

**Virginia State Corporation Commission
eFiling CASE Document Cover Sheet**

22081025

Case Number (if already assigned) PUR-2022-00073

Case Name (if known) Commonwealth of Virginia, ex rel., State Corporation Commission, Ex Parte: In the matter considering utility distributed energy resource interconnection-related issues and questions

Document Type CMMT

Document Description Summary Virginia Electric and Power Company's Response to Order for Comment

Total Number of Pages 15

Submission ID 25358

eFiling Date Stamp 8/1/2022 3:47:31PM

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August 1, 2022

BY ELECTRONIC DELIVERY

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

Case No. PUR-2022-00073

Dear Mr. Logan:

Please find enclosed for electronic filing in the above-referenced matter *Virginia Electric and Power Company's Response to Order for Comments on utility distributed energy resources interconnection-related issues and questions*.

Please do not hesitate to contact me if you have any questions in regard to the enclosed.

Highest regards,

/s/ Jontille D. Ray

Jontille D. Ray

Enclosures

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COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

COMMONWEALTH OF VIRGINIA, *ex rel.*)
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STATE CORPORATION COMMISSION) CASE NO.: PUR-2022-00073
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distributed energy resource interconnection-related)
issues and questions)
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RESPONSE TO ORDER FOR COMMENT

On June 21, 2021, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) filed a petition with the State Corporation Commission of Virginia (“Commission”) for approval of Phase II of its ten-year plan to transform its electric distribution grid (“GT Plan” or “Plan”) in Case No. PUR-2020-00127. As part of its Final Order in that case, the 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

On May 24, 2022, the Commission issued an Order for Comment providing interested parties an opportunity to comment on utility DER interconnection issues. The Commission noted that as part of their comments, parties may wish to address the enumerated questions presented by the interconnection of DER in more detail. The Company provides the following response.

Introduction

DER interconnection requests received by Dominion Energy Virginia range from requests to operate generation in parallel behind a customer’s retail meter for reliability or peak-shaving purposes, to Small Generating Facilities directly injecting power into the distribution

¹ *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, Final Order at 26.*

grid for purposes of a wholesale transaction. The Company has seen significant growth in interconnection requests to facilitate wholesale transactions over the past five-years and continues to receive a steady stream of other requests for behind-the-meter DERs as well. To serve these needs in a targeted manner, the Company administers the small electrical generator and storage interconnection queue governed by Chapter 314 of Title 20 of the Virginia Administrative Code.

The existing Regulations Governing Interconnection of Small Electrical Generators and Storage, effective October 15, 2020 (“Regulations”), have been effective to facilitate the safe and reliable interconnection of DER to the distribution system. The Regulations provide the process by which Dominion Energy Virginia addresses requests to operate generation in parallel with the distribution grid, regardless of paralleling duration, to ensure the safety, reliability, and operability of the grid for all customers – and to ensure uniformity of service for those customers. The Regulations, as well as Dominion Energy Virginia’s internal processes administering these Regulations, are generally well aligned with industry best practices. However, the Company recognizes the importance of efficiently processing DER interconnection requests. To that end, as discussed in more detail below, the Company continuously evaluates its internal processes and resources needed to efficiently administer the interconnection study process and has taken steps toward improving the interconnection process where necessary.

Through these efforts, the Company identified some minor changes to processes and procedures in Chapter 314 that may be warranted. For example, the Company has identified an increasing need for a minimum cybersecurity standard and more robust security protocols for all DERs. If the Commission deems it necessary, these are potential considerations for a future rulemaking proceeding. Additionally, the Company believes that piloting a targeted “cluster

study” process, whereby multiple interconnection requests located in the same electrical part of the grid would be studied together, as opposed to individually, would allow the Company to assess the value of grouping projects in logical configurations to spread overall costs for developers, increase the velocity of interconnections, and reduce the size of the queue in a meaningful manner.

Question No. 1 – What are the primary obstacles (e.g., sources of delay or cost) to the interconnection of DER on the distribution system?

