DER INTEGRATION & COMPENSATION INITIATIVE

WORKSHOP:
LEVERAGING FEDERAL FUNDING FOR AGGREGATED DISTRIBUTED ENERGY RESOURCES (ADERS)

March 26, 2024
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 1 – The modern landscape**
  Learn best practices & lessons from what’s being done today
  (Dec '23 - Jan '24)

- **Module 2 – Hot topics**
  Collectively explore cutting-edge applications
  (March-May 2024)

- **Module 3 – Deep dive**
  Advance a pressing topic through intentional collaboration
  (Second Half 2024)
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
  - Presentations from the Department of Energy and Commonwealth Edison
  - Interactive session for state agency members to identify federal funding opportunities, support collaboration, and consider next steps

• **Workshop 2:** ADER Interconnection, April 4, 2024, 2-4pm ET

• **Workshop 3:** Integrated Distribution System Planning for ADERs, May 1, 2024, 2-4pm ET

Today's Agenda

**Objectives:**
1. Provide an overview of the **landscape of federal funding opportunities** for ADER programs from industry experts
2. Demystify the **connection between accessing** these funding opportunities for ADERs to **achieve policy outcomes**
3. In interactive breakouts, discuss areas of **collaboration and next steps** for accessing these resources with fellow regulators, state energy offices, and state agency members

<table>
<thead>
<tr>
<th>Time (ET)</th>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00-1:05pm</td>
<td><strong>Welcome</strong>, DER I&amp;C initiative overview, agenda for today</td>
</tr>
<tr>
<td>1:05-1:20pm</td>
<td><strong>Presentation</strong> on DOE federal funding opportunities for DERs/VPPs</td>
</tr>
<tr>
<td></td>
<td><em>Dr. Taresa Lawrence, Director of State, Local, Tribal, and Territorial Policy, DOE</em></td>
</tr>
<tr>
<td>1:20-1:35pm</td>
<td><strong>Presentation</strong> on GRIP-funded DER/VPP project</td>
</tr>
<tr>
<td></td>
<td><em>Bo Chen, Principal Engineer, ComEd</em></td>
</tr>
<tr>
<td>1:35-1:50pm</td>
<td>Moderated and audience <strong>Q&amp;A</strong></td>
</tr>
<tr>
<td>1:50-2:25pm</td>
<td><strong>Breakouts</strong> by NARUC, NASEO, and other state agencies</td>
</tr>
<tr>
<td>2:25-2:45pm</td>
<td><strong>Report-out</strong></td>
</tr>
<tr>
<td>2:45-2:55pm</td>
<td><strong>Check-out question</strong>: actions to take next</td>
</tr>
<tr>
<td>2:55-3:00pm</td>
<td><strong>Closing</strong> and what’s ahead</td>
</tr>
</tbody>
</table>
DOE Funding Opportunities & Incentives for Distributed Energy Resources

Teresa Lawrence | Director
State, Local, Tribal, & Territorial Policy

March 26, 2024
**DOE Funding Opportunities**

**Office of Electricity (OE)**
- **Flexible Innovative Transformer Technologies (FITT)**
  - Funding Amount: $18M
  - Application Due Date: 4/26/2024
  - Co-funded with Office of Cybersecurity, Energy Security, and Emergency Response (CESER)
- **Grid-Enhancing Data Analytics Demonstrations for Operations, Monitoring and Control**
  - Funding Amount: $7M
  - Application Due Date: 4/4/2024

**Grid Deployment Office (GDO)**
- **FY 2024 Grid Resilience State/Tribal Formula Grant Program**
  - Funding Amount: $562M
  - Application Due Date: 4/17/2024
- **Transmission Facilitation Program (TFP) – (2nd Round)**
  - Connecting Remote Microgrids
  - Funding amount: $1.2B
  - Application Due Date: 5/31/2024
- **Grid Resilience and Innovation Partnerships Program – (2nd Round)**
  - Funding amount: $3.9B
  - Application Due Date: In process

**State and Community Energy Programs (SCEP)**
- **Home Energy Rebates (Efficiency & Electrification)**
  - Funding Amount: $8.8B
  - Application Due Date: Ongoing (applications and awards in process); 5/31/2024 for early administrative funding
- **Communities Sparking Investment in Transformative Energy (C-SITE)**
  - Funding Amount: $18M
  - Application Due Date: 5/31/2024
  - Eligible Applicants: Local governments and Tribes
- **Energy Efficiency and Conservation Block Grant (EECBG)**
  - Funding amount: $550M
  - Application Due Date: 4/30/2024 for local governments; 5/31/2025 for Tribes

