



*National Association of
State Energy Officials*



DER INTEGRATION & COMPENSATION INITIATIVE

WORKSHOP: INTERCONNECTION FOR AGGREGATED DISTRIBUTED ENERGY RESOURCES (ADERS)

April 4, 2024

Problem Statement



Current and anticipated growth of distributed energy resources (DERs) and introduction of aggregated DERs into wholesale markets as a result of Order 2222 is fundamentally changing the way the grid is planned and operated.



Policy makers and regulators will increasingly need to evaluate, consider, and establish the rules and requirements as well as enabling policies and programs to bring these resources online safely and fairly to provide retail and wholesale services.



New myriad technical and economic issues will require new information and tools to make informed decisions related to the connection, technical operation, and compensation of aggregated distributed energy resources---in the distribution, bulk power system, and wholesale energy markets.

DER-I&C Initiative Description

Convene and support state members to understand the impact of their decision making related to the connection, operation, and compensation of aggregated DERs.

NARUC and NASEO will provide information, tools, access to experts, and peer sharing opportunities that assist members with FERC Order 2222 implementation in RTO/ISO regions and State oversight of transmission-distribution-customer (TDC) coordination outside of RTO/ISO regions.

Objectives:

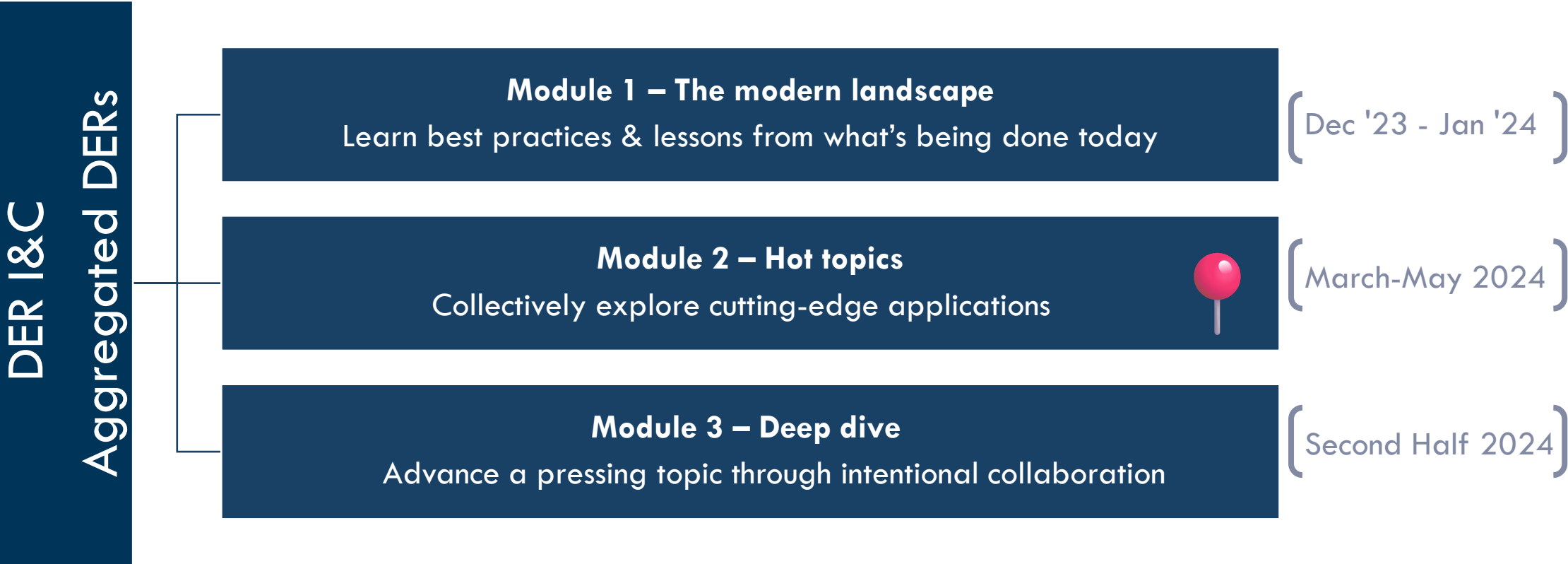
- Inform key state decision makers
- Raise and evaluate risks and opportunities of different decision options
- Bring different perspectives to the table

Advisory Group:

An advisory group of 10 NARUC and NASEO members representing diverse regional perspectives help guide the project.