In the two years since the Regulations were enacted, the volume of interconnection requests (“IRs”) submitted by interconnection customers (“ICs”) has increased dramatically, including many requests for projects that ICs ultimately determine are not viable and are withdrawn before an interconnection agreement (“IA”) is even executed. The Company has an obligation to approach each of these requests with the same due diligence regardless of the project size or viability. For example, regardless of whether the IR is for a 3 MW project or a 20 MW project, the Company must perform a comprehensive study of each project’s impact to the distribution system and design interconnection infrastructure for reverse flow of power, which requires a similar investment in time, dollars, and resources. To further compound this issue, more than half of all projects studied as part of the Company’s interconnection queue ultimately do not move forward past the study phase, resulting in substantial effort expended on projects that do not ultimately come to fruition. Over time, the confluence of these factors has contributed to a significant increase in projects in the interconnection queue.

Other items that impact the amount of time necessary to complete the processing of small-generator interconnection applications can be the completeness of applications; the complexity and duration of studies; and the administration of interconnection application

processes and agreements (such as interdependency status, data exchanges, and resolution of inquiries – all of which may extend the duration of the study process).

Finally, the Company has also observed that delays during the construction process, including costs to mobilize and demobilize contractors as the result of changing milestone dates, can add up quickly and be significant.

Question No. 2 – What solutions have utilities implemented to facilitate the effective interconnection of DER to the distribution system? Have they been effective? How can they be improved?

As a result of stakeholder feedback, as well as feedback in other Commission proceedings, the Company has created and published tools and information designed to increase transparency into the queue and study process, which has allowed developers to make more informed decisions regarding the development of DER projects.

For example, in late 2020, the Company implemented interconnection request project management software to facilitate cross-departmental interconnection studies and customer communications. Additionally, in September of 2021, the Company began publishing its small-generator interconnection queue on its website. This queue provides a snapshot of IRs and associated statuses for stakeholders, so that they can better assess their timeline in production and mitigate their costs and construction inefficiencies. The Company will continue to publish this information on a quarterly basis.

The Company has also published a hosting capacity tool on its website. Hosting capacity analyses use computer simulations to determine how much generation can be placed at each point on the distribution grid without causing voltage or thermal issues. This tool, released in January 2021, shows the distribution grid's available hosting capacity to help guide customers and developers through installation placement.

Finally, the Company has published a Guide for Interconnection Parameters for DER. This Guide includes details of the Company's DER study process and interconnection parameters. It also contains a unit-cost guide to provide estimated distribution and substation facilities costs for typical DER upgrades and serves to better inform potential ICs of the costs associated with any new DER projects. Additionally, the Company has added targeted internal and external technical resources to better address the increase in IRs.

The Company has received favorable feedback on these resources from prospective interconnection customers and other stakeholders and is evaluating making additional enhancements.

Question No. 3 – What additional solutions do utilities plan to implement, or are considering for implementation, to facilitate the interconnection of DER on the distribution system?

a. Planned Changes to Interconnection Request Processes

The Company continues to evaluate and develop ways to streamline the interconnection request process for potential ICs. The Company is currently pursuing a process by which IRs and associated fees can be submitted online, to supplement the hard-copy submission process currently utilized. This will result in a more efficient and timely process.

The Company will also be publishing a Queue Performance Report to provide perspective on the processing of IRs from the application stage through the completion of the interconnection process.

b. Pilot for Cluster Study Process

The Company is currently evaluating whether cluster studies could improve the current interconnection process and believes that it would be of value to pilot a targeted cluster study to assess this method of project study. A cluster study process would allow interconnection costs to

be allocated among multiple small-scale solar projects, ultimately reducing the cost paid by each IC on a per-project basis and allowing for easier access into the market. If costs were to be allocated among multiple solar generating facilities in this fashion, many projects that may otherwise be cancelled due to cost may also become viable over time. This targeted cluster study approach may also help process more IRs for specific substation transformers on which a significant number of IRs have been received.

While Dominion Energy Virginia does not recommend a wholesale migration from the current serial study process to a cluster study process for the Commonwealth of Virginia, interconnection costs could be spread among multiple IRs if the Company had the discretion to utilize a cluster study process when appropriate. The Company is receptive to exploring modifications to the Regulations, if the Commission deems it necessary, to facilitate targeted cluster studies for smaller solar generating facilities in the 1-3 MW range for the purpose of allocating interconnection costs among multiple IRs. The Company envisions a pilot as a natural starting point to assess this method of study.

Question No. 4 – Are there “best practices” in place in other jurisdictions that the Commission should consider?

The Regulations and Dominion Energy Virginia’s administrative processes are generally well aligned with industry best practices. However, the Company recognizes the importance of efficiently processing DER interconnection requests and continuously evaluates internal processes and resources needed to efficiently administer the interconnection study process and development of interconnection cost estimates.

