BACKGROUND

The State Technical Assistance to Public Utility Commissions (PUCs) program is part of the U.S. Department of Energy's (DOE) Grid Modernization Initiative funded by the Office of Energy Efficiency & Renewable Energy's Solar Energy Technologies Office as well as the Office of Electricity. The program is offered in conjunction with Lawrence Berkeley National Laboratory (LBNL), Pacific Northwest National Laboratory (PNNL), the National Renewable Energy Laboratory (NREL), Argonne National Laboratory (ANL) and Oak Ridge National Laboratory (ORNL). The goal of the program is to provide high-impact, in-depth technical assistance to help state regulators address a wide variety of challenges facing the electricity industry. Many of the challenges are associated with rapid technological advancements, the emerging roles of both customers and third-parties in the generation and management of electricity, the convergence of operations, markets, and planning across the bulk-power and distribution system domains, and considerations for addressing the climate crisis and enhancing the equity, affordability, security, and resilience of the electric grid. This program augments and complements current technical assistance activities undertaken by various DOE program offices.

DOE intends to fund selected technical assistance project proposals received from state public utility commissions (see application form below). The intent is to address a broad set of issues that state commissions are now facing. Examples of possible areas where state regulators may need technical assistance are provided below; however, there is no constraint on what the state commissions may wish to propose or what DOE will consider:

Regulation and Utility Business Models, for example:

- Analyzing regulatory incentives and disincentives for clean energy investments, grid modernization investments, and equitable investment in customer-scale technologies.
- Analyzing performance-based regulation options, including revenue adjustment mechanisms and financial and non-financial performance mechanisms.
- Examining the roles of utilities vs. third-parties in providing value-added services.

Rate Design and Ratemaking, for example:

- Analyzing advanced rate designs for customers.
- Assessing equity and affordability issues associated with various rate options, including impacts to customer subpopulations (e.g., low-to-moderate income) and voluntary vs. default enrollment approaches.
- Developing equitable and sustainable export compensation mechanisms for all forms of distributed energy resources.
- Assessing approaches to apply time-varying rates to affect the time-dependent and potentially location-dependent usage of energy and DERs.

Integrated Planning, for example:

- Conducting scenario analysis to determine the viability of resource options based on policy and technology preferences (e.g., clean energy) that may impart incentives and constraints in a more equitable fashion.

- Assisting in coordinating planning processes across the bulk-power, transmission, and distribution systems to address system-wide issues, e.g., to meet resource adequacy, resilience, and system flexibility requirements.
- Assisting with integrated distribution system planning, including walk-jog-run strategies for implementing hosting capacity analysis, interconnection processes, and non-wires alternatives, to effectively utilize distributed energy resources (DERs) and novel grid configurations, e.g., microgrids.
- Guiding and assessing grid modernization strategies and technology implementation plans that account for the effective deployment of sensing, communication, control, data/information management, computing, cybersecurity, and coordination capabilities to enable the equitable utilization of DERs and improve grid operations.
- Applying cost-effectiveness assessment methods.
- Incorporating energy justice considerations into planning processes.

Resilience Planning, for example:

- Applying threat-based risk assessment to inform regional- and state-level planning processes.
- Engaging stakeholders to coordinate approaches across federal, state, and community jurisdictions for addressing cyber and physical threats.
- Assessing policy and technology options for improving resilience.

Technology Application and Evaluation, for example:

- Examining methods for improved outage and voltage management, including analyzing approaches for deploying power electronics (e.g., smart inverters) to enable the equitable integration and utilization of DERs.
- Evaluating cybersecurity preparedness and appropriate investments to safeguard the operation of the grid.
- Analyzing policies, regulations, technology requirements, and tariffs concerning the equitable use of grid-interactive resources, e.g., energy storage, flexible loads, and microgrids.
- Evaluating proposed plans to deploy advanced metering functionality and customer-facing technologies that equitably distribute system and customer benefits.

Cross-Jurisdictional Coordination, for example:

- Assessing coordination frameworks for managing operations, including enabling the visibility and control of DERs, across the bulk-power, distribution, and customer/third-party domains.
- Evaluating market designs that utilize resources throughout the bulk-power and distribution systems.
- Assessing cross-jurisdictional resource adequacy considerations and risks and developing options for improving cross-jurisdictional visibility and coordination for improved reliability and resilience.