Curriculum Design 2023-24

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

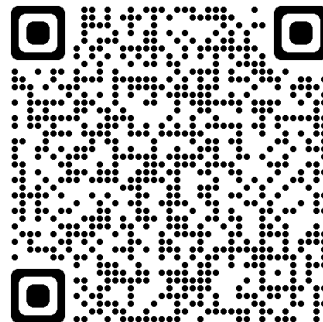


Module 2: Hot Topics

Collectively explore cutting-edge applications

Module 2 begins with **three mini workshops** in March through May 2024:

- Workshop 1: Leveraging Federal Funding for ADERs, March 26, 2024, 1-3pm ET
- Workshop 2: ADER Interconnection, April 4, 2024, 2-4pm ET
 - Mini talk and breakouts with:
 - Amy Heart, Vice President – Public Policy, Sunrun
 - Frank McElvain, Senior Utilities Engineer, California PUC
 - Sydney Forrester, Policy Researcher, Lawrence Berkeley Laboratory
 - Raghusimha Sudhakara, Vice President – Distributed Resources Integration, Con Edison
- Workshop 3: Integrated Distribution System Planning for ADERs, May 1, 2024, 2-4pm ET



All Registrations and Recordings
at: <https://www.naruc.org/core-sectors/energy-resources-and-the-environment/der-integration-compensation/>

Today's Agenda

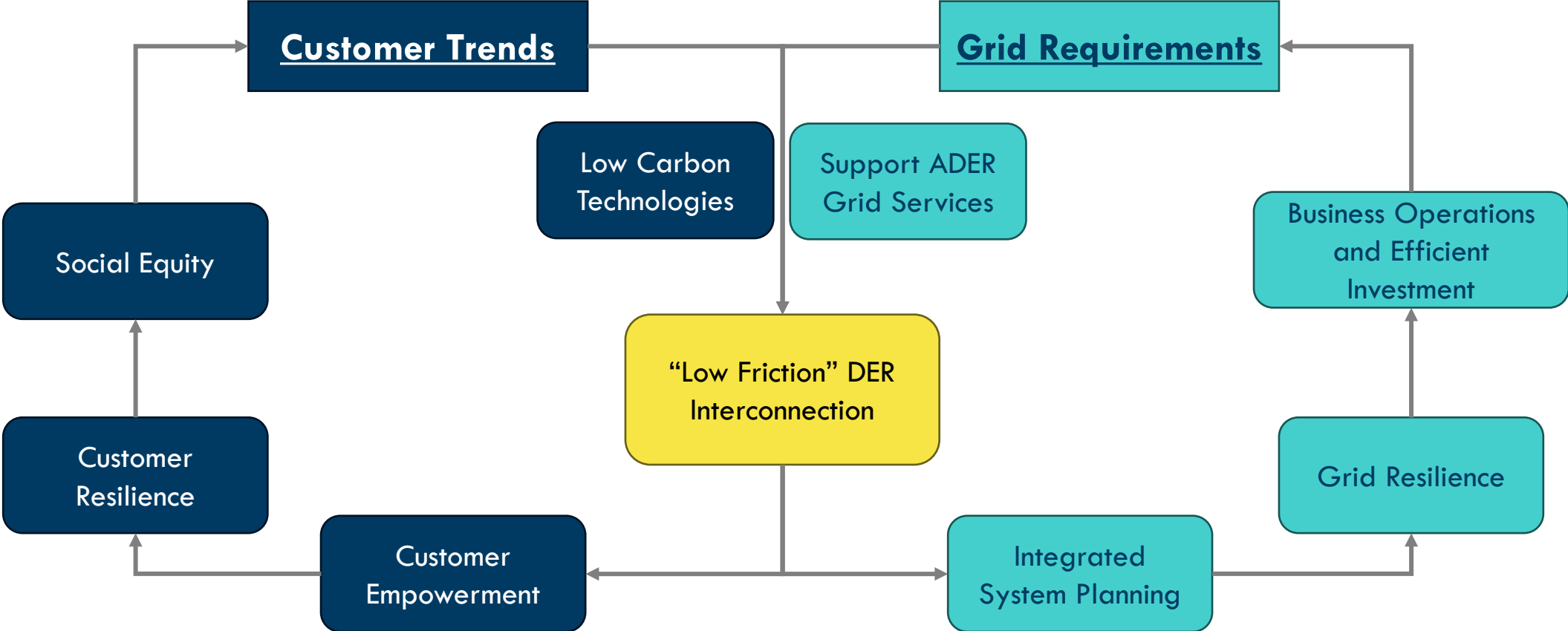
Objectives:

