

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION
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COMMONWEALTH OF VIRGINIA, *ex rel.*

STATE CORPORATION COMMISSION

CASE NO. PUR-2022-00073

Ex Parte: In the matter considering utility
distributed energy resource interconnection-related
issues and questions

ORDER DIRECTING EVIDENTIARY PROCEEDING, PILOT AND
IMPROVEMENTS TO THE INTERCONNECTION PROCESS

As part of its Final Order in Case No. PUR-2021-00127, the State Corporation Commission ("Commission") found that it would, by separate order, open a docket to explore interconnection issues related to utility distributed energy resources ("DER") in a comprehensive manner.¹ In accordance with that finding, the Commission issued an Order for Comment in this proceeding on May 24, 2022, which, among other things, docketed this proceeding and provided interested persons an opportunity to comment on DER interconnection issues and for Commission Staff ("Staff") to file a report on such issues. The Commission received numerous written comments from interested persons and entities that addressed a significant number of DER interconnection matters. On September 19, 2022, Staff filed its report, in which Staff reviewed the various concerns raised by the commenters and recommended specific alternatives for addressing these concerns.² In an Order dated March 3, 2023 ("March 3, 2023, Order"), the Commission found that, given the number and complexity of the interconnection-related issues

¹ See *Petition of Virginia Electric and Power Company, For approval of a plan for electric distribution grid transformation projects pursuant to § 56-585.1 A 6 of the Code of Virginia*, Case No. PUR-2021-00127, 2022 S.C.C. Ann. Rept. 271, Final Order (Jan. 7, 2022).

² See Staff Report at 3-52.

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raised by the parties, it was necessary to utilize multiple mechanisms to address the issues. Specifically, the Commission determined the following mechanisms should be employed: (i) a survey performed by Staff ("Staff Survey"); (ii) working groups; and (iii) a rulemaking.

Regarding the Staff Survey, the Commission found that certain issues raised in this case would benefit from the receipt of additional data. The Commission directed Staff to survey interconnection customers and each investor-owned electric utility and electric cooperative regulated by the Commission (collectively, "Virginia Electric Utilities") for further information on certain topics.³ Staff conducted the Staff Survey as directed and filed the results of the Staff Survey in this docket on August 1, 2023.

Regarding the working groups, the Commission directed Staff to convene a working group to address concerns, and any potential solutions, pertaining to study timelines, construction timelines, and cost allocation.⁴ The Commission further ordered that a separate working group be convened and tasked with addressing issues specifically related to interconnection costs, dark fiber-optic cables for direct transfer trip ("DTT"), and cost transparency.⁵ Staff was instructed to initially convene each working group by no later than August 1, 2023, with further meetings being held on an ad hoc basis at Staff's discretion.⁶ Within 30 days of the end of each meeting, the working group was required to provide an update

³ March 3, 2023, Order at 7-9.

⁴ *Id.* at 6.

⁵ *Id.* at 7.

⁶ *Id.* at 6-7.

to the Commission on the issues discussed and any recommendations for the Commission's consideration.⁷

On January 18, 2024, the working groups filed a combined final report ("Report"). The Report documents: (i) an overview of the working group process; (ii) DER interconnection issues raised by participants; and (iii) potential solutions that working group participants developed to address identified issues.⁸ The Report consisted of approximately 300 pages inclusive of appendices and attachments. As noted in the Report, seven working group meetings were held and over 100 participants participated throughout the working group process, including participants from investor-owned utilities, electric cooperatives, renewable energy developers, consumer and environmental advocacy organizations, and state agencies.⁹

Finally, regarding the rulemaking, the Commission determined in the March 3, 2023, Order that several issues raised by commenters should be addressed through a rulemaking process related to the Regulations Governing Interconnection of Small Electrical Generators and Storage ("Interconnection Regulations").¹⁰ The Commission subsequently initiated a rulemaking proceeding in a separate docket, Case No. PUR-2023-00069, to examine whether revisions to the Interconnection Regulations were needed.¹¹

⁷ *Id.* at 7.