**Energy Efficiency and Renewable Energy (EERE)**
- **FY 2024 Vehicle Technologies Office Technology Integration (TI)**
  - Funding Amount: $15M
  - Application Due Date: 4/30/2024
- **Resilient and Efficient Codes - Implementation (RECI)**
  - Funding Amount: $90M
  - Application Due Date: 6/6/2024
- **Solar and Wind Interconnection for Future Transmission (SWIFTR)**
  - Funding Amount: $ 10M
  - Application Due Date: 6/28/2024

*Program details as of 3/26/2024, and are subject to change. Please check program website regularly for updates, and contact DOE program offices.*
Clean Electricity IRA Tax Credits & Elective Pay*

Elective pay allows tax-exempt and governmental entities to receive a cash payment from the IRS for eligible clean energy investments.

- Example: local government invests $1,000,000 in tax-credit eligible solar, battery storage, and EV chargers at a community center.

- Cash-back: Through elective pay, local government receives a $300,000 cash payment from the IRS if it qualifies for relevant 30% investment tax credits.

More Details
- IRS.gov/ElectivePay
- IRS Elective Pay FAQ
- CleanEnergy.gov/DirectPay
- Publication 5817-G (6-2023) (irs.gov)

*DISCLAIMER - Inflation Reduction Act tax provisions are provided for general informational purposes only and is not itself tax guidance. The content is based on tax guidance and regulations on IRS.gov. Please refer to guidance issued by the IRS for detailed information on the rules associated with Inflation Reduction Act tax provisions.
# Elective Pay Eligible Entities

<table>
<thead>
<tr>
<th>Category</th>
<th>Eligible Entities</th>
</tr>
</thead>
</table>
| Tax-Exempt Organizations| Any organization exempt from income taxes under §501(a), including §501(c) and §501(d) organizations. Examples include:  
• Charities  
• Houses of worship and religious organizations  
• Colleges and Universities  
• Hospitals                                                                                                                                               |
| State, Local Governments| States including DC, political subdivisions such as cities and counties, and agencies and instrumentalities of state and local governments such as school districts.                                                    |
| U.S. Territories        | U.S. territories and their political subdivisions and agencies and instrumentalities                                                                                                                                |
| Tribes                  | Indian Tribal governments, Alaska Native Corporations, Tribal agencies and instrumentalities.                                                                                                                   |
| Public Power            | Examples: Municipal electric utilities, rural electric cooperatives, and the Tennessee Valley Authority.                                                                                                         |
Available credits for eligible tax-exempt entities

<table>
<thead>
<tr>
<th>Sector</th>
<th>Code $</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biofuels</td>
<td>45Z</td>
<td>Clean Fuel Production Credit</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>45Q</td>
<td>Carbon Oxide Sequestration Credit</td>
</tr>
<tr>
<td>Clean Electricity</td>
<td>45/45Y</td>
<td>Clean Electricity Production Credit</td>
</tr>
<tr>
<td>Clean Electricity</td>
<td>48/48E</td>
<td>Clean Electricity Investment Credit</td>
</tr>
<tr>
<td>Hydrogen</td>
<td>45V</td>
<td>Clean Hydrogen Production Credit</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>45X</td>
<td>Manufacturing Production Credit</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>48C</td>
<td>Advanced Energy Project Credit</td>
</tr>
<tr>
<td>Nuclear</td>
<td>45U</td>
<td>Nuclear Power Production Credit</td>
</tr>
<tr>
<td>Vehicles</td>
<td>30C</td>
<td>Alt Fuel Refueling Property Credit</td>
</tr>
<tr>
<td>Vehicles</td>
<td>45W</td>
<td>Commercial Clean Vehicles</td>
</tr>
</tbody>
</table>

- Elective pay **can be combined** with forgivable grants and loans as long as the total value doesn't exceed the cost of the project.

- Eligible entities must complete a **pre-filing registration** and then claim the credit by filing a tax return with the IRS after the project or property is placed in service.