The types of technical assistance offered and activities supported include: technical analysis through the use of National Laboratory staff and their modeling capabilities; reports or white papers; stakeholder-convened discussions; education and training through workshops and webinars; and consultations with topical experts. Technical assistance can be provided to state regulators and their staff for 12-24 months, depending on the request.

If state regulators are interested in applying for technical assistance in more than one area, a separate application should be submitted for each unrelated area of interest (e.g., cybersecurity investments and operational process improvements, alternative retail rate design options).

APPLICATION REVIEW AND SELECTION PROCESS

Each application will undergo a process by which it will be scored according to the merit review criteria provided below. The final ranking of the applications, however, will depend on their respective scores combined with a consideration of program policy factors provided below. The final selection will depend upon the availability of funds, including leveraged funds from other DOE program offices. The DOE program managers overseeing this program will undertake the merit review and selection process.

Merit Review Criteria:

1. Merit of the application (1=Poor; 2=Average; 3=Good; 4=Excellent)
    a. Issues needing to be addressed are important, focusing on a specific issue rather than requesting a broad range of support.
    b. Requestor is in a position to act on the TA being requested.
2. Significance of the issue with regard to state or national interests (1=Poor; 2=Average; 3=Good; 4=Excellent)
    a. The request for TA is to address an issue that is significant among states or across the nation.
3. Timeliness (1=Poor; 2=Average; 3=Good; 4=Excellent)
    a. Requestor has shown an immediate or near-term a need to act on the TA being requested (e.g. through dockets or special investigations).
    b. Proposed schedule allows for sufficient time to address the request.

Program Policy Factors:

1. Projects may be selected that best align with DOE program interests.
2. Projects may be selected that best align with National Lab capabilities.
3. Projects may be selected to best represent a range of issues.
4. Projects may be selected to support geographic diversity.
5. Projects may be selected that favor providing awards to PUCs with limited resources.

APPLICATION SUBMITTAL PROCESS & INSTRUCTIONS

More information about the technical assistance program and the application process can be found at TAtoStatePUCs.lbl.gov.

A public webinar, jointly hosted by DOE, the National Labs, and NARUC, will be held on Thursday August 26, 2021 from 1-2 PM EDT to provide details about the program and the application process as well as answer questions. Register for the webinar at TAtoStatePUCs.lbl.gov.

There will also be a series of **virtual office hours** where applicants can get answers to more specific questions concerning their unique proposals. Applicants will need to reserve a 30-minute time slot during any of the five dates listed below. Details for reserving a time slot during the virtual office hours can be found at TAtoStatePUCs.lbl.gov. Please note that virtual office hours are reserved on a first-come-first-served basis.

1. Thursday, September 2, 2021 from 9-11 AM EDT
2. Tuesday, September 7, 2021 from 2-4 PM EDT
3. Tuesday, September 14, 2021 from 1-3 PM EDT
4. Wednesday, September 15, 2021 from 2-4 PM EDT
5. Wednesday, September 22, 2021 from 4-6 PM EDT

Any inquiries about the technical assistance program and the application process can also be directed to the program's dedicated email account TAtoStatePUCS@lbl.gov or to any of the National Laboratory contacts listed below:

Peter Cappers PACappers@lbl.gov (315) 637-0513
Juliet Homer Juliet.homer@pnnl.gov (509) 375-2698
Michael Ingram Michael.Ingram@nrel.gov (303) 275-3231
Todd Levin TLevin@anl.gov (847) 644-2052
Thomas Harrison HarrisonTJ1@ornl.gov (865) 241-2991

This editable form shown below will help your organization develop the necessary responses which can then be transferred into the online application form located at TAtoStatePUCs.lbl.gov for submittal. **The online application form must be completed and submitted by 5 PM EDT on September 28, 2021 for consideration**. Your organization will be notified within 3 months whether or not it has been selected to participate in the program and receive technical assistance. DOE envisions, subject to appropriations, that there will be a second round where applications for technical assistance will be accepted from state PUCs, which will likely occur during the second half of 2022.

