of distributed resources available to respond to resilience events</li> <li>Compliance with Natural Disaster Protection Plan (NDPP) mandates</li> <li>Time to recover from service disruptions due to resiliency events</li> <li>Amount of load voluntarily reduced under emergency conditions</li> </ul>  |
| Washington | IEEE 1366 reliability metrics ( <i>Circuit-level and system-wide</i> ) | <ul style="list-style-type: none"> <li>SAIDI, SAIFI (with and without MED)</li> <li>Customers Experiencing Multiple Sustained and Monetary Interruptions (CEMSMI; number of customers experiencing more than a certain number of interruptions a year, including both momentary and sustained outages)</li> </ul>  |
|            | Reliability metrics ( <i>Circuit-level and system-wide</i> )           | <ul style="list-style-type: none"> <li>CEMI-3 (customers experiencing more than three outages of 1 minute or more per year)</li> <li>Average outage duration</li> <li>Number of outage events per year</li> <li>Total customer outage hours</li> <li>Average number of affected customers per outage event</li> <li>Circuit performance indicator (CPI) to identify areas of greatest concern and worst performing circuits</li> </ul> |

Sources: [NV Energy \(2020\)](#), [PUCN \(2020\)](#), [Watts et al. \(2020\)](#), [Pacific Corp \(2021\)](#), [AVISTA \(2022\)](#)

## Selected valuation methods

| Method                | Units                              | Examples  | Comments   |
|-----------------------|------------------------------------|---|--|
| Least-cost, best-fit  | \$ divided by a non-monetary value | X dollars invested in grid to avoid Y number of fatalities<br><br>X dollars invested in grid to reduce SAIDI by Y minutes | <ul style="list-style-type: none"><li>• Presumes that an investment is needed and helps prioritize options to achieve objectives</li><li>• Does not require monetization of any or all benefits of project</li></ul>                         |
| Cost-benefit analysis | \$ divided by \$                   | X dollars invested in grid leads to Y dollars in societal benefits  | <ul style="list-style-type: none"><li>• Does not presume that an investment is needed</li><li>• Allows for an apples-to-apples comparison of options</li><li>• Can be extremely challenging to put a dollar value on some benefits</li></ul> |

Source: [Woolf et al. \(2021\)](#)

## Examples of information needed for valuing a strategy

| Cost  | Benefits: Non-monetized  | Benefits: Monetized  | Other  |
|---|--|--|--|
| <ul style="list-style-type: none"> <li>• Capital/installation</li> <li>• Annual operations and maintenance</li> </ul> | <ul style="list-style-type: none"> <li>• Avoided pollution</li> <li>• Avoided health/safety risk</li> <li>• Avoided damage to utility infrastructure</li> <li>• Reduction in frequency and/or duration of power interruptions</li> <li>• Avoided impacts to national security</li> </ul> | <ul style="list-style-type: none"> <li>• Avoided morbidity and mortality costs</li> <li>• Avoided capital and O&amp;M costs to utility</li> <li>• Avoided interruption costs to customers</li> <li>• Avoided “spillover” effects to regional economy</li> <li>• Avoided aesthetic costs (if applicable)</li> </ul> | <ul style="list-style-type: none"> <li>• Real discount rate (or weighted average cost of capital)</li> <li>• Lifespan of strategy</li> <li>• Local, state, and federal incentives and rebates</li> <li>• Frequency and duration of power interruptions before and after investment</li> <li>• Detailed information about customers impacted</li> </ul> |



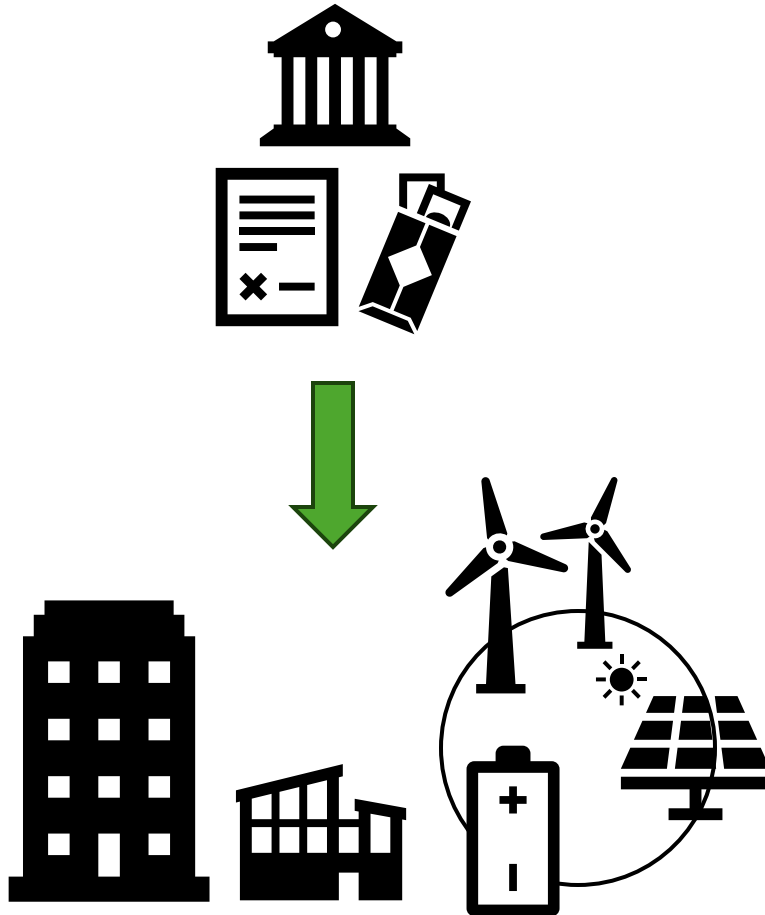
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# **Resilient Maryland**