⁸ *See* Report at 4, 9.

⁹ *Id.* at 5, 55-58.

¹⁰ March 3, 2023, Order at 9-10; 20 VAC 5-314-10 *et seq.*

¹¹ *Commonwealth of Virginia, ex rel. State Corporation Commission, Ex Parte: In the matter of revising the Commission's Regulations Governing Interconnection of Small Electrical Generators and Storage*, Case No. PUR-2023-00069, Doc. Con. Cen. No. 230510088, Order Initiating Rulemaking Proceeding (May 2, 2023).

On February 21, 2024, the Commission issued an Order Inviting Comments in this docket that provided interested persons an opportunity to submit comments on the Staff Survey and the Report. The Commission received hundreds of comments representing numerous different interests, including, but not limited to, residential customers, investor-owned utilities, electric cooperatives, renewable energy developers, consumer and environmental advocacy organizations, and representatives from state agencies, localities, and public schools.

Further related to matters at issue in the present docket, on June 1, 2023, the Virginia Distributed Solar Alliance ("VDSA"), in Case No. PUR-2023-00097, petitioned for an injunction for immediate suspension of certain parameters that Virginia Electric and Power Company ("Dominion") had developed related to interconnections of certain net metering projects. On August 30, 2023, the Commission granted the injunction and suspended the imposition of Dominion's parameters "at least until the Commission has completed its investigations and rulemaking in Case Nos. PUR-2022-00073 and PUR-2023-00069 and has ruled definitely on such issues."¹²

After entry of the Final Order in Case No. PUR-2023-00097, Dominion filed a motion, in Case No. PUR-2023-00069, for interim authority to establish and implement minimum safety standards for midsized net energy metering interconnections. On November 6, 2023, after receiving oral argument, the Chief Hearing Examiner entered a Ruling that: (i) granted Dominion interim authority to continue to require either a fiber optic or cellular-based DTT communication system, at the customer's election (and require installation of a distributed

¹² *Petition of Virginia Distributed Solar Alliance, For injunctive relief against Virginia Electric and Power Company*, Case No. PUR-2023-00097, Doc. Con. Cen. No. 230840172, Final Order at 4 (Aug. 30, 2023). In addition, in the Final Order the Commission suspended the requirement that customers sign a Small Generator Interconnection Agreement for midsized net metering projects.

generation panel ("DG Panel")) under certain conditions; (ii) directed that Dominion, Staff, and interested parties address and establish engineering requirements necessary to safely and reliably interconnect net metering DERs as part of the proceedings in Case No. PUR-2023-00069; and (iii) found that if Dominion elected to use its interim authority to require DTT or a DG Panel, a vendor or customer may petition the Commission for an evidentiary proceeding in which Dominion shall bear the burden of proving the necessity and reasonableness of such requirement.¹³ To date, no vendor or customer has filed such a petition.

NOW THE COMMISSION, upon consideration of this matter, is of the opinion and finds as follows. Through the Staff Survey, the working groups' Report, and the comments filed in this case, numerous complex interconnection-related issues have been raised and a variety of potential solutions have been offered. For purposes of this Order, our determinations and discussion will be organized below into four areas of directives. Specifically, and as discussed in detail below, the Commission directs: (i) a separate evidentiary proceeding be convened on Dominion's requirements surrounding the use of DTT; (ii) Dominion to conduct a pilot targeted cluster study approach to interconnection requests to determine if such an approach is more efficient and cost-effective ; (iii) specific improvements to the interconnection process to be implemented by all Virginia Electric Utilities; and (iv) certain issues to be addressed further in the Commission's pending rulemaking in Case No. PUR-2023-00069.