Question No. 5 – What additional actions should the Commission take to help facilitate the interconnection of DER on the distribution system?

Although the existing Regulations have been effective to facilitate the interconnection of DER to the distribution system, the Company identified some minor changes to processes and procedures in Chapter 314 that may be warranted. For example, the Company identified an increasing need for a minimum standard for cybersecurity and more robust security protocols for all DERs to ensure availability of these increasingly important generation assets. Accordingly, the Company strongly urges the Commission to consider these issues in the context of a future rulemaking proceeding.

Question No. 6 – What steps should the Commission take with regard to aggregation of interconnected DER for possible participation by such aggregations in the PJM wholesale market, per FERC Order 2222? Are any such steps best addressed in this docket or in a separate proceeding?

In February 2022, PJM submitted a comprehensive FERC Order No. 2222 compliance filing, which the Company endorses. The submission was the product of an extensive stakeholder process lasting over a year that is still ongoing. That process included participation from investor-owned electric utilities such as Dominion Energy Virginia, municipalities, cooperatives, DER developers, potential DER aggregators, and state commissions. The stakeholder process also included focus groups consisting of electric utilities and PJM to ensure PJM's compliance filing was properly vetted within the electric utility community. The Company has been engaged in all the stakeholder meetings and other industry initiatives related to FERC Order 2222 since late Fall of 2020 and remains committed to staying engaged throughout the implementation process of FERC Order 2222.

FERC Order 2222 may have a significant impact on the resources available to Dominion Energy Virginia in administering the existing state interconnection queue given the order's heavy

reliance on electric utilities to review DER Aggregation (“DERA”) requests. Accordingly, after FERC issues an order on PJM’s compliance filing, the Company believes it would be appropriate for the Commission to separately consider the impact of that Order on the Regulations and the state interconnection queue. The Company believes that, at a minimum, the following actions should be considered with respect to aggregating DERs pursuant to FERC Order 2222:

1. Close coordination with PJM to ensure the development of consistent processes relating to the DERA interconnection process.
2. Establishment of a two-stage process for the approval of new DER aggregation resources, including a pre-registration process, followed by a 60-day evaluation period to ensure the DERA can safely operate as one collective resource on the distribution system when transacting in PJM markets, as proposed by PJM’s compliance filing.
3. Update the Regulations to: (a) require that all component DERs to be aggregated are subject to a previously signed IA; (b) provide for an expanded study process, including expanded participation by affected systems; (c) limit the DERA’s ability to change the participants in any particular aggregation grouping once the study process has begun; and (d) reaffirm the requirement that interconnecting DERs be aggregated to the same electrical node or geographical location.

As the FERC order is implemented, electric utilities in Virginia will likely face a host of new regulatory challenges, policy, and technical issues associated with DER aggregations that will require the addition of resources. For example, as part of the review process, Dominion Energy Virginia will need to add procedures (and personnel) to: (1) confirm that Component

DERs are eligible to interconnect as wholesale market participants; (2) monitor the output of Component DERs to determine when they are charging for retail versus wholesale purposes; and (3) ensure that a DER is not receiving double compensation (from retail programs, and from PJM as a wholesale market participant). Other changes to the interconnection procedures, state licensing process, financial security, data access, communications processes, and metering and telemetry requirements, among other things, will also be necessary to facilitate DER Aggregation participation.

The study process will also become more complex. To evaluate the impact of component DER in aggregation on the distribution system, all electric utilities must review complicated, novel data sets and perform successive analyses to determine whether and to what extent the proposed DER Aggregation will negatively impact the electric distribution system operations. Then, the electric utilities must review and study the Component DER's original interconnection records to verify that the appropriate reviews were conducted during the state interconnection review process. Lastly, the electric utilities must group the individual Component DER with the other Component DER in the proposed DER Aggregation, to determine how the combined participation will impact existing system operations.

PJM's proposed tariff would also require the Company to be equipped with processes, tools, and methodologies that facilitate identification of adverse impact of DER aggregation on the electric power system ("EPS") at both the day-ahead and real-time windows. The Company's Energy System Operations Department will also need to have near real-time visibility of all DER, including net metering, to appropriately respond to any safety and reliability needs.