PLEASE INCLUDE ALL OF THE INFORMATION BELOW IN YOUR TECHNICAL ASSISTANCE REQUEST.

Organization Requesting Technical Assistance

Name: Public Service Commission of Utah

Address: Heber Wells

160 E 300 S #4

Salt Lake City, Utah

84111

Point of Contact – Provide information about key personnel that will participate

Primary Senior Official (e.g., Lead Commissioner or Staff Director)

Name: Commissioner Thad LeVar

Title: Utah Public Service Commission Chair

Phone Number: 801-530-6716

Email Address: tlevar@utah.gov

Primary Point of Contact

Name: Bob Davis

Title: Utility Technical Consultant

Phone Number: 801-530-6879

Email Address: radavis@utah.gov

Justification – Provide 2-3 paragraphs that discuss and respond to each of the following questions

1. **What is the issue/question/task for which you are seeking support?**

On March 17, 2021, the Utah Public Service Commission ("PSC") opened a docket entitled "Collaborative Stakeholder Process for Rocky Mountain Power's Grid Modernization and Rate Design" (Docket No. 21-035-16) (*hereinafter* the "Collaborative Stakeholder Process" or "Collaborative"). The PSC requests technical assistance related to two topics that are of interest to the Collaborative Stakeholders and will be used to support the Collaborative.[1] The topics for which we hope to receive technical assistance are:

(1) Smart Inverters: opportunities to use smart inverters to improve grid operations, leverage volt/var optimization, improve utilization of Distributed Energy Resources, and associated policy, tariff, and technology options.
(2) Demand Response: assess the potential to enable increased demand flexibility through advanced customer-sited demand response measures. Identification of technologies and policies that will enable demand response resources and programs designed to improve grid flexibility before and after smart meters are fully deployed. This may include controllable appliances, demand response programs that can be enabled through customer or third-party access to customer load data, or deployment of smart/connected technologies.

We are aware of resources and reports that address these topics with a national focus. The technical assistance we seek would build upon that work and contextualize it to Utah (specifically, PacifiCorp's (d/b/a Rocky Mountain Power) service territory). At the conclusion of your analysis, we would invite you to present findings during one of the Collaborative Stakeholder meetings. The Collaborative may also benefit from follow-up consultation and engagement from the technical assistance provider on a limited ongoing basis. We hope that this technical assistance request can inform the Collaborative and PSC on:

- Potential benefits resulting from deploying smart inverters and various demand response measures
- Feasibility of deploying smart inverters and various demand response measures under current technical and policy standards in Rocky Mountain Power's Utah service territory
- Analysis of economic and technical potential of current and future demand response options
- Identification of policy or technical barriers preventing deployment of cost-effective demand response measures
- Recommendations for next steps towards implementing smart inverter standards and cost-effective demand response measures

Further, after understanding what is technically feasible, the report could examine and recommend different transition strategies and compare their advantages and disadvantages. These transition strategies could include an overview of the permissible, i.e. supported by state law, alternative

[1] The Collaborative Stakeholder Process is discussed in more detail below.

commercial opportunities available to utilities in the near-term, along with a ten-year strategy that increases customer demand response engagement or supports third-party service aggregators.

This technical assistance would greatly support our Collaborative Stakeholder Process by providing a shared understanding of the benefits that these technologies and policies provide, and the technical requirements for their near-term deployment. Technical assistance on these topics will advance stakeholder discussions regarding the benefits that can accrue to customers and to the grid by pairing these technologies with rate designs that incentivize customers to shape or shift demand. Ultimately, this technical assistance will help the members of the Collaborative Stakeholder Process identify opportunities to jointly support the pursuit of new programs, technologies and policies that will modernize PacifiCorp's service.

