Case No. PUR-2021-00146
Sponsor: ("SEIA CHESSA")
Exhibit No. 30

Witness: KEVIN M. LUCAS
Bailiff: JABARI T. ROBINSON

REISINGERGOOCH
ATTORNEYS AT LAW

William T. Reisinger
REISINGERGOOCH, PLC
1108 East Street, Suite 1102
Richmond, Virginia 23219
(804) 223-6391
Will@ReisingerGooch.com

November 16, 2021

VIA ELECTRONIC FILING

Mr. Bernard Logan
Clerk of the Commission
c/o Document Control Center
State Corporation Commission
1300 E. Main Street
Richmond, VA 23219

Re: *Petition of Virginia Electric and Power Company, For approval of the RPS Development Plan, approval & certification of proposed CE-2 Solar Projects pursuant to § 56-580 D and 56-46.1 of the Code of Virginia, revision of rate adjustment clause, designated Rider CE, under § 56-585.1 A 6 of the Code of Virginia, and a prudence determination to enter into power purchase agreements pursuant to § 56-585.1:4 of the Code of Virginia*
Case No. PUR-2021-00146

Dear Mr. Logan:

Pursuant to the Commission's October 6, 2021, Order for Notice and Hearing, please find the attached *Direct Testimony of Kevin M. Lucas* filed on behalf of the Joint Respondents Solar Energy Industries Association and the Chesapeake Solar and Storage Association in the above-captioned matter.

Should you have any questions about this filing, please do not hesitate to contact me.

Sincerely,

/s/ William T. Reisinger

William T. Reisinger

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true copy of this testimony was served this 16th day of November, 2021, by e-mail to:

Paul E. Pfeffer, Esquire
Audrey T. Bauhan, Esquire
Dominion Energy Virginia
paul.t.pfeffer@dominionenergy.com
audrey.t.bauhan@dominionenergy.com

Sarah R. Bennett, Esquire
Joseph K. Reid, III, Esquire
Elaine S. Ryan, Esquire
McGuireWoods LLP
sbennett@mcguirewoods.com
jreid@mcguirewoods.com
eryan@mcguirewoods.com

K. Beth Clowers, Esquire
Ashley B. Macko, Esquire
State Corporation Commission
beth.clowers@scc.virginia.gov
ashley.macko@scc.virginia.gov

C. Meade Browder, Jr., Esquire
Office of the Attorney General
mbrowder@oag.state.va.us

Nate Benforado, Esquire
William C. Cleveland, Esquire
Southern Environmental Law Center
nbenforado@selcva.org
wcleveland@selcva.org

Noelle J. Coates, Esquire
AEP Services Company
njcoates@aep.com

James R. Bacha, Esquire
AEP Services Company
jrbacha@aep.com

Carrie Harris Grundmann, Esquire
Barry A. Naum, Esquire
Spilman Thomas & Battle, PLLC
cgrundmann@spilmanlaw.com
bnaum@spilmanlaw.com

Michael J. Quinan, Esquire
Cliona Mary Robb, Esquire
Rachel W. Adams, Esquire
Thompson McMullan, P.C.
mquinan@t-mlaw.com
crobb@t-mlaw.com
radams@t-mlaw.com

Edward L. Petrini, Esquire
S. Perry Coburn, Esquire
Timothy G. McCormick, Esquire
Christian & Barton, L.L.P.
epetrini@cblaw.com
pcoburn@cblaw.com
tmccormick@cblaw.com

/s/ William T. Reisinger

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION

PETITION OF

VIRGINIA ELECTRIC AND POWER COMPANY

CASE NO. PUR-2021-00146

For approval of the RPS Development Plan, approval & certification of proposed CE-2 Solar Projects pursuant to § 56-580 D and 56-46.1 of the Code of Virginia, revision of rate adjustment clause, designated Rider CE, under § 56-585.1 A 6 of the Code of Virginia, and a prudence determination to enter into power purchase agreements pursuant to § 56-585.1:4 of the Code of Virginia

DIRECT TESTIMONY OF KEVIN M. LUCAS

ON BEHALF OF JOINT RESPONDENTS SOLAR ENERGY INDUSTRIES ASSOCIATION AND THE CHESAPEAKE SOLAR AND STORAGE ASSOCIATION

November 16, 2021

TESTIMONY SUMMARY OF KEVIN LUCAS
ON BEHALF OF CHESSA-SEIA

CHESSA-SEIA Witness Kevin Lucas evaluates Dominion Energy's compliance with the RPS requirements of the Virginia Clean Economy Act ("VCEA") and the Virginia State Corporation Commission's ("Commission") April 30, 2020, Final Order in Case Number PUR-2020-00134. He finds that additional reforms are needed to implement a robust and effective Renewable Portfolio Standard program through better reporting requirements and the inclusion of an independent evaluator for all requests for proposals ("RFPs").

1. In the testimony, Lucas draws out the importance of developing compliance mechanisms that ensure that the economic, environmental and energy targets set forth in the VCEA are met. The testimony includes a recommendation that the Commission initiate a stakeholder working group to develop templates for reporting retired RECs, renewable net short calculations, and project status database, with a requirement that consensus templates be provided to the Commission no later than May 2022. Additionally, Lucas insists that the Commission must create its own RPS certification process rather than leaning on Pennsylvania's Public Utilities Commission. This should leverage the already-existing PJM-GATS system. Further, the Commission should reconsider its requirement to use revenue-grade meters on all projects and instead set up a tiered compliance requirement that relies on generation estimates for small systems, inverter readings for medium systems, and revenue-grade quality inverter readings for larger systems.

2. While Lucas recommends that all projects proposed by Dominion Energy in the 2021 RPS filing should be deemed in the public interest, he provides the following recommendations on reform needed for future RFPs:

   - The distribution RPF process as it is currently run has failed to drive the deployment of distributed generation, mainly because the Company applies the same process for large scale projects as it does for smaller scale projects. Lucas recommends increasing the frequency of RFPs and filings, as well as pre-approval for projects that meet certain criteria to improve the process. Lucas further recommends that the Commission initiate a new distribution interconnection proceeding to review and refine the interconnection tariff and technical standards to ensure the VCEA distribution targets are met in a timely and affordable manner.
   - For the large-scale RFP, Dominion should provide greater visibility to the Commission and developers on how they evaluate different project configurations such as standalone solar, standalone storage, and hybrid solar and storage projects.
   - Lucas recommends that the Commission play an active role in PJM proceedings to ensure that wholesale market reforms and interconnection reforms enable timely and affordable interconnection of projects to meet the VCEA targets
   - An independent evaluator should be used in the review of all projects related to the RPS implementation, regardless of whether they are procured through the competitive RFP process or through bilateral negotiations. Further, Company-sourced projects must be evaluated on the same timeline and under the same review criteria as RFP-sourced projects.
   - Rather than responding to Dominion's selection criteria, the Commission should take a more active role in providing guidance to the Company about how to evaluate projects. In particular, greater focus should be paid to how Dominion's self-developed projects fit into the process.

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INTRODUCTION AND QUALIFICATIONS

Q1. PLEASE STATE FOR THE RECORD YOUR NAME, POSITION, AND BUSINESS ADDRESS.

A1. My name is Kevin Lucas. I am the Senior Director of Utility Regulation and Policy at the Solar Energy Industries Association ("SEIA"). My business address is 1425 K St. NW #1000, Washington, DC 20005.

Q2. PLEASE SUMMARIZE YOUR BUSINESS AND EDUCATIONAL BACKGROUND.

A2. I began my employment at SEIA in April 2017 as the Director of Rate Design. SEIA is leading the transformation to a clean energy economy, creating the framework for solar to achieve 30% of U.S. electricity generation by 2030. SEIA works with its 1,000 member companies and other strategic partners to fight for policies that create jobs in every community and shape fair market rules that promote competition and the growth of reliable, low-cost solar power. Founded in 1974, SEIA is a national trade association building a comprehensive vision for the Solar+ Decade through research, education and advocacy.

As Senior Director of Utility Regulation and Policy, I have developed testimony in rate cases on rate design and cost allocation, in integrated resource plans on resource selection and portfolio analysis, worked on net energy metering and distributed generation compensation mechanisms, and performed a variety of analyses for internal and external stakeholders.

Before I joined SEIA, I was Vice President of Research for the Alliance to Save Energy ("Alliance") from 2016 to 2017, a DC-based nonprofit focused on promoting technology-neutral, bipartisan policy solutions for energy efficiency in the built environment. In my role at the Alliance, I co-led the Alliance's Rate Design Initiative, a working group that consisted of a broad array of utility companies and energy efficiency products and service providers that was seeking mutually beneficial rate design solutions. Additionally, I performed general analysis and research related to state and federal policies that impacted

energy efficiency (such as building codes and appliance standards) and domestic and international forecasts of energy productivity.

Prior to my work with the Alliance, I was Division Director of Policy, Planning, and Analysis at the Maryland Energy Administration, the state energy office of Maryland, where I worked between 2010 and 2015. In that role, I oversaw policy development and implementation in areas such as renewable energy, energy efficiency, and greenhouse gas reductions. I developed and presented before the Maryland General Assembly bill analyses and testimony on energy and environmental matters and developed and presented testimony before the Maryland Public Service Commission on numerous regulatory matters.