¹³ *Commonwealth of Virginia, ex rel. State Corporation Commission, Ex Parte: In the matter of revising the Commission's Regulations Governing Interconnection of Small Electrical Generators and Storage*, Case No. PUR-2023-00069, Doc. Con. Cen. No. 231110133, Hearing Examiner's Ruling at 13 (Nov. 6, 2023). On November 16, 2023, VDSA filed a motion to certify the November 6, 2023, Hearing Examiner's Ruling to the Commission. On November 27, 2023, the Chief Hearing Examiner declined to certify the November 6, 2023, Ruling to the Commission.

In developing these directives, we have fully considered and weighed all comments presented in this matter in support of each participant's proposals or suggestions, including those provided by Staff. The Commission expresses appreciation to all those who submitted written comments or participated in the working groups.¹⁴

Separate Evidentiary Proceeding on Dominion's DTT Requirements

One of the most significant issues raised in this proceeding involves the appropriateness of requiring that DTT be used in certain circumstances to interconnect DER to a utility's system.¹⁵

The Commission finds that the DTT-related issues raised in this proceeding warrant an evidentiary proceeding as suggested by the Report, consistent with the Commission's authority under Code § 56-578.¹⁶ As is noted in the Report, issues related to DTT generally involve one utility, Dominion, "as Dominion is the utility that currently requires the use of DTT (and uses dedicated fiber to accomplish DTT)."¹⁷ As such, we find that an evidentiary proceeding should

¹⁴ With respect to any issues or proposed solutions that were raised in this case but are not expressly addressed by the Commission herein, the Commission finds that discussion of such issues is not necessary to the Commission's decision at this time, and the Commission hereby exercises its discretion not to address such for purposes of the instant Order.

¹⁵ See March 3, 2023, Order at 7.

¹⁶ The Commission notes that DTT-related issues have also been raised in Case Nos. PUR-2023-00069 and PUR-2023-00097. To the extent any direction included herein diverges from that provided in either Case No. PUR-2023-00069 or Case No. PUR-2023-00097, we find that the directives in this Order shall govern. Further, the Commission finds that an evidentiary proceeding on DTT-related issues is warranted notwithstanding that no interconnection customer nor any vendor has, to date, availed itself of the opportunity set forth in the November 6, 2023, Hearing Examiner's Ruling in Case No. PUR-2023-00069 to petition the Commission for an evidentiary proceeding if Dominion elected to use its interim authority to require DTT or a DG Panel.

¹⁷ Report at 28.

be convened to address Dominion's DTT requirements.¹⁸ The Commission appreciates that there are concerns surrounding the costs of DTT as well as concerns regarding maintaining grid safety and reliability with the addition of significant levels of DER, and we concur with the Report that a formal evidentiary proceeding would allow parties to establish a robust factual record¹⁹ on DTT and related alternatives which are not unduly burdensome and expensive.²⁰ Additionally, this evidentiary proceeding shall include consideration of the requirements surrounding the use of DTT by Dominion to interconnect generation facilities subject to the Regulations Governing Net Energy Metering ("Net Metering Regulations").²¹

The Commission directs Dominion to make a filing ("Filing") in a new docket, on or before November 15, 2024, that proposes revisions to its terms and conditions applicable to interconnection customers and net metering customers. Specifically, Dominion's Filing should address the following in detail (for both front-of-the-meter and behind-the-meter projects), including supporting testimony and exhibits:

- Dominion's proposed criteria for determining which situations require DTT, with all supporting engineering justifications;
- The operational considerations supporting its proposed use of DTT (such as latency, grid safety and reliability, cybersecurity, availability, location, and project size);

¹⁸ Given that DTT-related concerns have, to-date, generally concerned Dominion, and given the unique and varying circumstances under which different utilities could deem it appropriate to require the use of DTT, this evidentiary proceeding will only examine Dominion's DTT requirements.

¹⁹ Report at 50.

²⁰ *Id.* The Commission recognizes that the use of DTT may not be a binary "yes-or-no" question, but rather may depend on several factors including the size of the interconnecting generator, the load on the distribution circuit to which the generator seeks interconnection, and other considerations.