1. **Receive input** on potential changes to DER interconnection in your state
2. In interactive breakouts, take the **opportunity to explore** interconnection improvements with experts.
3. Leave with input to examine **changes to DER interconnection** in your state.

Time (ET)	Agenda
2:00-1:10pm	Welcome: DER I&C initiative overview, agenda for today
2:10-2:15pm	Framing: Interconnection and ADERs
2:15-2:35pm	Mini-talks: 3 mins each from: <ol style="list-style-type: none">1. Amy Heart, Vice President – Public Policy, Sunrun2. Frank McElvain, Senior Utilities Engineer, California PUC3. Sydney Forrester, Policy Researcher, Lawrence Berkeley Laboratory4. Raghosimha Sudhakara, Vice President – Distributed Resources Integration, Con Edison
2:40-3:05pm	Breakout #1: Smaller group discussions with a speaker
3:05-3:15pm	Report out #1
3:15-3:40pm	Breakout #2: Smaller group discussions with another speaker
3:40-3:55pm	Report out #2
3:55-4:00pm	Closing and what's ahead

Interconnection and ADERs

Not all ADERs require interconnection (e.g. smart thermostats)
Today, we're focusing on those that do: PV, EVs, storage etc.



...DER interconnection supports ADERs, grid services, and cuts across many priority public policy objectives.

Mini-talk overview

3 mins

- 1. How do you currently engage with the DER interconnection process?**
- 2. What 2-3 actions would you like to see to support ADER interconnection in the next three years?**

Running order:

- 1. Amy Heart, Vice President – Public Policy, Sunrun**
- 2. Frank McElvain, Senior Utilities Engineer, California PUC**
- 3. Sydney Forrester, Policy Researcher, Lawrence Berkeley Laboratory**
- 4. Raghusimha Sudhakara, Vice President – Distributed Resources Integration, Con Edison**



Grid-Ready Home Interconnection

Residential Interconnections (<25 kW)

GOALS

- Driving Efficient, Safe, Equitable Residential Interconnections
- Leveraging DERs for Beneficial Electrification & Grid Relief

1) Utilize Smart Inverter Functionality

- Activate Default Smart Inverter Functions: Volt-VAR, anti-islanding, voltage and frequency ride-through, ramp rates
- Enable Additional Functions to Provide Additional Benefits:
 - Volt-Watt & Frequency-Watt; Autonomous (no active engagement)
 - Requires customer protection provisions for grid upgrade planning

2) Standard Costs & Timelines to Interconnection

- Create flat fee for <25 kW systems, for equitable treatment on grid
- Avoid expensive, time-consuming pre-screens
- Path to Instant IX

ADER Interconnection Process

- I'm speaking for myself, not the CPUC.
- The CPUC engages with the interconnection process by establishing rules which promote safety, reliability, and resiliency in a fair and cost-effective manner.
- Proposed actions to support ADER in the next three years?
 - Designate a DSO: a single entity to represent the DER community and negotiate with utilities for development, construction, permitting, operation.
 - Require the ADER parties to have finalized their aggregating agreements prior to involving the DSO.