- Tax credit **bonuses** can be used in elective pay
  - 48(e) Low Income Communities Bonus
  - Domestic Content Bonus
  - Energy Communities Bonus
Example: Investment Tax Credit Stacking

Example: Investment Tax Credit*

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Bonus Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>70%</td>
<td>Low Income-Communities Bonus Allocated Credit (10% to 20%)**</td>
</tr>
<tr>
<td>60%</td>
<td>Domestic Content Bonus (10%)</td>
</tr>
<tr>
<td>50%</td>
<td>Energy Communities Bonus (10%)</td>
</tr>
<tr>
<td>40%</td>
<td>Meet prevailing wage and apprenticeship criteria (30%)</td>
</tr>
</tbody>
</table>

Tax credit bonuses can stack with the underlying tax credit creating significant opportunity for eligible projects.

Example: 1 MW community solar facility costing $1 million could earn a **70% tax credit** worth $700,000 if eligible for all applicable tax credit and bonuses

If it is owned by an applicable tax-exempt entity, this could be a **direct cash payment** from the IRS.

*Credit is 5x lower if not meeting prevailing wage and apprenticeship criteria

**48(e) tax credits are limited and allocated by DOE in coordination with IRS through an application process
### Example: ITC Use Cases

<table>
<thead>
<tr>
<th>Project</th>
<th>Description</th>
<th>Relevant Tax Credits*</th>
</tr>
</thead>
</table>
| Municipal Fleet Electrification | Replace existing municipal vehicle fleet with new electric vehicles and associated charging infrastructure | - Up to $7,500 per passenger vehicle (§45W)  
- Up to 30% credit on investment in eligible EV charging equipment (§30C) |
| Solar Microgrid             | Install microgrid with solar and energy storage to serve critical infrastructure and community facilities during emergencies and grid outages | - 30% - 50% credit on investment in solar, storage, and microgrid controllers (§48) |
| Central Geothermal Heating  | Develop central geothermal system to provide heating to community buildings and residential households | - 30% - 50% credit on investment in geothermal energy property (§48)                  |

*Credit is 5x lower if not meeting prevailing wage and apprenticeship criteria
### How to claim and receive elective pay?

<table>
<thead>
<tr>
<th>Identify Project</th>
<th>Complete Project</th>
<th>Register</th>
<th>File</th>
<th>Receive Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify and pursue the qualifying project or activity.</td>
<td>Complete project or purchase qualifying property and place it into service.</td>
<td>Complete pre-filing registration with the IRS at <a href="https://www.irs.gov/credits-deductions/register-for-elective-payment-or-transfer-of-credits">https://www.irs.gov/credits-deductions/register-for-elective-payment-or-transfer-of-credits</a>.</td>
<td>File your tax return by the due date (or extended due date)</td>
<td>Payment will be received after the return is processed.</td>
</tr>
<tr>
<td>You will need to know what applicable credit you intend to earn and use elective pay for.</td>
<td>Determine your tax year, if not already known, to determine when your tax return will be due.</td>
<td>IRS will provide you with a registration number for each applicable credit property.</td>
<td>Provide registration number(s) on your tax return.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Use Form 990-T and the appropriate form for the underlying credit.</td>
<td></td>
</tr>
</tbody>
</table>
IIJA GRIP Grant
Interoperable Control Framework (ICF) Project

Smart Grid & Technology Department
ComEd, An Exelon Company

Our Company:
- One of six utilities owned by Exelon.
- 6,400 Employees
- Service Territory: 11,428 square miles

Our Customers:
- 4 million customers in northern Illinois, including the City of Chicago

Our Grid:
- Peak Load: 22,467 MW (8/24/2013)
- 553,800 distribution transformers
- 66,200 circuit miles of primary distribution
- 5,800 circuit miles of transmission
- 93% overhead, 7% underground
ICF Grant Overview

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts

Proposal Title: Deployment of a Community-Oriented Interoperable Control Framework for Aggregating and Integrating DERs and Other Grid-Edge Devices (ICF)

Budget & Timeline: $116 million in total ($50 million from federal, $66 million cost-share), and run through 5 years.

