



NARUC Regulators' Roundtables on DER Interconnection¹

September 2022 - October 2022 Convenings | Summary

OVERVIEW

In July 2022, the National Association of Regulatory Utility Commissioners (NARUC) initiated a Regulators' Roundtable series to support members in sharing information on regulatory and technical challenges with Distributed Energy Resource (DER) interconnection. State utility commissions are increasingly being faced with novel technical issues and policy decisions related to the integration of distribution-connected energy resources. Almost every aspect of the electric utility can be impacted by DER growth, while retail and wholesale rules will also become more intertwined. Policy makers will need to consider many technical and economic issues to prepare for a variety of future paths that are changing rapidly. Ultimately, state energy decision makers individually and collectively want to ensure that these resources are connected and operated in a way that is safe, fair, and supports state goals.

Approach

NARUC's Regulators' Roundtables are typically planned as a series of virtual peer-sharing sessions exclusively for NARUC commissioners and supporting staff, facilitated by the NARUC Center for Partnerships & Innovation (CPI).

NARUC CPI convened two peer sharing sessions as part of the roundtable in September and October 2022. The first session focused on understanding the range of data that are available to utility commissions regarding interconnection queues. The second session focused on strategies that states are using to improve the interconnection process and address concerns about delays, costs, uncertainty, and cybersecurity. Key themes that emerged during the conversation are summarized below. We have attributed statements to specific states only when the information is publicly-available and not deliberative. A summary of interconnection queue and related information that is available to public utility commissions in various states is provided in Table 1, below. Other topics are summarized in the sections below. Several states have active dockets or rulemakings on interconnection, including Illinois, Arkansas, Wisconsin, Oregon, Michigan, and Connecticut.

Interconnection Costs

Several states raised issues related to the costs of interconnection and interconnection studies. Stakeholders in multiple states have pushed utilities to include likely interconnection study costs on a website and in interconnection manuals, even if not required by the commission. Another decided to implement a connection fee to start building a pool for upgrade costs but did not start soon enough for this pool to grow to the needed size. This points to the difficult balance between adding a fee before there is much DER activity in a state but wanting to accumulate funds for inevitable future upgrade costs. Models for handling interconnection study costs also vary. Minnesota has a tiered approach with

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a flat fee (known by developers in advance) for smaller or “simpler” applications but collects additional fees for projects requiring additional review or more complicated studies. Another state noted that they have increased the required study cost deposit in an effort to reduce applications for “speculative” projects and provide developers with greater certainty.

System Upgrades

Interconnection costs are a major concern of project developers, where the need for system upgrades to support a proposed project can create large costs. A few states are considering ways to socialize some or all of the cost of upgrades needed to support additional DER interconnection (based on the fact that interconnection costs are hindering the ability to achieve state policy goals). Others are considering ways to allocate upgrade costs to multiple DER developers/owners that benefit from the upgrade instead of placing the burden solely on the project that triggers the need for the upgrade. For example, one state has implemented a flat small project interconnection fee to fund system upgrades; other solutions have been to consider cost caps, cost sharing, or the potential to refund upgrade costs at a later time. At least one state stated they have established a cost-sharing mechanism for distribution upgrades. Another is investigating what is causing excessive costs for some projects and believes that direct-transfer-trip (DTT) requirements are responsible.

Queue Timelines

An attendee asked if any states have considered penalties for utilities for failing to advance the queue in a timely fashion. One participant responded that their state has not put in place a penalty specifically related to the queue, but that one of their regulated utilities was penalized for under-performance on a customer complaint metric driven in large part by interconnection-related complaints. That state is also now publicizing complaints for transparency. Another participant described how several utilities in their state are adding obstacles to interconnection that have resulted in many projects being installed but not connected, so they are sitting idle and not providing owners with a revenue stream (or avoided costs) to offset their investment. The commission in that state is investigating the issue but has not yet taken any action to remedy this situation.

Hawaii implemented a program that improved interconnection times by allowing customers to energize their systems before all of the administrative steps in the interconnection process were complete. The utility required that newly interconnected systems only be allowed to export excess power to the grid if they were located on a circuit with sufficient remaining hosting capacity. [Multiple states noted the value of having hosting capacity data available.] The state is continuing to investigate programs that advance interconnection, including the use of Volt-Watt controls on inverters. Other jurisdictions have implemented “fast track” processes for systems that do not trigger the need for system upgrades.

Minnesota staff offered their interconnection process rules modeled on FERC's small generator interconnection program (SGIP) as an example to other interested states. It includes some of the features already discussed above, such as a fast-track process and deadlines for moving through the interconnection queue. It can be found at https://mn.gov/puc/assets/MN_DIP_tcm14-431769.pdf.

Some states have worked to improve processing time by grouping smaller projects together for processing all at once (i.e., batching, cluster studies) rather than sequentially. Others have implemented online systems for applications and information sharing.

A participant asked how other states are handling DER developers “squatting” in the queue with projects that are not likely to advance but still block other projects from proceeding. They noted that they have removed projects from the queue in some instances based on specific criteria. Three states noted the value of putting some responsibility for timely processing on the customer by allowing the utility to remove “dead” projects or projects that do not meet project development timelines. One state noted as a caveat the need to allow for exogenous factors in the interconnection process, such as the availability of equipment.