I received a Master's degree in Business Administration from the Kenan-Flagler Business School at the University of North Carolina, Chapel Hill, with a concentration in Sustainable Enterprise and Entrepreneurship in 2009. I also received a Bachelor of Science in Mechanical Engineering, cum laude, from Princeton University in 1998.

Q3. HAVE YOU TESTIFIED PREVIOUSLY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA?

A3. No, I have not.

Q4. HAVE YOU TESTIFIED PREVIOUSLY BEFORE OTHER STATE UTILITY COMMISSIONS?

A4. Yes. I have submitted testimony in rate cases, integrated resource plans, utility merger proceedings, and renewable portfolio and energy efficiency resource standards before the Maryland Public Service Commission, Public Utility Commission of Texas, the Michigan Public Service Commission, the Public Utility Commission of Nevada, the Arizona Corporation Commission, the North Carolina Utilities Commission, and the Public Service Commission of South Carolina. My complete CV is attached to my testimony.[1]

[1] Attachment KL-1, Kevin M. Lucas CV.

Q5. ON WHOSE BEHALF ARE YOU SUBMITTING TESTIMONY?

A5. My testimony is provided on behalf of joint respondents SEIA and the Chesapeake Solar & Storage Association ("CHESSA"). Founded in 1984, CHESSA represents businesses that develop and install solar power and energy storage in Maryland, Virginia and the District of Columbia. Originally named the Maryland-DC-Virginia Solar Energy Industries Association (MDV-SEIA), CHESSA advances policy and regulations that build a robust and equitable solar and storage market in the region. CHESSA is an independent 501(c)6 organization and a recognized state affiliate of the Solar Energy Industries Association.

Q6. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A6. My testimony focuses on the 2021 Renewable Portfolio Standard Development Plan ("RPS Plan" or "Plan") from Virginia Electric and Power Company ("Dominion" or the "Company"). I discuss elements of the Plan that impact the development of solar and energy storage in the Commonwealth and suggests recommendations to improve Dominion's process for attaining the goals and requirements of the Virginia Clean Economy Act ("VCEA").

The Commission Should Approve Dominion's CE-2 Projects

Q7. PLEASE DESCRIBE DOMINION'S OBLIGATIONS UNDER THE VCEA.

A7. Under the VCEA, Dominion is required to petition the State Corporation Commission of Virginia ("Commission") for the approvals needed to construct by 2035 16,100 GW of solar or onshore wind generation located in the Commonwealth.[2] Of this amount, at least 1,100 MW must be from projects that are 3 MW or less. Further, the VCEA requires Dominion to construct or acquire 2,700 MW of energy storage by 2035.[3] Thirty five percent of the total solar and storage capacity must be purchased from independent power producers ("IPPs").

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[2] Va. Code § 56-585.5 D 2.
[3] Va. Code § 56-585.5 E 2.

The Company has a statutory interim deadline to seek approval for at least 3,000 MW of solar by 2024, and Commission regulations stipulate that Dominion must seek approval for at least 250 MW of storage by 2025.[4] Dominion is required to submit an annual plan discussing how it will meet its RPS obligations. This plan shall include petitions for approval for various solar and storage facilities.[5]

Q8. WHAT INFORMATION HAS DOMINION PROVIDED TO SUPPORT ITS 2021 RPS PLAN?

A8. Company witness Emil Avram filed testimony in support of its proposed certificates of public convenience and necessity ("CPCNs") for 661 MW of solar and 70 MW of storage projects (collectively, the "CE-2 Projects").[6] He also supports the Company's plan to contract for the energy, capacity, and renewable energy certificates ("RECs") of 185 MW of utility-scale solar, 26 MW of solar and 13 MW of storage through hybrid projects, 20 MW of standalone storage, and 42 MW of small-scale solar projects selected through the 2020 Solar-Wind-Storage and 2020 Distributed Solar RFPs.[7] He testified that these projects are reasonable and prudent and will assist the Company in meeting its VCEA goals.

Company witness Nathan J. Frost submitted testimony related to the 2020 Distributed Solar RFP and resulting projects. He discusses the competitive procurement process that Dominion followed that led to 70 development proposals and 82 PPA proposals.[8] Because many of these projects were early in the development timeline, the Company ultimately determined that only two of the Company development projects would be able to meet the RFP's online date requirements.[9] Both of these projects were selected and the Company intends to pursue these facilities.

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[4] Petition of Virginia Electric and Power Company For approval of its 2021 RPS Development Plan under § 56-585.5 D 4 of the Code of Virginia and related requests at 5 ("Dominion Petition").
[5] Dominion Petition at 5.
[6] DIRECT TESTIMPNY OF EMIL AVRAM ON BEHALF OF VIRGINIA ELECTRIC AND POWER COMPANY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA CASE NO. PUR-2021-00146 at 17. ("Avram Direct")
[7] Avram Direct at 28.
[8] DIRECT TESTIMONY OF NATHAN J. FROST ON BEHALF OF VIRGINIA ELECTRIC AND POWER COMPANY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA CASE NO. PUR-2021-00146 at 7 ("Frost Direct")
[9] Frost Direct at 7.

Company witness C. Eric McMillan filed testimony providing additional details on the 2020 Solar-Wind-Storage RFP and resulting projects.[10] This solicitation was for up to 1,000 MW total of solar or wind projects of at least 5 MW in capacity and for up to 250 MW of storage facilities.[11] The Company received 73 proposals for 63 different solar or storage projects totaling4,588 MW of capacity and one bid for onshore wind of 176 MW.[12] After completing the due diligence and bid evaluation process, the Company selected six solar PPAs for 185 MW, one storage PPA for 20 MW, and two hybrid solar and storage PPAs for 26 MW of solar and 13 MW of storage.[13]

Q9. DO YOU AGREE WITH THE COMPANY'S RECOMMENDATIONS ON THESE PROJECTS?

A9. Yes. CHESSA-SEIA is encouraged to see a diverse set of projects in the Company's filing, including solar, storage, and hybrid projects at both the utility- and distributed-scale. The projects that witnesses Avram, Frost, and McMillan identify were procured through an appropriate process and will assist the Company in reaching its VCEA targets. They generally comport to the ownership split of 35 percent PPAs and 65 percent Company-owned projects. While I do make recommendations to improve the RFP process later in my testimony, these are most appropriately applied to future RFPs. I recommend the Commission find these projects are reasonable and allow for their cost recovery.

The RPS Compliance Mechanism Requires Improvement

Q10. HAS THE COMMISSION PROVIDED DOMINION ANY GUIDANCE ON HOW TO APPROPRIATELY COMPLY WITH ITS RPS OBLIGATIONS?

A10. Yes. On April 30, 2021, the Commission issued a final order in the 2020 RPS Proceeding that addressed future RPS compliance. It found that the annual RPS proceeding was the proper venue to consider annual RPS compliance, and "directs Dominion to propose

[10] DIRECT TESTIMONY OF C. ERIC MCMILLAN ON BEHALF OF VIRGINIA ELECTRIC AND POWER COMPANY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA CASE NO. PUR-2021-00146 at 2. ("McMillan Direct")
[11] McMillan Direct at 5.
[12] McMillan Direct at 6.
[13] McMillan Direct at 9.

reporting metrics, and any needed protocols, associated with RPS Program certification in its 2021 RPS filing."[14]

Q11. HAS THE COMPANY PROPOSED REPORTING METRICS AND PROTOCOLS FOR RPS PROGRAM CERTIFICATION?

A11. Yes, it has. Dominion filed a brief one-page attachment to its 2021 RPS Plan that outlined reporting metrics related to its annual RPS compliance. These are duplicated below:

- The REC requirement for the relevant compliance year, including the information required to calculate "total electric energy" as defined in Va. Code § 56-585.5 C.
- A pie chart showing the type and quantity of RECs retired for each RPS eligible source (as defined in Va. Code § 56-585.5 C) or the deficiency payment to be made, if any.
- A table showing the vintages of RECs retired.
- A table showing the location of RECs retired.
- A pie chart showing the type and quantity of RECs retired to meet the 1% Carve Out or the deficiency payment to be made, if any. This pie chart will include a section for RECs from "low-income qualifying projects," if available, once the Commission has determined the criteria for such projects.
- The total amount of any required deficiency payments to be deposited with the Commonwealth as set forth in Va. Code § 56-585.5 D 5. The Company will also include a summary of efforts to obtain RECs at a price below the deficiency payment.
- A table showing the bank of RECs available for future compliance, including vintage and RPS eligible source type.

Q12. WERE ANY STAKEHOLDERS INVOLVED IN THE DEVELOPMENT OF THESE METRICS?

A12. No. While CHESSA-SEIA appreciate the initial effort that Dominion made regarding these reporting metrics, we believe that they should have been developed through a robust stakeholder process. These reports will be instrumental to the industry and care must be taken to ensure they contain sufficient information for developers to make informed decisions about the supply and demand requirements in Virginia. Robust reporting will also ensure that RECs are retired in a manner that guarantees the environmental, energy and economic benefits outlined in the VCEA.

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[14] Case No. PUR-2020-00134 Final Order at 7.

Q13. DO YOU HAVE EXAMPLES OF ROBUST RPS COMPLIANCE REPORTING METRICS FROM OTHER STATES?