## **Best Practices for SEO Resiliency Investment**

**Brandon W. Bowser**  
**Section Chief, Clean Energy and Resilience**

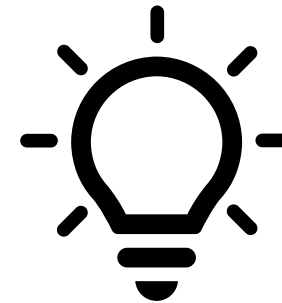
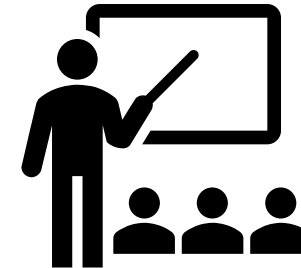
# Resilient Maryland Program



- MEA's award-winning microgrid and DER development and installation program.
- Provides grants to help communities and organizations design and build microgrids and other DER systems.
- Three (3) Areas of Interest
  - AOI 1: Preconstruction Planning
  - AOI 2: Capital Support
  - AOI 3: Resiliency Hubs
- One of MEA's highest-demand programs, growing rapidly.
- Grants range from \$12,000 - \$1,500,000 per project, depending on AOI, scope, and complexity.

# Lessons Learned

- Grants for project diligence **ARE SO WORTH IT!**
- Allows for early utility involvement, avoids hurdles in construction.
- Links stakeholders and builds *compounding capacity* by producing projects that build off each other.
- Recognizes energy as one component of overall resilience objectives and state strategy, does not island it as a standalone project.





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# Thank You

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# Breakout Overview

- **Breakouts until 4:15 pm ET**
  - Breakout 1: 3:15-3:40 pm
  - Break: 3:40-3:50 pm
  - Breakout 2: 3:50-4:15 pm

---

# Breakout 1

## Self-Select Breakouts:

- Select a breakout room where you would like to discuss the topic in further detail with our expert and state practitioner speakers:

| Breakout Room # | Topic  | Speakers in the Room  |
|-----------------|--|---|
| 1               | NWS Screening Methodologies and CBA Frameworks | Chris Neme, Energy Futures Group; Schuyler Matteson, NY DPS |
| 2               | Proactive Investment Decision Frameworks       | Jeff Deason, LBL; Tracy Dyke-Redmond, MA DPU                |
| 3               | Hosting Capacity Mapping and Data sharing      | Cody Davis, EPE   |
| 4               | Resilience Investment Decision Frameworks      | Pete Larsen, LBL; Brandon Bowser, MEA                       |

## Housekeeping:

- Please help balance participant numbers in rooms. Remember, you will get a second opportunity to join a given topic after the break.
- If you have **ex parte communication processes in place** between workshop participants, please use your discretion and hop out of a room to join another.

**Break**  
**See you at the :55!**

---

# Breakout 2

## Self-Select Breakouts:

- Select a breakout room where you would like to discuss the topic in further detail with our expert and state practitioner speakers:

| Breakout Room # | Topic  | Speakers in the Room  |
|-----------------|--|---|
| 1               | NWS Screening Methodologies and CBA Frameworks | Chris Neme, Energy Futures Group; Schuyler Matteson, NY DPS |
| 2               | Proactive Investment Decision Frameworks       | Jeff Deason, LBL; Tracy Dyke-Redmond, MA DPU                |
| 3               | Hosting Capacity Mapping and Data sharing      | Cody Davis, EPE   |
| 4               | Resilience Investment Decision Frameworks      | Pete Larsen, LBL; Brandon Bowser, MEA                       |

## Housekeeping:

- Please help balance participant numbers in rooms.
- If you have **ex parte communication processes in place** between workshop participants, please use your discretion and hop out of a room to join another.

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# Reflection

Take 2 minutes to journal on your own:

- **What is one action you can take forward to support your evaluation of utility IDSP decisions?**

Workshop participant volunteers to share their reflection:

- **Please raise your hand to share or add your action to the chat.**

---

# What's Ahead

- We will send out a workshop “report-out”, summarizing what we have covered today along with today’s slides and additional resources folks can access.
- Next workshop is on Wednesday, November 20<sup>th</sup>, 2-4:30pm ET
  - We will cover how IDSP processes relate to wider utility modernization plans.

# Thank you for joining today!



## Upcoming members-only NARUC-NASEO Events:

### In person:

- [National Council on Electricity Policy Annual Meeting](#)  
October 29-30, 2024 – Phoenix, Arizona
- [NARUC 2024 Annual Meeting](#)  
November 9-13, 2024 – Anaheim Marriott  
Anaheim, California
- **Regional Trainings for States on Integrated Distribution System Planning 2.0: Planning for Electrification and Distributed Energy Resources**
  - December 11-12, 2024 - Charlotte, NC [Registration Now Open!](#)
  - March 11-12, 2025 – Detroit, MI
  - April 23-24, 2025 – Salt Lake City, UT

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