Performance Incentive Mechanisms

Multiple states have implemented or are considering implementing Performance Incentive Mechanisms (PIMs) as a way of driving better interconnection performance from utilities. One of Hawaii’s utilities demonstrated substantial improvement in the average number of days to interconnect systems and earned \$2.5 million in PIM revenue. The utility used multiple strategies to accomplish this, including a “Quick Connect” pilot (described below) and customer-facing interconnection tool. At least three other states noted that new performance-based ratemaking and PIMs are under consideration for their utilities and that interconnection metrics may play a role.

Concerns and Complaints

Multiple states referenced the desire for greater transparency and certainty into the interconnection process, into both the process itself and the costs of interconnection. Confidentiality of data was raised as a barrier to transparency, and in response, one state noted that they came to an agreement with stakeholders on a subset of DER project data that are not considered confidential and can therefore be shared (see more on stakeholder processes below).

When interconnection has not worked smoothly, whether as a result of long waits in the queue, cost and schedule uncertainty, or other factors, customers have complained to utilities and utility commissions. Complaints may be conveyed informally, because customers are hesitant to criticize utilities on whom they are dependent for interconnection and, potentially, as a purchaser of the customer’s DER output. One state noted that the vast majority of complaints regarding interconnection have come from a relatively small number of larger projects, rather than residential-scale systems.

Stakeholder Processes

Several states have implemented working groups or stakeholder processes on interconnection, in part to address customer concerns. In some cases these collaborations are part of an open docket or rulemaking on interconnection issues. While in one state the process was described as “adversarial,” others responded that collaboration was a way of reducing conflicts and reaching solutions. The collaborative effort may be focused on high-level issues, such as defining goals and objectives around DERs, or details, such as determining which types of interconnection data can be publicly shared safely. One state has two different working groups, one to address policy issues and set direction and another, smaller, less formal group that provides a forum for discussing complaints and handling short-term issues more quickly. One state’s process was seen as cumbersome, lengthy, and with a large number of participants; a strategy offered to improve was to distinguish between a core group of key collaborators

and additional observers. It was also suggested that the utility commission set the agenda, manage the meetings, and stick to the agenda.

Cybersecurity

Multiple states noted that cybersecurity is a concern, whether at the level of hardware like inverters or with public data access through “Green Button” or similar platforms. None of the states shared that they had experienced any security breaches or attacks. NARUC staff suggested that those interested in cybersecurity explore some of the resources available from NASEO at <https://www.naseo.org/issues/cybersecurity/catss>.

Bulk Power System Impacts

One state noted that high levels of DER development in some geographic areas, particularly larger-scale projects, is creating concern that transmission capacity will become a constraint. The state's largest utility and the regional independent system operator have drafted an agreement in an attempt to address this, which may be further applicable to other utilities, states, and ISOs. .

Table 1: Snapshot of Interconnection and Interconnection Queue Information Available to Regulators

State	Available Interconnection Data	Update Frequency	Source	Public?
Arizona	Application data: system size and type, application status, studies (if applicable)	Annual		
	Queue data, incl. processing times	Annual		
Arkansas	# of net metering project interconnections, but no details	Annual	Required reporting	
Colorado	Pre-applications	2x/year (IOUs) or 1x year (coops)	Required reporting	
	Applications: type and size of resource		Required reporting	
	Processing time: max and mean		Required reporting	
	Interconnection process, HCA and maps	TBD	Distribution System Plans	
Connecticut	Queue info, net metering projects only	??	Note: both state and ISO-NE interconnection rules in play	
	HCA maps	Monthly or quarterly		
DC	Detailed queue info, ~14 data fields	Monthly		Website
	Disposition of all interconnection requests from previous year (e.g., approved, denied, conditions, etc.)	Annual	Required reporting	Received by PUC
	RECs obtained from interconnection	6 months	Required reporting	
	Anonymized list of approved RE generators: type & capacity	Monthly	Required reporting	public
Illinois	Pre-CEJA: queue data, informal complaints	N/A	Renewable energy planning process	
	Processing times, type and Q of DERs	snapshot	Grid audit report	Website
	Queue; HCA & map	TBD (working group)	Required reporting	Website
Kentucky	Interconnection problems	Ad hoc	Complaints	
	System capacity for DERs		Rate case	
Michigan	"Very good" interconnection info for <150 kW	Annual		Public report
	Queue info; basic HCA (2 large IOUs)	Annual		"Published"
Minnesota	Interconnection updates	Annual		
	Xcel: More detailed interconnection data (many data fields, incl. cost data); detailed queue/application processing data	quarterly		
	Interconnection queue numbers	Monthly		
	DG report	Annual	Compiled by PUC	
	HCA ("in process")			
Missouri	Net metered systems interconnection info	Irregular	IRP	
Ohio	Existing interconnections: location, type, capacity, etc; also see some pending interconnection info	Quarterly	Market monitoring rule	PUCO website
Oregon	Net metering upgrade costs ("glimpse of queue")	Annual		
	Detailed queue info and interconnection studies; "rudimentary" hosting capacity data			online
	"Proactively look at queues"	As needed	IRPs, distribution planning dockets	
	Separate interconnection and queue for community solar			
South Carolina	Queue data, capacity, type, etc.	"periodic"		
Virginia	Queue status; interconnection in previous year	Annual	Required reporting	
	Queue #s, status in queue, locations, fuel type, capacity,	Quarterly		Website
Wisconsin	interconnection problems	Ad hoc	Complaints via consumer affairs	