2. What is your organization's role in addressing that issue/question/task?

The PSC is tasked with the regulation of Utah's public utility companies, including Utah's largest electric utility, PacifiCorp.[2] The PSC consists of a three-member commission and a technical advisory staff. The Division of Public Utilities ("DPU") serves as the investigatory staff for the PSC, performing public utility audits, investigations and enforcing PSC orders. Specifically, the DPU is tasked with the investigation and study of "any matter within the jurisdiction" of the PSC, and may "make recommendations regarding public utility regulatory policy and long-range planning on matters within the jurisdiction of the [PSC.]"[3] Future proceedings may require the PSC to evaluate proposals for specific grid modernization projects and determine whether they are in the public interest. Technical assistance on these topics will develop stakeholder understanding and inform recommendations presented to the PSC by stakeholder groups in future proceedings.

As indicated above, on March 17, 2021, the Commission opened the Collaborative Stakeholder Process. Through this proceeding interested Stakeholders are meeting to discuss various issues related to grid modernization technology, analysis, and policy. The purpose of the Collaborative is to create a forum in which parties "could evaluate avenues for consensus or clarification on some or all [grid modernization and advanced rate design] issues."[4] This proceeding affords parties the opportunity for collaborative conversations about the opportunities and needs related to grid modernization outside of a contested proceeding. The Collaborative Stakeholder Process is structured as a series of bi-monthly informal workgroup meetings focused on discrete grid modernization topics over the next approximately 18-24 months. Although we do not anticipate implementation of specific rate designs, programs, or objectives through this proceeding, parties may reach agreements to recommend further exploration or implementation of these options to the PSC during a future proceeding.

[2] See Utah Code § 54-4-1.
[3] *See generally*, Utah Code § 54-4a-1(1) (outlining the statutory duties of the DPU).
[4] https://pscdocs.utah.gov/electric/20docs/2003504/316866200350 4ro12-30-2020.pdf (December Order)

Finally, the DPU will prepare a final report on the Collaborative to the PSC, summarizing the contents of the workgroup meetings including the technical assistance provided to the Collaborative.

3. **Who else are you working with and what is/are their role(s)?**

The PSC created the Collaborative Stakeholder Process as a forum for several interested parties to discuss grid modernization topics. Collaborative participants include two state offices, the DPU and the Office of Consumer Services ("OCS"). The DPU is tasked with leading the Collaborative, providing status reports, and preparing a final report for the PSC. The OCS is a state agency that represents the interests of residential and small commercial customers. PacifiCorp, Utah's main electric utility, is also a Collaborative participant. Other stakeholders include non-governmental entities such as the Utah Association of Energy Users (representing large energy customers) and clean energy advocates such as Utah Clean Energy and Western Resource Advocates. Finally, there are several corporate interests represented in the Collaborative including Walmart, Kroger, ChargePoint, and Nucor Steel.

The Collaborative Stakeholder Process was intentionally designed to welcome and solicit feedback from a wide range of parties and interests. Collectively, these stakeholders represent diverse interests, or classes of electricity customers, and include the parties who are likely to participate in future proceedings before the Utah PSC.

The Collaborative format also enables participation from third-party experts on specific topics. For example, the Regulatory Assistance Project has already agreed to present to the Collaborative Stakeholders. Technical assistance through the Grid Modernization Initiative is a valuable opportunity to leverage outside expertise to provide high-impact technical assistance to a diverse group of stakeholders that has already assembled to address challenges related to grid modernization.

At present, the work of the Collaborative has not extended beyond Utah to any other states, however the Collaborative is open to partnering with other state commissions to maximize the value and depth of technical assistance.

4. **What challenges have you identified in your efforts that you think DOE's technical assistance can help address?**

The Grid Modernization Stakeholder Collaborative arose when parties identified a need for in-depth exploration of several topics related to grid modernization to advance collective understanding. The Collaborative is a unique opportunity for an integrated and holistic discussion of grid modernization efforts and initiatives. Although the Collaborative Stakeholders have a great deal of expertise and knowledge on common electricity industry and regulatory topics, we recognize that rapid technological advancements are creating new opportunities to create efficiencies and benefits for customers, including from third-party and customer-sited resources. A key challenge that remains is both learning of new opportunities and then analyzing their feasibility given the current technical and legal capabilities of PacifiCorp's service territory in Utah. Technical assistance from DOE will provide the Collaborative with an improved understanding of these important grid modernization issues and make the most of limited time and resources. The technical assistance provided can inform priorities and next steps for

the Collaborative, and may help participants agree on specific recommendations for advancing grid modernization to the PSC at the end of the Collaborative.