²¹ *See* 20 VAC 5-314-10 *et seq.*; 20 VAC 5-315-10 *et seq.* Many issues surrounding the use of DTT to interconnect generation facilities subject to the Interconnection Regulations are similar to, or overlap with, issues surrounding the use of DTT pursuant to the Net Metering Regulations. We will therefore consider all such issues together as part of the evidentiary hearing directed herein.

- Dominion's proposed criteria for alternative options to DTT, if any, including perceived benefits and limitations of those options (such as the feasibility, effectiveness, latency, grid safety and reliability, cybersecurity, and availability of each alternative);
- Notable alternative options to DTT not proposed by Dominion in its Filing and Dominion's justification for their exclusion (such as the feasibility, effectiveness, latency, grid safety and reliability, cybersecurity, and availability of each alternative);
- Identify when in the study process Dominion determines that the use of DTT or an alternative is required and how this will be communicated to the interconnection customer, including anticipated cost;
- Provide a breakdown of the approximate installation and operation and maintenance costs of DTT, including, but not limited to: (i) the average cost per mile to install DTT fiber, (ii) the average cost of substation upgrades that are required in order to utilize DTT, and (iii) any reoccurring monthly charges that interconnection customers must pay;
- Provide a breakdown of the approximate installation and operation and maintenance costs of each proposed alternative, including, but not limited to: (i) the average initial cost for key equipment needed for each alternative option, (ii) the average cost of substation upgrades that are required in order to utilize the alternative, and (iii) any reoccurring monthly charges that interconnection customers must pay; and
- Provide any additional information that would be useful for the Commission to know in ruling on this issue.

Upon receipt of the Filing, the Commission will establish additional procedures, including scheduling an evidentiary hearing, directing public notice, and providing an opportunity for interested persons to file a notice of participation or comments in such proceeding.

Pilot on Targeted Cluster Study Approach to Interconnection Requests

As part of our March 3, 2023, Order, we directed that a working group be convened and tasked with addressing issues related to study timelines, construction timelines, and cost allocation, as well as any potential solutions to those issues, "including, but not limited to, any

proposed pilot programs."²² Pursuant to the current Interconnection Regulations, "[a]t the utility's option, interconnection requests may be studied serially or in clusters for the purpose of the system impact study."²³ As is noted in the Report, currently a serial approach is being used, whereby interconnection requests are studied one at a time according to the order in which the requests are received.²⁴ During the working group, participants identified potential alternatives to a serial study process, though no agreement was reached on whether an alternative process would be beneficial and, if so, what that alternative process should be.²⁵

One alternative approach discussed during the working group was the use of cluster studies, whereby a group of interconnection requests are studied together based on factors such as size and location rather than sequentially.²⁶ A pilot that directs the targeted use of cluster studies may, among other things, help determine whether clusters of projects may be studied more quickly and efficiently than projects in a serial approach.²⁷ Given that the largest number of interconnection requests occurs in Dominion's service territory, we find that a pilot conducted by Dominion would likely provide the most informative results. We therefore direct Dominion

²² March 3, 2023, Order at 6.

²³ 20 VAC 5-314-50 C.

²⁴ *See* Report at 18-19, 34-35.

²⁵ *See id.* at 83-84.

²⁶ *See id.* at 18-19, 34-35, 83-84.

²⁷ *Id.* at 35. The Report further opined that under a cluster approach, interconnection costs could be allocated across that cluster to avoid having all incurred costs falling on what otherwise would have been one singular project. On the subject of allocating costs to customers, the Report also proposed that the Commission explore, and, if appropriate, implement, a proactive cost allocation strategy. *See* Report at 7, 26-27, 29, 43-45, 89-90. The Commission will not at this time mandate a different cost allocation methodology or strategy, but notes that nothing in the Interconnection Regulations prohibits developers from facilitating cost sharing arrangements among themselves, including as part of this proposed pilot, if pilot participants wish to engage in such cost sharing.

to conduct a pilot that examines the use of targeted cluster studies as a possible alternative to, or as an addition to, the current interconnection study process.