A13. Yes. The state of California has a strong RPS compliance reporting structure. All projects used for RPS compliance by load serving entities are required to register in the Western Renewable Energy Generating Information System ("WREGIS") to track renewable generation.[15] WREGIS is the single clearinghouse where California utilities retire RECs and the public can track compliance. It also contains public data on what projects have been contracted for RPS compliance. These reports include information such as project name, contract counterparty, contract length, and online date.[16] Importantly, load serving entities are required to file reports with their regulators demonstrating retirements in their WREGIS account (including serial numbers of each REC) to demonstrate compliance. California utilities are also required to report on RPS compliance costs, which are incorporated into an annual report to the legislature.[17] This report provides clear costs by load serving entity, technology, and by solicitation.

They also are required to file a projection of their "renewable net short" ("RNS") position. This process involved the utilities producing both deterministic and stochastic forecasts to "achieve and maintain RPS compliance and minimize customer cost within an acceptable level of risk."[18] This process included a detailed analysis of how banked RECs will be used for future compliance.[19]

Q14. WHAT DO YOU RECOMMEND WITH REGARD TO THE COMPANY'S PROPOSED REPORTING METRICS?

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[15] https://www.wecc.org/WREGIS/Pages/Default.aspx

[16] WREGIS RPS Public Database. The October 2021 report is available at https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/rps-public-database_october-2021.xlsx

[17] See e.g., The 2021 Padilla Report, available at https://www.cpuc.ca.gov/-/media/cpuc-website/industries-and-topics/documents/energy/rps/2021-padilla-report_final.pdf

[18] PACIFIC GAS AND ELECTRIC COMPANY'S (U 39 E) DRAFT 2021 RENEWABLE ENERGY PROCUREMENT PLAN At 67. ("PG&E RPS Plan"). Available at https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M392/K633/392633924.PDF

[19] PG&E RPS Plan at 71.

A14. I recommend the Commission reject the proposed reporting metrics, as they are insufficient to meeting the requirements of the Commission's April 30, 2021, final order in the 2020 RPS Proceeding, and instead establish a stakeholder engagement process to provide a recommendation for reporting requirements. This process should include representatives of the solar and storage industries, among other parties. The stakeholder group will work to develop robust reporting metrics, including spreadsheet templates that should be used for compliance. The recommendations should be presented to the Commission by May 2022 at the latest in order to provide sufficient time for Dominion to include those reporting requirements in its 2022 RPS plan filing.

Q15. DOES DOMINION ALREADY HAVE ACCESS TO SOMETHING SIMILAR TO WREGIS?

A15. Yes. PJM has a similar REC registration and tracking systems, PJM-GATS.[20] This repository houses public data at an individual system level, including information on project size and location and state RPS eligibility. It also reports average prices paid for SRECs by state by month and shows available and retired RECs by state compliance year.

Q16. ARE VIRGINIA PROJECTS REQUIRED TO REGISTER IN PJM-GATS?

A16. No. While some projects physically located in Virginia have registered in PJM-GATS, most are not. The Virginia Solar Energy Development and Energy Storage Authority 2020 Annual Report estimates that there were 15,129 net metered solar installations in Virginia as of the third quarter of 2020, with continued growth in the past year.[21] However, only roughly 2,500 have bothered to register in PJM-GATS as of November 2021, and most of those appear to have done so to be able to sell their solar RECs in Pennsylvania.[22] There is currently no process available for projects sited in the Commonwealth of Virginia to register through the

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[20] https://www.pjm-eis.com/reports-and-events/public-reports.aspx

[21] Virginia Solar Energy Development and Energy Storage Authority 2020 Annual Report, October 2020. https://static1.squarespace.com/static/5c4a1956c3c16a56550cfcda/t/602c3a7b92c6a05a3eb4ef4d/1613511322144/V irginia+Solar+Energy+Development+and+Energy+Storage+Authority+2020+Annual+Report+-+FINAL.pdf

[22] Of the 2,516 solar projects physically located in Virginia, 2,319 are registered to sell RECs in Pennsylvania, while only 1,468 are registered to sell RECs in Virginia. See https://gats.pjm-eis.com/gats2/PublicReports/RenewableGeneratorsRegisteredinGATS (accessed 11/10/21).

State Corporation Commission, which serves as an impediment to getting systems in Virginia registered in PJM-GATS.

Q17. HOW CAN VIRGINIA BETTER LEVERAGE PJM-GATS AS A COMPLIANCE RESOURCE?

A17. First and foremost, the Commission should direct Virginia utilities to use PJM-GATS as the official registration and tracking mechanism for RPS compliance. Many other states in the PJM region with RPS programs, including Maryland, Washington D.C., Illinois, and Pennsylvania already leverage PJM-GATS for this purpose. All projects should be required to register in PJM-GATS as a prerequisite to selling their RECs to Dominion or other Virginia utilities, and REC retirement should be managed through PJM-GATS for RPS compliance purposes.

Q18. ARE THERE OTHER STATES THAT HAVE ESTABLISHED THIS PROCESS?

A18. Yes. Maryland utilized PJM-GATS for registration and REC tracking. For most solar projects, registration is completed online through the Maryland Public Service Commission's ("MPSC") website.[23] After receiving permission to connect the system from their host utility, the system owner or responsible party registers the system through the MPSC's webpage. The initial application requires a signed interconnection agreement from the utility. For larger solar projects (in Maryland, those greater than 2 MW), the project must go through the administrative hearing docket. These are typically included in the "consent agenda" portion of the hearing that is intended to include "noncontroversial" matters; "Consent agenda items have been reviewed by staff, they have no concerns and no formal written comments are produced."[24]

After the registration steps have been completed by the system owner, the MPSC staff manages the remainder of the process. MPSC staff assigns a registration number to the project and registers the system in PJM-GATS. This process typically occurs within a few days for residential systems, although delays are possible depending on application volume.

[23] https://www.psc.state.md.us/electricity/solar-renewable-portfolio-standard-documents-rps/

[24] See Maryland PSC November 3, 2021, Administrative Meeting Agenda, available at https://webapp.psc.state.md.us/newIntranet/mAILLOG/AdminAgendaByDte_New.cfm?adminDate=11/03/2021

It is critical to make the registration process as time-efficient as possible as RECs are not created in PJM-GATS until the system is registered; delays in the registration process result in forfeited RECs.

Q19. DO YOU RECOMMEND THE COMMISSION ESTABLISH A SIMILAR PROCESS IN VIRGINIA?

A19. Yes. Dominion and other utilities should expect a significant ramp up in the number of solar systems that will be needed to meet their VCEA requirements. Leveraging already-existing resources such as PJM-GATS will reduce implementation costs while increasing public transparency. Developers who work in the PJM region are already familiar with GATS reporting and data entry.

The Commission should seek to ease the administrative burden related to PJM-GATS registration on individual system owners, particularly for residential and small-commercial behind-the-meter projects. It makes sense to develop the capability at the Commission to manage system registration for all Virginia utilities similar to how Maryland has handled its RPS compliance registration process. Creating and maintaining a consistent application process will simplify system registration for all parties and help streamline the administrative efforts associated with VCEA compliance.

Q20. DOES MARYLAND REQUIRE PRODUCTION METERS ON ALL SOLAR PROJECTS?

A20. No, it does not. Production meters are not required on Level 1 solar projects, which are defined in Maryland regulations as 10 kW_{AC} and under, or roughly 12.5 kW_{DC}.[25] For these projects, solar owners or designees record production in PJM-GATS based on a MPSC-defined schedule.[26] This schedule is based on public models such as the National Renewable Energy Laboratory ("NREL") PV Watts Calculator.[27] Projects over 10 kW_{AC} must have production meters and record their actual generation in PJM-GATS.

Q21. DOES VIRGINIA REQUIRE PRODUCTION METERS ON ALL SOLAR PROJECTS?

[25] MD COMAR 20.61.01.03.B.6-4. A typical residential system with a 10 kW_{AC} inverter will have a nameplate rating of approximately 12.5 kW_{DC}

[26] MD COMAR 20.61.02.03.B.1

[27] Available at https://pvwatts.nrel.gov/pvwatts.php

A21. Yes. The Commission recently established a new business rule to install revenue-grade production meters on all projects that meet the ANSI C-12 accuracy standard.[28] The basis of this requirement stems from Staff comments that "[i]t is Staff's understanding that the GATS Operating Rules ("GATS Rules") require a revenue-quality meter that meets the ANSI C-12 standard."[29]

Q22. DO THE GATS RULES REQUIRE REVENUE-QUALITY METERS ON ALL PROJECTS?