5. **How will the technical assistance provided inform your issue/question/task?**

The technical assistance we request will directly inform Stakeholders who are currently participating in the grid modernization Collaborative and who are likely to engage in future grid modernization efforts. Technical assistance from an expert, neutral third-party is extremely valuable at this point in the Collaborative because it helps participants to develop a deeper and shared understanding of the current state of grid modernization topics. This will better equip Stakeholders with the information necessary to have informed and productive conversations about opportunities that exist to implement grid modernization efforts in Utah. The targeted technical assistance that we request on two discrete areas of grid modernization will help identify near-term opportunities that are technically feasible in Utah, allowing the Stakeholders to make the most of their limited time and resources. Support for our technical assistance request will help Collaborative participants identify areas of consensus and could help stakeholders develop specific recommendations to the PSC related to deployment of smart inverters and demand response measures. The findings from technical assistance provided through this request will also be included in the final report prepared by the DPU to the PSC at the conclusion of the collaborative.

Desired Outcomes – Explain what you hope to learn/accomplish through the requested technical assistance (e.g., a short list of desired outcomes)

Through this technical assistance request we hope to obtain:

1. A technical report assessing the potential benefits resulting from deployment of smart inverters and demand response measures in Utah, including the feasibility of deployment under current technical and policy standards. These reports will be neutral, technical, and based on best available information, and tailored to PacifiCorp's Utah service territory.
2. An assessment of the possible demand response measures that could be implemented in Utah, technical and economic potential, and the potential demand flexibility that they would enable.
3. Identification of policy or technical barriers preventing deployment of cost-effective demand response measures
4. A presentation of findings from the report and analysis to the Collaborative.
5. Limited on-going consultation with Collaborative participants, as needed, to further stakeholder understanding of grid modernization opportunities and development of Collaborative recommendations to the PSC.
6. Recommendations for next steps that could be acted on in the near future.
7. The technical assistance provides questions for the PSC to consider when it reviews smart inverter and demand response proposals in the next five to ten years.

8. The report provided from the DPU to the PSC contains analysis and information that the PSC could rely on in future proceedings, and includes the requested technical assistance.

Benefits/Value-Added – Describe how the requested technical assistance will affect your organization's ability to achieve its desired outcomes

The Technical Assistance received by the Commission benefits the Collaborative Stakeholders by maximizing our technical capacity to make the most of a time-limited and resource constrained Collaborative Stakeholder Process. The Grid Modernization Collaborative seeks to address a wide variety of topics and issues. Compounding this is the complexity and difficulty of issues faced while modernizing utility infrastructure. Obtaining technical assistance will result in more informed policy making and the potential for Stakeholders to agree on a given policy and save the State, the PSC, and our citizens the time and energy of an adversarial grid modernization process.

Even though we request technical assistance that is specific to Utah, we understand that many state PSCs are in the process of investigating smart inverters and advanced demand response options, or are likely to undertake such investigations in the near future. As a result, it is highly likely that technical assistance provided to address these issues in Utah will result in information that benefits other states that are grappling with these issues. Further, Utah's largest utility, PacifiCorp, operates in six different states in the Western United States, including Utah, Idaho, Wyoming, California, Washington, and Oregon. Findings from this technical assistance request can be shared with the PSCs of other states served by PacifiCorp, and any grid modernization efforts that result from this Collaborative or future proceedings recommended by this Collaborative could be implemented in all six states. Harmonizing technical policy across various states simplifies the obligation of the utility to produce reliable, resilient, and affordable electricity to its customers.

Types of Technical Assisted Requested – Choose all that apply

☒ Technical Analysis
☒ Consultation
☒ Presentation(s)

- ☒ Support for workshops, collaboratives (e.g., stakeholder-convened, technical expert participation)
- ☐ Technical review of proposed commission policies, guidelines, or legislation
- ☐ General information/education to inform the development of rules, regulation, or guidelines
- ☐ Uncertain what type of assistance is required
- ☐ Other (specify):