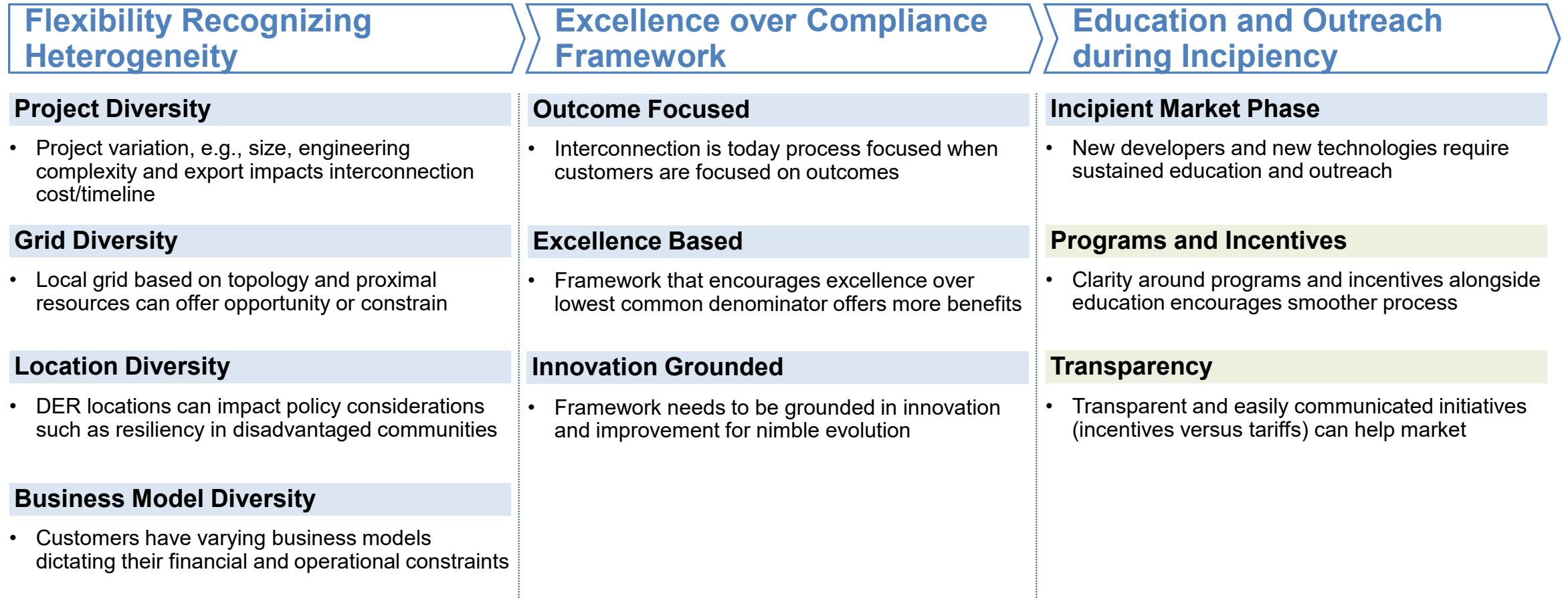
How can we encourage aggregated DER operation while maintaining safety and reliability?

- Current project in the space
 - What are rules, participation models, and other features that encourage/discourage aggregated DER participation in wholesale markets? What are the challenges, considerations? How have they been addressed?
 - We have reviewed all Order 2222 compliance filings, historic participation in wholesale markets of DERs (in the past, primarily under demand response participation models) and plan to interview stakeholders in the space

- Actions to support ADER interconnection in the next three years
 - Coordination between multiple parties, identifying priorities and planning for near-, mid- and long-term
 - Assessing tradeoffs and identifying balance (e.g., metering and telemetry that does not create undue burden on DERs, but provides sufficient data for settlement; allowing aggregations across geographies that do not exacerbate congestion; etc.)