Dominion Energy Virginia therefore urges the Commission to ensure that all electric utilities are afforded sufficient time to appropriately modify state-level procedures and agreements prior to the implementation of FERC Order 2222, and to collaborate with PJM in developing these procedures and agreements where appropriate. Utilities will need time to assess the staffing and systems required to implement the pre-registration process and proposed 60-day review window in a way that does not interfere with existing state processes or create backlogs in the existing state queues.

Question No. 7 – Are there any changes to the Regulations Governing Interconnection of Small Electrical Generators and Storage (20 VAC 5-314) or other Commission actions that could enable the usage of IEEE-1547-2018 compliant inverters to facilitate the integration of DER on the distribution system? Are any such changes or actions best addressed in this docket or in a separate proceeding?

IEEE-1547-2018 is the product of efforts from various stakeholders, including several members of Dominion Energy Virginia's engineering team. The objective of the standard is to establish minimum DER performance requirements to which certified inverter-based DER must adhere to ensure DER do not negatively affect the EPS. The process of updating existing standards and preparing the industry to integrate them is not a simple task. The Company remains committed to facilitating a better understanding of the impacts of DER ride-through and grid support capability requirements, as specified in IEEE-1547-2018, on the EPS.

The Company supports IEEE-1547-2018 and its ride-through and grid support capability requirements for DER. Still, the Company believes that any utilization of DER ride-through or voltage regulation functionalities should be at the Company's discretion and evaluated based on system needs on a case-by-case basis. This will ensure the Company maintains the requirements

for safe and reliable operation of the EPS with respect to the planning, design, operation, and maintenance of the Area EPS², which IEEE-1547-2018 does not address.

Also, the Company's current system protection standards do not support anti-islanding capabilities of DER inverter-based resources as an alternative to Company-owned and maintained system protection schemes for direct transfer trip (DTT). Anti-islanding functions of DER inverter-based resources alone do not replace the multiple functions and layered protection that DTT provides to the EPS beyond anti-islanding. DTT's proven history in ensuring system disturbances are cleared in the required time intervals, regardless of system conditions, gives the Company confidence that the system will continue to be operated reliably and ensure safety to the general public and the Company's employees.

Dominion Energy Virginia does not believe that any revisions to the Regulations are currently necessary with respect to IEEE Std. 1547-2018 because existing rules and procedures, in requiring that Level 1 and 2 interconnections meet the IEEE-1547 requirements, sufficiently address this issue. Therefore, the Commission may provide clarification where it is appropriate, including the following:

(1) Reaffirm that maintaining the safety and the reliability of the EPS take precedence over utilization of DER ride-through and grid support capabilities.

(2) Usage of IEEE Std. 1547-2018 compliant inverters is welcomed but will need to follow existing interconnection rules and procedures and good utility practices, including DER certification to UL 1741 Edition 3 standard.

² Area EPS is a term in IEEE 1547-2018 that refers to the larger distribution grid in contrast to the local EPS which refers to the portion of the distribution grid that encompasses the point-of- interconnection with the DER

(3) Proper integration of all DER on the distribution system requires review of the impact of DER on the safety and reliability of the EPS, including determining when it is appropriate to enable grid support functionalities as defined in IEEE Std. 1547-2018.

Question No. 8 – Are there additional changes that could be made to the Regulations Governing Interconnection of Small Electrical Generators and Storage (20 VAC 5-314) that could facilitate the integration of DER on the distribution system? If so, please describe such proposed changes.

The Regulations, as revised October 15, 2020, incorporated many modifications that have been beneficial in the Company's administration of the queue, including but not limited to modifications to study processes. As discussed in the Company's response to Questions No. 5-7 above, however, the Company believes that additional modifications may be warranted to further refine the study process, including exploring a targeted cluster study pilot, and safeguard the grid against potential cyberattacks.

Dominion Energy Virginia appreciates the opportunity to provide these comments and address the issues raised by the Commission. The Company is committed to further improving the interconnection process to meet the Company and Commonwealth's clean energy goals and for the benefit of all involved.

Respectfully submitted,

Virginia Electric and Power Company

By: /s/ Jontille D. Ray

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Counsel for Virginia Electric and Power Company

August 1, 2022

CERTIFICATE OF SERVICE

I hereby certify that on this 1st day of August 2022, a true and accurate copy of the foregoing filed in Case No. PUR-2022-00073 was hand delivered, electronically mailed, and/or mailed first class postage pre-paid to the following:

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