In directing the development of this pilot, we acknowledge that not every interconnection request may be a viable option for inclusion in the pilot. For example, it may be reasonable to only include clusters of projects that are collectively under a certain established size threshold.²⁸ As such, we direct Dominion to work with Staff to establish reasonable parameters for this pilot, including an appropriate pilot completion date not to exceed December 31, 2025, and reporting metrics. We further direct Dominion to file quarterly updates on the pilot, in this docket, with the first update to be filed on or before October 1, 2024. We also direct Dominion to file a final report on the pilot, in this docket, within 90 days of the date the pilot has concluded.

Improvements to the Interconnection Process

There is a clearly demonstrated need for more information and greater guidance from utilities to facilitate the interconnection process, which is often lengthy and complex, and is continually evolving.²⁹ We concur that access to regularly updated information on the interconnection process is of paramount importance. Accordingly, we hereby direct that, to the extent it is not already available, each Virginia Electric Utility shall include the following information on its website:

- A copy of all application forms, including application checklists, utility contact information, a list of frequently asked questions, and any other necessary information related to the application forms, which shall be updated on a timely basis whenever necessary;³⁰

²⁸ See *id.* at 35.

²⁹ See, e.g., Staff Survey at 21-30; Report at 6, 24, 26-28, 40-42, 87-88.

³⁰ See, e.g., Staff Survey at 5-9, 22-23. The utilities may, but are not required to, develop an online portal, develop interactive forms that are submitted electronically, or provide tracking information for submitted applications. The list of frequently asked questions should, at a minimum, include: (i) any technical guidance documents; (ii) project

- A DER interconnection queue, which shall be updated on a quarterly basis;³¹ and
- A unit cost guide, which shall be updated on an annual basis.³²

To the extent it is not already available, each Virginia Electric Utility should include the above information on its website within six (6) months of the date of this Order.

Utilities have also expressed the importance of receiving detailed information from interconnection customers during the interconnection process. For example, utilities must build facilities that are necessary for interconnection, but they can only begin this process once they have been authorized by the interconnection customer to access the site, the necessary permits are obtained, and high-quality site plans have been developed.³³ In the Report, one proposed solution was that interconnection customers should secure early site access for the utility and provide the utility with high-quality site plans as quickly as possible.³⁴ The Commission agrees

modification processes; (iii) programmatic rules and qualifications; (iv) mistakes that cause application rejection; (v) the utility's dispute resolution process; and (vi) contact information. *See id.* at 23.

³¹ *See, e.g., id.* at 15-17. At a minimum, the DER interconnection queue shall contain: (i) queue number; (ii) the physical address or geographic coordinates of the facility; (iii) fuel type; (iv) the capacity of the facility, in terms of megawatts; (v) the substation and transformer to which the project will be interconnected; (vi) the feeder or circuit to which the project will be interconnected; (vii) the date of submission of the final completed interconnection request form; (viii) interdependency status; (ix) status of the request in the interconnection process; and (x) the date of the final completed signed interconnection agreement. *See* 20 VAC 5-314-130 B. In addition to these requirements, we find that for projects under active study, the DER interconnection queue should also identify the current study being performed (*e.g.*, Feasibility Study, System Impact Study, Facilities Study).

³² *See, e.g., id.* at 5-8, 22-23, 28-29. In making this determination, the Commission understands that some Virginia Electric Utilities have indicated that it may be difficult to develop or maintain a unit cost guide. *See id.* at 5-8. We find that unit cost guides provide vital information to potential interconnection customers, and therefore direct all Virginia Electric Utilities to develop and maintain such documents. Unit cost guides should contain, at a minimum, benchmarks that address: (i) poles and equipment; (ii) standard new transformers and generic replacement of existing transformers; (iii) reconductoring a line of various voltages and various number of phases on a dollar-per-mile basis; (iv) fiber cable installation for DTT on a dollar-per-mile basis; (v) replacing reclosers on an existing line; (vi) adding a new circuit breaker to an existing substation; and (vii) setup costs. *Id.* at 28-29.