A22. No. The GATS Rules provide substantial discretion to states to define the process through which systems are registered and how generation is recorded. As discussed above, Maryland does not require production meters for small systems and Maryland load serving entities use PJM-GATS for RPS compliance. Relevant excerpts of the GATS Rules affecting registration and generation reporting follow:

- Verification of generator eligibility for state programs is the responsibility of the relevant state.[30]
- Verification of MWh generation data for Non-PJM **generators is the responsibility of the state agency that pre-qualified the generator,** and as such the methodology for submitting the data is subject to its approval. The GATS Administrator is not responsible for verifying MWh generation for Non-PJM Generators.[31]
- Generation data (kWh) for Non-PJM Solar Generators can be entered as 1) the actual kWh that was generated through the month, 2) the monthly meter readings taken from the system invelier or meter depending on the State(s) requirements with whom they are certified or 3) **the production estimates that were generated by an approved calculation system if production estimates are allowed by the State(s) in which they are certified**. The approval of the calculation system is done by the state agency's [sic] for those states certifying generating system in GATS.[32]
- **The original data source for MWh or kWh reporting must meet the requirements of the state agency that pre-qualified the generator. EIS recommends that the original data source must be from the output of a revenue-quality meter.** For this class of generators, a revenue-quality meter and its installation must at a minimum meet the applicable ANSI C-12 standard or its equivalent. If a renewable generation resource does not have metering that

[28] Order Revising Business Rules, Attachment A, CASE NO. PUR-2021-00064, September 30, 2021. ("Business Rules Order").
[29] Business Rules Order at 12.
[30] GATS Operating Rules, 6.3.3.a. Available at https://www.pjm-eis.com/~/media/pjm-eis/documents/gats-operating-rules.ashx
[31] GATS Operating Rules, 6.3.3.b. (emphasis added).
[32] GATS Operating Rules, 6.3.3.d. (emphasis added).

meets the ANSI C-12 or equivalent standard, recognition of such generation for creation of Certificates will only be at the direction of GATS Regulators.[33]

Q23. DO THE GATS RULES OFFER FLEXIBILITY TO THE COMMISSION ON HOW GENERATION IS RECORDED?

A23. Yes. The GATS Rules defer substantially to state authorities on how to record generation. A state or Commonwealth using PJM-GATS decides how to verify eligibility for systems writ large and for how generation is certified. The state or Commonwealth decides whether production estimates are allowed and determines the calculation system used to produce the estimates. While the GATS Rules do *recommend* that the original data come from a revenue-grade meter, this is not a requirement. The GATS Rules clearly state that the Commission has substantial discretion on how to certify generation from eligible systems.

Q24. GIVEN THIS, IS THE RECENT BUSINESS RULE THAT ALL SYSTEMS HAVE PRODUCTION METERS STRICTLY NECESSARY?

A24. No, it is not. It is clear from the GATS Rules that the Commission has discretion on this point. In reaching its decision to enact a new business rule, the Commission cited testimony from Dominion that the Company recommends that all systems, "regardless of size, should be required to measure output with a revenue-grade meter."[34] Dominion argues this is needed to "ensure that all REC market participants are on a level playing field and will ensure that the REC creation is based on an auditable, verified metering source rather than on estimated generation."[35] The Commission also cited Staff's testimony: "The Staff noted in its comments that the GATS Operating Rules require a revenue-quality meter that meets the ANSI C-12 standard."

It is clear from the review above that Staff's interpretation that the GATS Rules require a revenue-grade meter is incorrect. While a recommendation, it is not a requirement, as evidenced by the fact that Maryland uses production estimates as part of a MPSC-

[33] GATS Operating Rules, 6.3.3.k. (emphasis added).
[34] Business Rules Order at 12.
[35] COMMENTS OF VIRGINIA ELECTRIC AND POWER COMPANY at 7, Case No. PUR-2021-00064.

approved calculation methodology. Dominion's recommendation to require revenue-grade meters would needlessly increase costs, and duplicative production meters would increase its rate base and profit for no discernable reason.

Q25. WHAT ARE THE PRACTICAL IMPACTS OF THE REVENUE-GRADE METER REQUIREMENT?

A25. This requirement is problematic for several reasons. First, there are thousands of existing systems that may be impacted by a requirement to install revenue-grade meters to qualify for RPS compliance. Of the 2,635 systems located in Virginia currently registered in PJM-GATS (which is only a fraction of actual projects in the Commonwealth), 2,204 are under 12.5 kW_{DC}.[36] Requiring expensive retrofits on these and other existing, non-registered systems is extremely onerous and should be avoided.

Second, it is cost prohibitive for new systems as revenue-grade meters are expensive, especially for small projects and those serving low- and moderate-income ("LMI") customers. These projects already face challenging economics and adding more costs could tip a project's viability. Many open-source solar generation models such as NREL's PVWatts exist that could be used to produce production estimates from these systems.

Finally, revenue-grade meters duplicate functionality already found in modern inverters. Inverters record production and installers often have applications that allow system owners to track production on an hourly basis. If the Commission does not wish to allow modeled generation for REC purposes, it should instead consider using inverter data before requiring a revenue-grade meter. This would be completely consistent with the GATS Rules allowing states or commonwealths to define the certification requirements of eligible systems.

Q26. WHAT DO YOU RECOMMEND WITH RESPECT TO THE COMMISSION'S REVENUE-GRADE METERING REQUIREMENT?

[36] Renewable Generators Registered in GATS report, accessed 11/10/21. 12.5 kW_{DC} is roughly equivalent on a nameplate basis to the 10 kW_{AC} inverter rating established in Maryland.

A26. I recommend the Commission adjust its requirement as one of the key pieces of support – that the GATS Rules require revenue-grade meters – is incorrect. For small systems, modeled generation is sufficiently robust to use for REC compliance purposes. The Commission could establish a size cutoff as Maryland and not require production meters under a certain size. This should be augmented to include an exemption for all LMI systems, regardless of size.

For systems over this threshold, I recommend the Commission allow inverter-based metering to be used for REC production. This requirement can also have a size threshold, with systems under a certain size such as 100 kW_{AC} allowing the use of standard inverter metering, while requiring systems over 100 kW_{AC} to use inverters that record production within tight tolerances that meet the ANSI C12.20 revenue-grade tolerances of ±0.5%.[37]

Dominion's Approach to its 1% Carve Out Requires Improvement

Q27. WHAT IS THE 1% CARVE OUT REQUIREMENT?

A27. Dominion must retire RECs for 1% of its compliance obligation from DER projects that are 1 MW or less. Further, if available, no less than 25% of the 1% must come from "low-income qualifying projects."[38] If the Company does not meet the 1% Carve Out requirements, it faces a $75/MWh REC deficiency payment, a higher figure than the $45/MWh deficiency payment for shortfalls of its general RPS obligation.[39]

Q28. HOW MUCH CAPACITY UNDER 1 MW WOULD BE REQUIRE TO MEET THE 1% CARVE OUT?

A28. Dominion projects that it will need 62,564 MWh from sub-1 MW projects in 2021.[40] Assuming an 18% capacity factor, this translates into roughly 40 MW of capacity in 2021.[41]

[37] See SolarEdge Three Phase Revenue Grade Meter, https://www.solaredge.com/us/products/metering-and-sensors/three-phase-revenue-grade-meter#/

[38] Dominion Petition Exhibit 2, *Dominion Energy Virginia's 2021 RPS Development Plan*, at 2 ("Dominion RPS Plan").

[39] Dominion RPS Plan at 3.

[40] Dominion RPS Plan, Attachment 7.

[41] 62,564 / (8,760 * 0.18) = 39.68 MW.

By 2035, this would drive approximately 200 MW of cumulative deployment of projects under 1 MW in size.

Q29. DOES DOMINION BELIEVE IT WILL BE ABLE TO PURCHASE SUFFICIENT RECS FROM THESE PROJECTS TO MEET ITS 2021 OBLIGATION?

A29. No, it does not. Dominion notes "uncertainty at this time whether sufficient RECs will be available for the 2021 compliance year" and that it "has not need able to procure sufficient volumes to meet the 1% Carve Out for 2021 RPS Program compliance" despite implementing an "all of the above" approach to procuring RECs.[42]

Q30. DOES THIS POSITION CONFLICT WITH DATA RELATED TO THE CAPACITY OF SUB-1 MW PROJECTS CURRENTLY INSTALLED IN VIRGINIA?

A30. Yes. The Department of Energy estimates that 145.3 MW of "distributed (net metered)" projects were installed in Virginia by Q3 2020, and that number is likely to be higher given additional deployments over the past year.[43] While some of these projects may exceed the 1 MW limit of the 1% Carve Out, many of these projects would qualify. This assertion is supported by looking at PJM-GATS, which despite containing only a fraction of the solar projects physically installed, currently has 54.7 MW of sub-1 MW projects registered in the Commonwealth.[44] Clearly, the issues related to the 1% Carve Out are not related to the physical lack of projects of this size, but instead related to the issues associated with REC registration and lack of clear market signals from Dominion.

That Dominion may face potentially millions of dollars of $75/MWh REC deficiency payments despite a clear source of small-system RECs in Virginia is an administrative failure. This highlights the urgency of the situation for the Commission to establish a reasonable and efficient system registration process in PJM-GATS for solar projects. It also

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[42] Dominion RPS Plan at 11.

[43] See 2020 Annual Report of the Solar Energy Development and Energy Storage Authority, available at https://static1.squarespace.com/static/5c4a1956c3c16a56550cfcda/t/602c3a7b92c6a05a3eb4ef4d/1613511322144/Virginia+Solar+Energy+Development+and+Energy+Storage+Authority+2020+Annual+Report+-+FINAL.pdf

[44] PJM-GATS Renewable Generators Registered in GATS report, accessed 11/10/2021.

underscores the need for more robust procurement mechanisms that are well advertised to the market.