Objective:
- To achieve edge visibility and real-time awareness of power quality issues, BTM resources, outages, etc.
- To achieve interoperable control among innovative and existing technologies

Technical Scope:
- Layer 1: Sensor and Edge-Controller Deployment
- Layer 2: Communication Infrastructure
- Layer 3: Data Fusion Platform
- Layer 4: Interoperable Control Applications

Partners/Collaborators/Sub-recipients:
- Community Partners
- Innovation Technology Providers
- Traditional Vendors (R&D/Business)
- Subject Matter Experts
Use Cases Enabled by Interoperable Control Framework (ICF)

Monitoring Enabled by Sensors
- Power Quality Meters
  - Power Quality Monitoring
  - Anomaly Detection
  - BTM DER/EV Detection
- PMUs
- Smart Grid Chips

Edge Control Enabled by Grid-Edge Controllers
- EV Charger/Fleet
  - EV Charging Management
- Grid Edge/DA Controller
  - Edge Computing and Control
- Grid Efficient Buildings
  - Building Energy Management
- Home Energy Controller
  - Home Energy Management

Enabled by Data Fusion Platforms
- Linear State Estimation
- Anomaly Detection and Classification
- Load Disaggregation and Modeling
- DER Inverter Parameter Identification
- EV Load Forecast
- Real-time Hosting Capacity Analysis
- Asset Health Monitoring
- High Impedance Fault Detection
- PMU-based Fault Detection
- Outage Boundary Detection
- Restoration Path Identification

Interoperable Control Framework
- Virtual Power Plant
- Demand Response
- Optimal DER Control
- Power Flow Optimization
- Voltage Optimization Coordination
- Distributed Voltage Regulation
- Power Quality Management
Federal Grant Lifecycle

**Grant Capture**
- Funding Opportunity Released
- Concept Paper Submission
- Full Proposal Submission
- Pre-Award Negotiation

1-1.5 years

**Grant Execution**
- Project Initiation
- Project Execution

3-5 years

**Grant Closing**
- Project Closing

**Ideation**
- Opportunity Evaluation
- Problem Identification
- Technology Solutions
- Resources and Timeline
- Socialization

**Collaboration**
- Internal Stakeholders
- External Partners
- Community Partners
- Cost Share

**Proposal Preparation**
- Concept Paper
- Full Proposal
- Early Communication
  - Planning Process
  - Regulatory commission
  - Compliance

**Project Execution**
- Long Range Planning(LRP)
- Project Management
- Resource Allocation
- Timeline Alignment
Thank you
Breakout Overview

• Breakouts until 2:25pm
  • Self-select breakouts: NARUC members, NASEO members
    • For those working at state agencies who aren’t part of NARUC and NASEO, choose the breakout you’d like to listen in on.
    • Try to have ~10 people in a breakout. If you see one is crowded, please select another.

• Report-out: 20 minutes sharing out in the main room

• Check-out question: 10 minutes on actions you can take next
Breakout Overview: Prompts

NARUC breakouts:

1. **Tactics**: Much of this funding complements existing programs that utilities run and regulators regulate. **What tactics could help to make sure new funding opportunities and ADER/VPP projects build upon and complement existing programs, forums, planning processes, projects, etc.?**

2. **Collaboration**: What information do you need from SEOs in the room to take advantage of federal funding to achieve shared state ADER/VPP outcomes for the grid and its customers? **What are the barriers to implementing ADER/VPP projects with federal funding that SEOs can help with?**

NASEO breakouts:

1. **Process**: **What is your process for accessing federal funding for ADER/VPP projects?** How are you engaging stakeholders like utilities/ regulators/ aggregators/ service providers in the process?

2. **Collaboration**: **What are the barriers to implementing ADER/VPP projects with federal funding that regulators can help you with?** What information could you get from the regulators or utilities that would be helpful as you stand up these programs to achieve shared state/territory outcomes?
NARUC breakout volunteers:

1. **Tactics:** What tactics can you use to encourage utilities/SEOs to use federal funding for ADER/VPP projects that will support state/territory goals?

2. **Collaboration:** What information do you need from them to achieve those goals?
NASEO breakout volunteers:

1. **Process:** What is your process for applying to federal funding for ADER/VPP projects?

2. **Collaboration:** What barriers can regulators help with for ADER/VPP projects to achieve shared state/territory goals?
Check-out Question: Next Steps

What is a next step you plan to take to access or coordinate across federal funding opportunities for ADER/VPP projects in your state or territory?

Journal for 3 minutes, and share your answer in the Zoom chat!

We’ll then ask for a few volunteers to share off mute.
What’s Ahead

Module 2 upcoming workshops:

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

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 2, 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