³³ *See* Report at 38.

³⁴ *See id.* at 6, 25, 38, 86. *See also* March 20, 2024, Virginia Cooperatives Comments at 7.

that early access and viable site plans are important to the interconnection process, and we encourage interconnection customers to work with utilities to provide this access and information as early as possible.

Issues to be Incorporated into the Pending Rulemaking

Several issues that have been raised in this proceeding may warrant amendments to the Interconnection Regulations, and therefore should receive further consideration in Case No. PUR-2023-00069. In that pending matter, Staff has been directed, after receiving appropriate input from stakeholders and interested persons, to prepare and file a report including any proposed revisions to the current Interconnection Regulations.³⁵ At this time, the Commission directs Staff to address the following additional issues as part of its report in that case.³⁶

First, the Report recommended that parties "[m]eet and evaluate exceeding current study timeline requirements."³⁷ Although timelines for the completion of interconnection studies are already included in the Interconnection Regulations, several commenters asserted that at times there are delays in completing the studies and that one solution could be the imposition of monetary penalties.³⁸ As discussed in the comments, study timelines could be affected by a variety of different factors, including certain factors outside of both the utility's and

³⁵ *Commonwealth of Virginia, ex rel. State Corporation Commission, Ex Parte: In the matter of revising the Commission's Regulations Governing Interconnection of Small Electrical Generators and Storage*, Case No. PUR-2023-00069, Doc. Con. Cen. No. 230510088, Order Initiating Rulemaking Proceeding at 3 (May 2, 2023).

³⁶ Interested persons shall have an opportunity to comment on any proposed revisions to the Interconnection Regulations in that proceeding.

³⁷ Report at 6, 24, 26-28, 34-38, 83-86.

³⁸ *See, e.g.*, March 22, 2024, Joint Solar Parties Comments at 5-7; March 22, 2024, VDSA Comments at 4; March 22, 2024, Dominion Comments at 7-8; March 20, 2024, Virginia Cooperatives Comments at 10-11; Report at 34, 38.

interconnection customer's control.³⁹ As such, we decline at this time to establish monetary penalties for missed study timelines. The Commission does, however, expect utilities to maintain the study timelines to the extent possible and we find that, should a study deadline be missed, utilities should communicate the missed deadline and provide a revised completion date to the interconnection customer as soon as possible. We also direct Staff, as part of its proposed revisions to the Interconnection Regulations, to consider the following: (i) updating Schedules 7-9 in 20 VAC 5-314-170 to include a field identifying a specific date by which each study should be concluded; and (ii) including a requirement that developers be notified by the utility of any missed study timelines and, in such circumstance, be provided the new expected deadline.

Second, the Report discusses the development of a process to review and revise technical standards for inverter-based DERs.⁴⁰ The Commission finds that interconnection customers should understand a utility's technical requirements for interconnection. We therefore direct Staff to propose minimum filing requirements for a Technical Interconnection and Interoperability Requirements document related to the Institute of Electrical and Electronics Engineers Standard 1547 for further consideration in the pending rulemaking proceeding, Case No. PUR-2023-00069.

Conclusion

Through this Order, the Commission takes significant steps to address the identified causes of interconnection-related issues and facilitate the safe interconnection of DERs to the

³⁹ See, e.g., March 22, 2024, Dominion Comments at 7-8; March 20, 2024, Virginia Cooperatives Comments at 10-11.

⁴⁰ See Report at 8, 24, 26, 30, 48-49, 92-93.

distribution system. The Commission will continue to address these important issues as necessary, including through the mechanisms described and outlined in this Order.

Accordingly, IT IS SO ORDERED and this matter is CONTINUED.

A COPY hereof shall be sent electronically by the Clerk of the Commission to all persons on the official Service List in this matter, and to David N. Essah, Ph.D., Director of the Commission's Division of Public Utility Regulation, who shall cause a copy thereof to be provided to those persons and entities previously identified by Staff as potentially having an interest in this matter.