- We also have many technical assistance opportunities!
 - For this topic and others for state regulators, state energy offices, and communities
 - Email me at spforrester@lbl.gov and I can put you in touch

Interconnections (DER or ADER) would benefit from being recognized as not universally homogenous



■ Interconnection Process
 ■ Broadly related to DERs

Breakout Overview

Self-select breakouts:

- Join the breakout group with the speaker whose perspective could be most helpful given your questions related to interconnection.

Two breakouts:

- **25 min: Breakout #1**
- **10 min: Report out #1**
- **25 min: Breakout #2**
- **15 min: Report out #2**

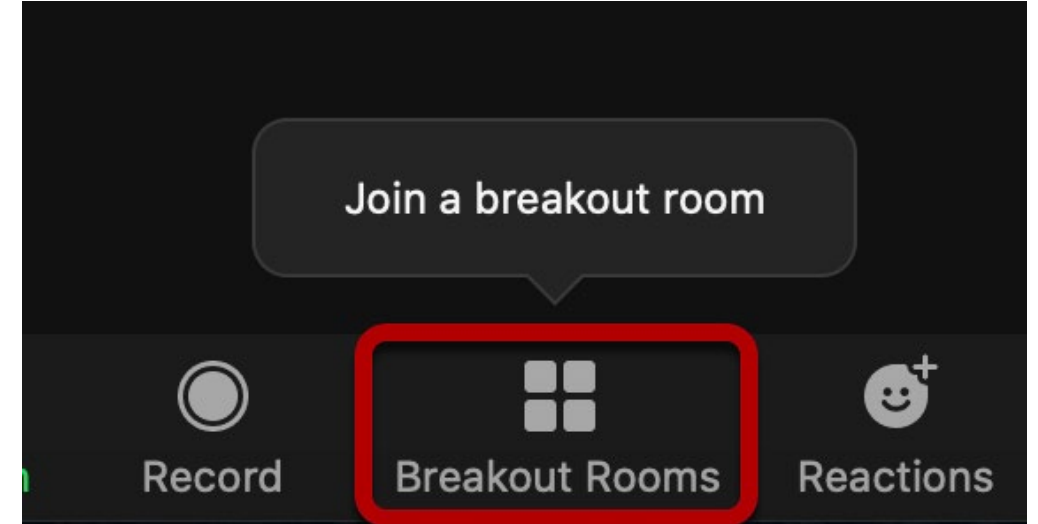
- *Try to have ~8 people in a breakout. If you see one is crowded, please select another. LBL will only be available for the first breakout, so if you would like to speak with Sydney please choose her breakout room for breakout #1.*
- *The second breakout is identical to the first. You will get a chance to talk to another speaker in breakout #2*

Let's go to breakouts!

Self select on the bottom toolbar in Zoom →

Breakouts:

- #1 Amy Heart, Sunrun
- #2 Frank McElvain, California PUC
- #3 Sydney Forrester, Lawrence Berkeley Laboratory
- #4 Raghushimha Sudhakara, Con Edison



Breakout #1: Report out

1. What did you cover in your session?
2. What would you like to discuss in your next session?

Let's go to round 2 of breakouts!