Q31. ARE THERE OTHER SOURCES OF RECS FOR THESE SMALL SYSTEMS?

A31. Yes. Dominion issued an RFP in January 2021 specifically targeting unbundled RECs for the 1% Carve Out.[45] This was one of three methods – the others being fixed priced offers and over-the-counter purchases – that was specifically authorized by the Commission.[46] The Company indicates it is currently negotiating agreements based on the RFP responses, and also indicated it is working with brokers in the bilateral markets to secure additional volumes.[47]

Dominion specifically did not pursue fixed-priced offers, claiming that the "market for RECs that meet the 1% Carve Out is in its infancy, so the Company does not have real data to determine the 'right' fixed price. Setting a fixed price offer too high (e.g., $74 per REC) could undercut opportunities for lower-priced RECs to the detriment of customers."[48] The Company did say that it "will continue to consider the option of fixed price offers as the market continues to develop."[49]

Q32. WHAT WAS THE RESPONSE TO THE JANUARY 2021 UNBUNDLED REC RFP?

A32. The response appears to be very tepid if Dominion is unable to meet its 2021 requirement without resorting to deficiency payments. It may have been the case that the Company did not widely advertise the RFP or did not have a robust set of likely market participants as it did for its large-scale RFP, and as a result, participation was limited. Moreover, many market participants were not aware that Dominion is considering spot transactions on an ongoing basis. Addressing these issues in future unbundled REC RFPs is critical.

[45] Dominion RPS Plan at 10. Unbundled RECs are sold independently of the underlying energy and capacity of the solar resource.
[46] Dominion RPS Plan at 10.
[47] Dominion RPS Plan at 10.
[48] Dominion RPS Plan at 10.
[49] Dominion RPS Plan at 11.

Q33. DOES DOMINION'S ARGUMENT AGAINST MAKING FIXED-PRICE OFFERS MAKE SENSE CONSIDERING THE REC SHORTAGE THAT IT CURRENTLY PROJECTS?

A33. No. While it is understandable that the Company would want to procure unbundled RECs through a competitive process to ensure the best price possible, when it became evident after the failure of the RFP to secure sufficient RECs that the Company would face a shortfall, it should have changed course. As it stands, the Company projects at least some $75/MWh shortfall payments. Even if it had offered to purchase RECs at a few dollars under the shortfall payment level, its customers would have benefited from the cost savings compared to the higher deficiency payment. There is no excuse to simply accept $75/MWh deficiency payments when the possibility to procure lower price RECs continues to exist.

The Commission Should Encourage a Wide Variety of Business Models to Meet the VCEA

Q34. DOES THE VCEA PROVIDE THE COMMISSION WITH GUIDANCE ON WHAT FACTORS IT SHOULD CONSIDER WHEN EVALUATING A UTILITY'S RPS PLAN AND ASSOCIATED PETITION REQUESTS?

A34. Yes. The VCEA statute provides several guideposts for the Commission on how to evaluate pathways for compliance, including projects put forward by Dominion in the filing. Specifically, the statute directs the Commission, when it is evaluating plans filed under Va. Code § 56-585.5 D, to consider the following:

- The RPS and carbon dioxide reductions;
- The promotion of new renewable generation and energy resources within the Commonwealth, and associated economic development; and
- Fuel savings projected to be achieved by the plan.[50]

The statute provides the Commission substantial deference on how to weigh these factors, but provides that new solar and wind projects totaling up to 16,100 MW are "in the public interest." The statute also directs the Commission to "liberally construe" the provisions of the VCEA when considering whether to approve such new projects.[51] The

[50] Va. Code § 56-585.5 D 4.
[51] Dominion Petition at 4 (citing Va. Code § 56-585.1 A 6).

Commission, in its order approving the Company's 2020 RPS Plan, specifically noted the potential for projects to advance progress on environmental justice and impact on historically economically disadvantaged communities and requested the Dominion provide additional information on these factors in future plans.[52]

Q35. WHAT ARE SOME WAYS IN WHICH THE COMMISSION CAN SUPPORT THE ROBUST CONSIDERATION OF THESE TOPICS?

A35. The Commission can ensure that Dominion supports multiple pathways for RPS compliance. For instance, for resources located in the Commonwealth, both to meet the 1% Carve Out requirement as well as the in-state requirement of the RPS more broadly, the Commission could require Dominion to establish a robust unbundled REC RFP process with sufficient noticing requirements while also requiring the Company to offer fixed-priced contracts of reasonable length to other types of projects. The Commission should also support transparency in RPS compliance by requiring the previously-discussed reporting metrics and utilizing a public asset such as PJM-GATS to perform and validate compliance.

Once these multiple pathways are established, the Commission will have more information on which to evaluate the balance of these three considerations. It may emerge that long-term unbundled REC contracts are particularly valuable for projects that support marginalized communities, or that acquiring projects at a later development stage supports more economic opportunities. However, unless the Commission requires multiple pathways to compliance, it may be missing out on opportunities.

Dominion's RFP Process for Distributed Solar Systems is Problematic

Q36. YOU DISCUSSED PREVIOUSLY YOUR RECOMMENDATION FOR APPROVING THE CE-2 DISTRIBUTED SOLAR PROJECTS. DOES YOUR RECOMMENDATION IMPLY THAT THE PROCESS THROUGH WHICH THESE PROJECTS WERE PROCURED IS ROBUST?

[52] Final Order, Case No. PUR-2020-00134 at 25.

A36. No, it does not. While I agree with the Company that the Commission should approve the current batch of distributed solar systems, the process through which these projects were procured requires substantial improvement. The Company testified that its 2020 Distributed Solar RFP sought up to 80 MW of projects with units not to exceed 3 MW.[53] As discussed below, despite receiving more than 150 proposals for projects, the Company ultimately selected only two development projects with a combined capacity of 3.6 MW along with 15 PPAs for 23 projects totaling 42 MW.[54,55]

Q37. WHAT STEPS DID DOMINION TAKE IN THE EVALUATION OF THE RFP BIDS?

A37. Dominion's description of the RFP evaluation process is limited. It notes that after receiving 70 development and 82 PPA bids, that it "first reviewed all proposals for completeness and conformance" before moving to a "preliminary screening [] to develop a short list for further evaluation."[56] Projects that got through these steps were then evaluated based on "a uniform set of price and non-price factors" conducted by "an in-house team from multiple departments."[57]

Ultimately, 23 development proposals and 23 PPA proposals made it through this screening process. Additional diligence was performed on the development proposals, and the Company found that only 2 projects were sufficiently advanced that they would likely meet the in-service date target of 2022 for all the Company-owned shortlisted projects.[58] It appears that all 23 PPAs were advanced through the evaluation and that the Company is currently negotiating contracts.[59]

Q38. WERE THE RESULTS OF THESE VARIOUS EVALUATION STEPS MADE PUBLIC?

A38. No. The Company provided limited public information in its testimony, redacting information such as developer, price, evaluation score, ranking, and non-price evaluation

[53] Frost Direct at 4.
[54] Frost Direct at 7.
[55] McMillan Direct at 9.
[56] Frost Direct at 5.
[57] Frost Direct at 5.
[58] Frost Direct at 7.
[59] McMillan Direct at 11.

scores.[60] Some of the information that is provided was illegible due to the Commission's approach of scanning in printed copies rather than submitting digital PDFs. Figure 1 below shows a zoomed-in copy of the Scoring Guidelines page demonstrating this flaw. The Commission should require Dominion to submit its documents in a native digital format and make accessible these versions rather than printing and re-scanning the file.