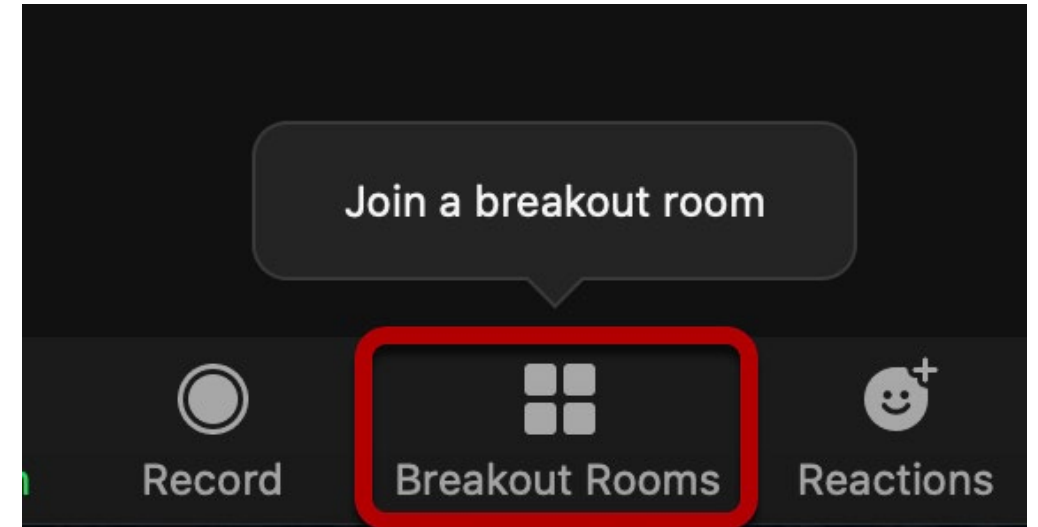
Self select on the bottom toolbar in Zoom →

Breakouts:

#1 Amy Heart, Sunrun

#2 Frank McElvain, California PUC

#3 Raghusimha Sudhakara, Con Edison



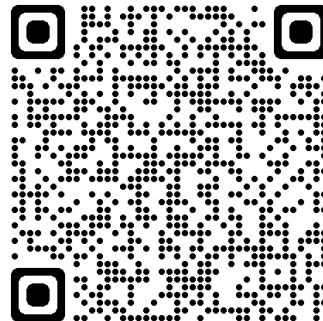
Breakout #2: Report out

1. What were the key themes/insights that came up in your discussion?
2. What is one thing you would like participants to walk away with?

What's Ahead

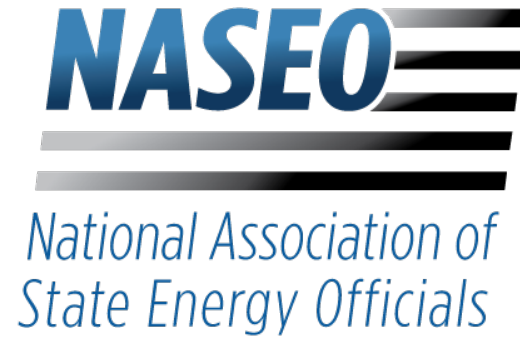
Module 2 upcoming workshops:

- Workshop 3: Integrated Distribution System Planning for ADERs,
May 1, 2024, 2-4pm ET
 - [Register here](#)



All Registrations and Recordings
at: <https://www.naruc.org/core-sectors/energy-resources-and-the-environment/der-integration-compensation/>

Thank you for joining today!



Upcoming:

- **NASEO in-person regional events:**
<https://www.naseo.org/events>
 - [NASEO Mid-Atlantic Region Meeting](#), April 11-12, 2024, Lambertville, NJ
 - [NASEO West Region Meeting](#), April 16-17, 2024, Honolulu, HI
 - [NASEO Southeast Region Meeting](#), April 30-May 1, 2024, Atlanta, GA
 - *[State and Territory Energy Office Directors and senior staff; limited number of NASEO Affiliate Members and invited guests only]*
- **NARUC events:** <https://www.naruc.org/events/event-list/>
 - [Bulk Power System Online Learning Modules](#), April 11, 16, 2024
 - [Renewable energy site visit](#), April 30 - May 2, 2024, Indianapolis, IN

CONTACT US

Kirsten Verclas

Senior Managing Director,
Electricity and Energy Security
NASEO

kverclas@naseo.org

Rodney Sobin

Senior Fellow
NASEO

rsobin@naseo.org

Danielle Sass Byrnett

Senior Director, Center for
Partnerships & Innovation
NARUC

dbyrnett@naruc.org

Jeff Loiter

Technical Director, Center for
Partnerships & Innovation
NARUC

jloiter@naruc.org

<https://www.naruc.org/core-sectors/energy-resources-and-the-environment/der-integration-compensation/>