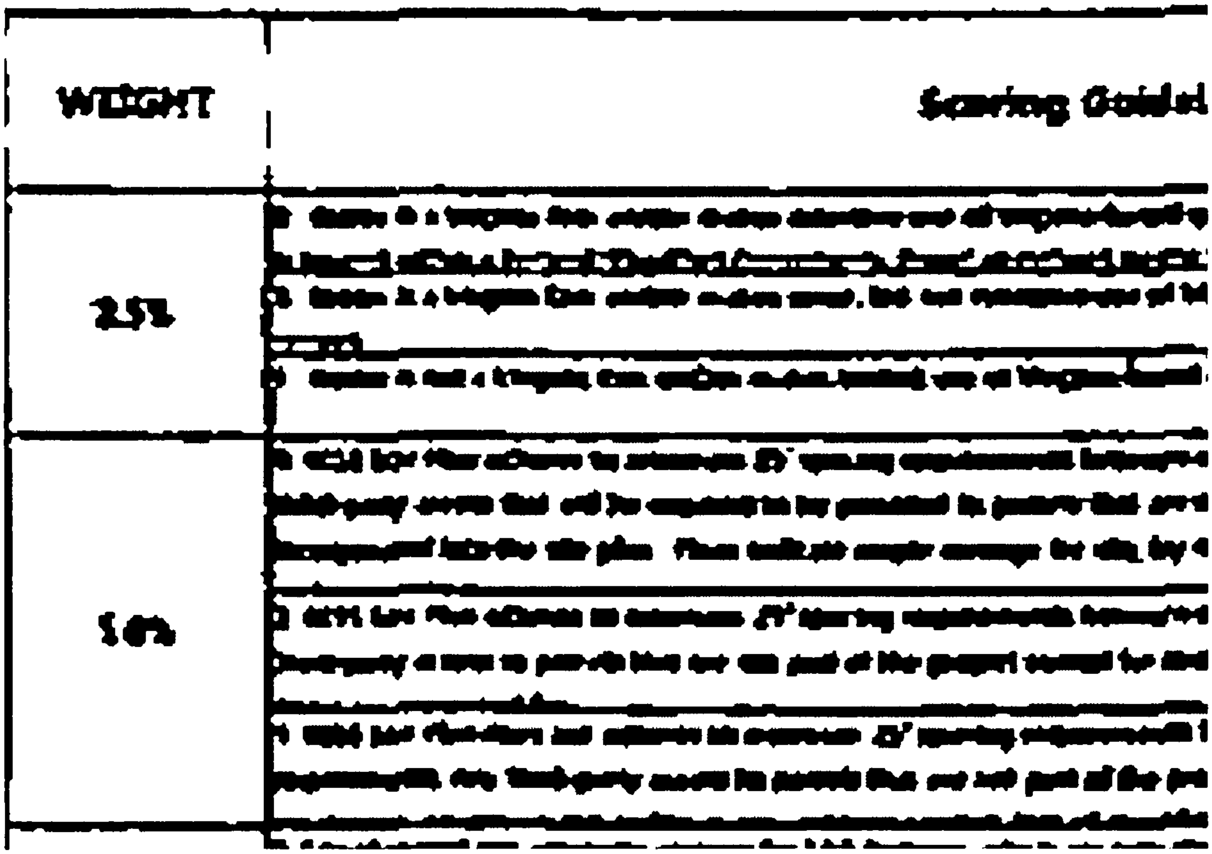

Figure 1 - Illegible Bid Scoring Guideline

Q39. IS IT APPROPRIATE FOR THE COMPANY TO PERFORM ALL OF THE EVALUATION STEPS ITSELF?

A39. No, it is not. The Company conducted multiple screening steps with no oversight, including "an initial review", "preliminary screening", "price and non-price evaluation", and "further diligence." Of these steps, only the price and non-price evaluations were based on publicly

[60] Frost Direct, Extraordinarily Sensitive Schedule 1.

identified criteria, and the scores of the non-price evaluations are necessarily subjective even if the criteria weighting is known. Further, the results of each of these evaluations were kept confidential.

This process is not transparent, and the Company is placing itself in a precarious position to be both judge and jury over the selection process. The Company should not be determining a short-list of projects or conducting non-price evaluations, particularly considering that it may be evaluating its own development assets among the competing bids and given that it has a financial preference for Company-owned projects over PPAs.

Q40. WHAT DO YOU RECOMMEND ON THIS MATTER?

A40. I recommend the Commission require an Independent Evaluator ("IE") to perform more of the evaluation steps for all RPS-related projects (including those sourced through and outside the competitive RFP process) and to prevent the Company from controlling steps that lack clear quantitative guidance for how similar bids should be treated. For instance, it is appropriate for the Company to perform calculations to determine and rank the levelized energy cost of bids as there are clear and specific steps to follow to produce the result. Similarly, the Company is best positioned to know how easy or difficult it will be for a project to interconnect to its transmission system. But the IE should be in control of steps where there is no clearly objective standard to follow and where conflicts of interest could arise. Screening of projects based on non-price factors is one obvious step that should be performed by an independent entity.

In the integrated resource planning process in Michigan, for example, the IE equivalent, called the independent administrator, receives the initial bids, evaluates projects, and produces a "blind shortlist" for the utility to then pursue its due diligence modeling.[61]

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[61] Michigan Public Service Commission, Case No. U-20165 – Order Approving Settlement Agreement, In the Matter of the Application of Consumers Energy Company for Approval of Its Integrated Resource Plan Pursuant to MCL 460.6t and For Other Relief, pg. 117 of 121, (June 7, 2019) and Direct Testimony of Keith G. Troyer. *Case No. U-21090 – In the Matter of the Application of Consumers Energy Company for Approval of an Integrated Resource Plan under MCL 460.6t, certain accounting approvals, and for other relief, pgs. 449-452 of 774 (June 30, 2021).*

This puts the IE in the driver's seat in the qualitative review as opposed to the process here where the Company is in charge. The Commission should direct a strong role for an IE in the overall bid evaluation and non-price factor analysis.

Additionally, for the DG RFP as well as the larger solicitations, I recommend that the Commission play a greater role in providing guidance to Dominion on the selection methodology and ranking process to ensure that the key components such as project maturity, economic benefits, full valuation of energy storage attributes, and ownership diversity of the RPS program as the Commission interprets it are evaluated appropriately. The IE would serve to enforce those evaluation criteria set forward by the Commission in the selection process.

Q41. WAS THIS THE FIRST RFP FOR SMALL SYSTEMS THAT THE COMPANY HAS CONDUCTED?

A41. No. The Company conducted a "community solar" RFP in 2017 and 2019, seeking projects with a 2 MW cap, but it is unclear if those two RFPs yield any projects. Dominion also held a DG PPA RFP in 2019, seeking 50 MW of projects 1 MW or less in size, but according to testimony filed in the 2020 RPS filing no projects advanced enough to put forward in front of the Commission. All told, the Company has only managed to bring on 6.4 MW of "small scale" systems to date,[62] and none are scheduled to come online in 2021, despite the 2019 RFP seeking up to 50 MW of small-scale projects by the end of this year.[63]

In the 2020 RFP filing, Company witness Frost noted that the Company implemented improvements for the 2020 RFP based on challenges faced in the 2019 RFP.[64] Notably, Mr. Frost notes that "[t]he Company has already engaged with the industry on lessons learned from the 2019 Small-Scale Solar RFP and will continue to improve future solicitations. Many improvements were incorporated into the RFP that the Company issued in October

[62] 2021 RPS Plan at 4.
[63] Request for Proposals 2019 Solicitation for Small-Scale (1 Megawatt or Less) Solar Power Supply Generation, Dominion Energy Virginia, June 21, 2019.
[64] REBUTTAL TESTIMONY OF NATHAN J. FROST ON BEHALF OF VIRGINIA ELECTRIC AND POWER COMPANY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA, CASE NO. PUR-2020-00134, at 2.

2020, including suggestions provided by MDV-SEIA in its discussions with the Company." While the latest RFP did result in some selections, only 3.6 MW of Company-owned projects were pursued and more PPAs have fallen out of the process, with only 12 PPAs for 33 MW now being pursued by the Company.[65] There is a clear pattern in these small-system RFPs – for one reason or another, project developers are having a difficult time navigating the RFP process and successfully signing contracts with Dominion.

This is a concern as the VCEA clearly embodies the legislature's and Governor's recognition of the importance of distributed generation. The VCEA requires 1,100 MW of projects 3 MW or less, and further defined the 1% Carve Out to support projects under 1 MW. Additional legislation will support up to 200 MW of community solar projects under 5 MW.[66] The Company's inability to successfully bring more small systems forward needs to be addressed.

Q42. WHAT IS ONE OF THE LARGEST ISSUES WITH DEVELOPING SMALL PROJECTS IN DOMINION'S TERRITORY?

A42. The distribution interconnection process is one of the main stumbling blocks. The current distribution interconnection process and technical standards[67] will not allow for the DG goals of the state to be achieved in an affordable and timely manner. While Dominion currently estimates a 12-month study timeline for developers who are in position A on a transformer, SEIA and CHESSA members have noted anecdotally that in the past few years, it can take more than 16 months to complete a study for a single project. Worse, projects at a given substation under the same transformer are studied sequentially, meaning that the next project seeking interconnection must wait for the lengthy review process to be completed before getting its own evaluation.[68]

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[65] SUPPLEMENTAL DIRECT TESTIMONY OF C. ERIC MCMILLAN ON BEHALF OF VIRGINIA ELECTRIC AND POWER COMPANY BEFORE THE STATE CORPORATION COMMISSION OF VIRGINIA CASE NO. PUR-2021-00146 at 1 ("McMillan Supplemental Direct").

[66] Chapter 1238, 2020 Acts of Assembly (codified at Va. Code § 56-594.3).

[67] See 20VAC5-314-170.

[68] 20VAC5-314-38 (Queue number and interdependent projects).

Even after a project completes this lengthy process, the resulting interconnection cost can be prohibitive. For example, interconnection of distributed generation requires Direct Transfer Trips ("DTT") in most instances, rather than relying on inverter-based solutions to ensure the safety and reliability of the system. The DTT requirement, coupled with aging distribution infrastructure across the Commonwealth, often triggers interconnection cost between $1 million and $3 million, a sizable fraction of the project cost for a system under 3 MW. The costs are often a result of upgrading outdated substation infrastructure. The limited public information that Dominion did provide on the two DG development bids it selected supports this. One project had an interconnection cost of $1.5 million, a 20% adder to the underlying project cost of $6.0 million. The other project had a $1.0 million interconnection cost on top of the project cost of $6.4 million.[69]

Worse, these costs are unknown until Dominion completes its evaluation, creating a major source of risk for developers. Developers must spend substantial funds securing land rights and the cost of a letter of credit for a Dominion Interconnection Study Agreement ("ISA") that is substantially non-refundable.[70] In fact, during recent negotiations for these PPAs, Dominion noted that three PPAs for seven DG solar facilities pulled their bids from consideration, noting development risks including "increased interconnection costs, increased build costs, and permitting risks."[71]

Q43. WHO IS RESPONSIBLE FOR PAYING THESE INTERCONNECTION COSTS?

A43. The developer is responsible for paying these costs. In some locations, the upgrades are needed because Dominion's existing system is outdated and not able to support DG. First-in-line projects that trigger upgrades to outdated substations will face steep interconnection costs, even though the upgrades will often benefit subsequent projects. Simply put, developers cannot carry the cost of updating the distribution system alone, particularly given the multiple benefits that distribution infrastructure upgrades bring to Dominion's customers.

[69] Frost Direct Schedule 5 at 6.
[70] See Dominion Small Generator Interconnection Agreement, "Refundability of Financial Security."
[71] McMillan Supplemental Direct at 2.

In addition to the high potential cost of an interconnection, the timeline from starting a project to being selected by Dominion to getting approval from the Commission is extremely long. Small-scale developers simply cannot wait the 3-5 years that it takes large projects to work through the full developing process. Dominion must recognize the distinction between small projects and large projects and redesign its DG RFP process to reduce timelines and share risk.

Q44. WHAT DO YOU RECOMMEND WITH REGARD TO THIS ISSUE?

A44. There are several steps that the Commission could take to improve this process. First, it could shift from an annual RFP to a rolling procurement (e.g. quarterly awards) of small-system capacity. The Commission could provide guidance to Dominion to target a certain quantity of MWs that is consistent with the VCEA obligations and set reasonable price caps under which projects can be assumed to be reasonable and prudent investments. There would still be competitive pressure on prices as developers may submit more bids than the periodic (e.g. quarterly) capacity allocation, and the IE would still perform a ranking of projects based on price and non-price factors. Rolling procurement cycles, coupled with greater ability for Dominion to execute projects with developers so long as they meet criteria set forth by the Commission, reduces the risk to developers.

Another important step is to revise the current distribution interconnection tariff and technical standards employed by Dominion's interconnection team. Establishing a stakeholder working group would enable the development community and Dominion to find pathways to improve the interconnection process in a way that balances safety and reliability with achieving the legislative priorities of deploying distributed generation in a timely and affordable manner.

The revisions to the interconnection tariff and technical standards should include at minimum, a method for multiple projects to be studied in parallel (beyond the two projects currently allowed in Chapter 314), a mechanism for cost sharing that enables project developers to pay only their pro rata share of the upgrade costs at the substation, a review of

alternative pathways to DTT, and clearer guidelines for refundability of the interconnection upgrade payment in the chance that a ISA is terminated.

Large-Scale Solar and Storage Face Headwinds to Comply with VCEA Requirements

Q45. HOW WOULD YOU RATE DOMINION'S RENEWABLE ENERGY BUILDOUT UNDER THE VCEA?

A45. Virginia had 2,629 MW of solar installed as of Q2 2021.[72] This placed the Commonwealth outside the top 10 list of states, with New York placing number 10 at 2,990 MW. Texas placed number 2 with 11,063 MW, and California was well in front with 32,394 MW.[73]

Compared to these figures, it is obvious that the VCEA target to seek 16,100 MW of new wind and solar by 2035 is an aggressive goal. At the same time, I am optimistic that it can be met with appropriate policy support from Dominion, the Commission, and PJM. Dominion has taken some early steps towards this goal in its 2020 and 2021 RPS Plans, and while there are areas for improvement, CHESSA-SEIA appreciate the efforts that the Company has taken thus far. The Commission likewise has been active in clarifying its interpretation of VCEA and has taken to heart its statutory directive to "liberally interpret" key provisions of the VCEA to help attain the goals.

In order to be able to meet these targets, Virginia must create a development and procurement framework that encourages the participation of a robust and versatile development community. The current procurement landscape places high costs and immense uncertainty on developers that is not conducive to a long-term successful future in the Commonwealth. Improving the RFP and interconnection processes is critical to enabling a robust development industry and maximizing the achievement of the VCEA target.

Q46. ARE THERE RISKS TO REACHING THESE GOALS THAT ARE OUTSIDE OF THE DIRECT CONTROL OF DOMINION AND THE COMMISSION?

[72] Solar State by State, SEIA. Accessed November 11, 2021 at https://www.seia.org/states-map
[73] https://www.seia.org/research-resources/top-10-solar-states-0

A46. Certainly. There exists a clear and present risk that, despite the best intentions of Dominion and the Commission, the VCEA goals are impacted by transmission and interconnection challenges at PJM. PJM has been actively working on several critical issues that will ultimately affect the Commonwealth's ability to meet its renewable energy deployment goals. These include workgroups on how to reform the interconnection process from a sequential to a cluster study methodology,[74] resource adequacy concerns related to intermittent resources,[75] and issues related to cost allocation of new transmission.[76]

CHESSA-SEIA have been actively engaging with PJM and FERC on behalf of the solar industry and in coordination with our active member companies. But as is often the case at PJM, the more diverse and coordinated a stakeholder group is, the more effective they can be in realizing positive outcomes. For instance, the Commission's leadership at the Organization of PJM States, Inc., could help facilitate a region-wide effort to drive market reforms at PJM that better support Virginia's clean energy and environmental goals. I strongly encourage the Commission and Staff to remain engaged in the discussions at PJM and work towards resolutions that will ultimately ease the path towards the VCEA's goals.

Q47. WHAT OTHER ISSUES FACE RENEWABLE GENERATION IN VIRGINIA?

A47. There has been an increase in permitting problems as more renewable generation has been developed. Local opposition has stood in the way of developing some projects and has led to the cancellation of some. Several counties have instituted moratoria for all solar projects, while others have restricted the permitting pathway for smaller projects either through a blanket prohibition below a certain megawatt size or by instituting acreage limits.[77] While there are certainly important considerations in the land-use debate such as local vs. state

[74] See Interconnection Process Reform Task Force at https://www.pjm.com/committees-and-groups/task-forces/iprtf
[75] See Resource Adequacy Senior Task Force at https://www.pjm.com/committees-and-groups/task-forces/rastf
[76] See FERC Docket Docket No. RM21-17-000 at https://www.ferc.gov/media/e-1-rm21-17-000
[77] See, e.g., Andy Brownstein, *More Virginia Counties Are Seeking Solar Moratoriums, But Are They Legal?* Available at https://greenehurlocker.com/more-virginia-counties-are-seeking-solar-moratoriums-but-are-they-legal/?utm_source=rss&utm_medium=rss&utm_campaign=more-virginia-counties-are-seeking-solar-moratoriums-but-are-they-legal

control and solar development on farmland, it will be difficult at best to reach the VCEA's solar targets if otherwise viable and cost-effective projects are held up unnecessarily.

Q48. IS THERE A TOOL THAT CAN HELP NAVIGATE SOME OF THESE CHALLENGES?

A48. Yes. The use of a siting agreement has been a helpful way to provide benefits to local communities that host a solar project. These agreements were enabled by HB 1675 in the 2020 General Assembly and allow local county governments and projects to negotiate voluntary payments for local infrastructure needs. The voluntary payment costs can be absorbed into the total cost of the project, and as long as the negotiated fee is not exorbitant nor terms overly onerous, provide tangible benefits to local communities in the form of economic development and environmental justice issues. Examples of this include funding for high-speed internet infrastructure in parts of the Commonwealth that currently do not have high speed internet access and voluntary payments to support capital funding needs at local schools in rural localities.

That said, the use of siting agreements has a potential downside if localities begin to see them as an opportunity to extract unduly burdensome rents from solar development projects. Solar project developers are always seeking to balance the economic viability of project with steps they can take to find win-wins with the local communities where they are proposed. The Commission should be aware that these costs are reflected in the overall cost of the projects that will support the VCEA targets, but that they should reflect additional economic benefits at the local level that are outlined by the VCEA as a key consideration when approving projects.

Dominion-Sourced Projects Must be Held to the Same Evaluation Criteria as RFP-Sourced Projects

Q49. PLEASE DESCRIBE THE COMPANY'S RFP PROCESS FOR LARGE-SCALE PROJECTS.

A49. The Company announced its large-scale 2020 Solar-Wind-Storage RFP ("SWS RFP") in May 2020.[78] This RFP sought bids for development and PPA projects located in the

[78] McMillan Direct at 4.

Commonwealth that could be online no later than 2023. The Company sought up to 1,000 MW of on-shore wind and solar capacity from projects at least 5 MW in size as well as up to 250 MW of storage capacity. The RFP was for a fully bundled product, with projects required to bid in energy, capacity, ancillary services, environmental attributes, and storage dispatch rights.[79]

Q50. WHAT WAS THE RESPONSE TO THE SWS RFP?

A50. The Company received 73 proposals (26 development and 47 PPA) for 63 separate projects totaling approximately 4,588 MW of solar and storage capacity and 176 MW of onshore wind capacity. 41 of these projects included storage, with 29 stand-alone storage projects and 12 hybrid solar plus storage proposals.[80] Given the target size of the SWS RFP, the response to the solicitation appears to have been robust.

Q51. HOW DID THE COMPANY EVALUATE THESE PROJECTS?

A51. It used a similar bid evaluation approach to the SWS RFP as it did in the DG RFP process described above. The Company reviewed bids for completeness and conformance before conducting a "preliminary screening" to develop a shortlist for further evaluation. This preliminary screening process was quite severe, with only 10 of the 16 solar-only PPAs and 3 of the 31 proposals with storage advancing to the price and non-price factor evaluation phase. Two of the ten large-scale PPAs that advanced through the price and non-price evaluation had to withdraw their bids after receiving unexpectedly high interconnection cost estimates.[81]

Ultimately, the Company identified six development proposals and eleven PPA proposals that, in its view, "provid[ed] the best value to customers."[82] Two more PPA projects dropped out of consideration, leaving the company to pursue the six development proposals and nine PPAs. The PPAs included six solar-only PPAs for 185 MW, one stand-

[79] McMillan Direct at 5.
[80] McMillan Direct at 6. These figures differ slightly from those presented by witness Avram.
[81] McMillan Direct at 7.
[82] McMillan Direct at 8.

alone storage project for 20 MW, and two hybrid solar plus storage projects with 26 MW of solar and 13 MW of storage.[83]

The six development projects that went through the RFP process were paired with seven "Company-sourced" projects that were pursued and developed outside the competitive procurement process.[84] Ultimately, these 13 projects – eleven solar totaling 561 MW, one standalone storage totaling 20 MW, and one hybrid consisting of 100 MW solar and 50 MW storage – were selected by the Company and submitted for approval in this docket.[85]

Q52. ARE THERE ANY RED FLAGS IN THIS PROCESS?

A52. Yes, there are several. The first relates to the lack of any IE in evaluating the SWS RFP bids. I have discussed this issue in the context of the DG RFP above, and the reasoning applies equally to the large-scale bids. In fact, the IE may be more important in the large-scale RFP process given that the scale of the dollars committed is much larger than in the DG RFP. There is simply no justification for allowing Dominion to fully control this process.

The second major issue relates to the "Company-sourced" projects. Despite going through a full RFP process to solicit competitive bids, it appears that the Company bypassed this process entirely for 7 of the 13 development bids for which it is seeking approval. Dominion should not be allowed to act unilaterally outside the RFP process, which is designed to protect its ratepayers and bring competitive market pressure to costs. This action is particularly concerning considering the Company itself evaluates the RFP bids in a black-box manner. Although Dominion states that "all projects – whether from RFPs or Company-sourced – are then evaluated on equal footing,"[86] absent robust rules and guidance from the Commission carried out by an Independent Evaluator, there is no way for the Commission to validate this claim.

[83] McMillan Direct at 9.
[84] Avram Direct at 15.
[85] Avram Direct at 12.
[86] Avram Direct at 14.

Third, I was unable to reconcile the project information presented by two Company witnesses. Mr. Avram presented a table summarizing the CE-2 development projects that contained the 13 projects he discussed.[87] Mr. McMillan presented a different table that contained some but not all of the projects from Mr. Avram's list.[88] The projects and sources are presented below in Table 1. Projects that were Company-sourced as listed as "CS" in the Origin column, while those that came through the SWS RFP are marked as "RFP"

Project Size	Location	Origin	Avram	McMillan
Camellia	Gloucester	CS	20	
Fountain Creek	Greensville	CS	80	80
Otter Creek	Mecklenburg	CS	60	60
Piney Creek	Halifax	CS	80	80
Quillwort	Powhatan	RFP	18	
Sebera	Prince George	RFP	18	
Solidago	Isle of Wight	RFP	20	
Sweet Sue	King William	CS	75	75
Walnut	King & Queen	RFP	150	
Winterberry	Gloucester	CS	20	
Winterpock	Chesterfield	RFP	20	
Dulles	Loudoun	CS	100	100
Dulles Storage	Loudoun	CS	50	50
Dry Bridge	Chesterfield		20	
Blue Ridge	Pittsylvania			147
Courthouse	Charlotte			167
Windsor	Isle of Wight			85
Total			**731**	**844**

Table 1 - Development Project List

There may be an innocuous reason for this discrepancy; for instance, one of the redacted McMillan filings indicates that a "project has been re-named Quillwort", which matches the description in the Avram table. However, this cannot explain the total capacity difference between these two lists, as there is not a way to combine smaller projects from Mr. Avram's list to obtain the three projects only found on McMillan's list, even if they were not located in different counties. The Company has filed supplemental packages discussing the

[87] Avram Direct at 12, Avram Schedules 2-14.
[88] McMillan Direct Extraordinarily Sensitive Schedule 1 at 26 (Public Version with Extraordinarily Sensitive Information redacted).

13 projects on Mr. Avram's list, but I was unable to find corresponding documentation for the three projects (Blue Ridge, Courthouse, and Windsor) in Mr. McMillan's list that the Company appears to be requesting prudency review from the Commission.

Q53. WHAT DO YOU RECOMMEND THE COMMISSION DO REGARDING THE FIRST POINT ON THE LACK OF AN IE IN THE SWS RFP?

A53. My recommendations for the Commission to establish a robust role for an IE apply equally – if not more so – to the SWS RFP process as to the DG RFP process. Because Dominion files so much of its RPS Plan under confidentiality seal, the public is deprived an opportunity to rigorously scrutinize its assumptions and methodologies. While it is appropriate to maintain some confidential information in cases such as these, the public will rest easier knowing that it had an independent entity directing much of the currently-opaque RFP evaluation.

Further, it is unclear whether Dominion is holding itself accountable to the same project maturity requirements as it does for RFP projects. The RFP was announced on May 1, 2020, with development proposals due September 1, 2020, and PPA proposals due March 1, 2021.[89] Dominion was not even aware of its Company-sourced Camellia Solar project until March 1, 2021, six full months after development proposals were due.[90] It "formalized its intent" to pursue a transaction with Fountain Creek Solar in July 2020 and with Piney Creek Solar in June 2020, before RFP development bids were even submitted.[91]

Q54. WHAT DO YOU RECOMMEND THE COMMISSION DO REGARDING THE THIRD POINT ON THE APPARENT DISCREPANCY BETWEEN WITNESSES AVRAM AND MCMILLAN'S PROJECT LIST?

A54. I recommend the Commission request clarification of the discrepancy between the development proposals listed by witnesses McMillan and Avram. The three proposals in Mr. McMillan's list not on Mr. Avram's list represent 400 MW of capacity and nearly $1 billion in total costs, while those on Mr. Avram's list but not on Mr. McMillian's comprise nearly

[89] McMillan Direct at 6.
[90] Avram Schedule 2 at 1.
[91] Avram Schedule 3 at 1, Avram Schedule 5 at 1.

300 MW of projects worth hundreds of millions of dollars.[92] If the Company is seeking approval of these projects, it must provide additional information that it did for the projects in Mr. Avram's list. If, on the other hand, Mr. McMillian's list is simply out of date and these three projects fell out of consideration, the Company should make that clear.

Q55. WHAT DO YOU RECOMMEND ON THE SECOND POINT REGARDING COMPANY-SOURCED PROJECTS?

A55. The Company should not be authorized to sidestep the competitive RFP process, and the Virginia law issues clear guidance on this point discussing projects constructed or purchased prior to January 1, 2024:

> All of the solar generation capacity located in the Commonwealth and found to be in the public interest pursuant to subsection A or B shall be subject to competitive procurement, provided that a public utility may select solar generation capacity without regard to whether such selection satisfies price criteria if the selection of the solar generating capacity materially advances non-price criteria, including favoring geographic distribution of generating capacity, areas of higher employment, or regional economic development, if such non-price solar generating capacity selected does not exceed 25 percent of the utility's solar generating capacity.[93]

While I am not an attorney and not offering a legal opinion, the projects that Dominion is seeking approval for are targeted for in-service dates during 2023, and as such appear to fall under a straightforward reading of the above statutory language.[94] The language allowing Dominion to select projects that "materially advance[] non-price criteria" is applicable to more expensive projects from the competitive solicitation, but does not appear to allow Dominion to advance projects outside the RFP process. Even if it did, Dominion offered no testimony that its Company-sourced projects were designed solely to target non-price factors because they did not pass the price criteria screening. Rather, it claims that these projects were "evaluated on equal footing" with RFP projects.[95]

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[92] McMillan Direct Extraordinarily Sensitive Schedule 1 at 26 (Public Version with Extraordinarily Sensitive Information redacted).
[93] § 56-585.1:4 D.
[94] Avram Direct at 14.
[95] Avram Direct at 14.

Q56. WHY IS IT INAPPROPRIATE FOR DOMINION TO BRING FORWARD PROJECTS FOR APPROVAL THAT WERE NOT SUBJECT TO ANY OF THE OVERSIGHTS OF THE COMPETITIVE PROCUREMENT PROCESS IN FUTURE FILINGS?

A56. Dominion is a regulated monopoly. Its purpose is to provide safe and reliable service at reasonable costs. In exchange for monopoly control over its ratepayers, Dominion must avoid taking actions that would allow it to leverage its monopoly power in competitive markets. One such area is the development of solar and storage projects.

There is a vibrant competitive industry for developing, building, and operating solar and storage projects. Dominion noted that provided direct notice of its 2020 SWS RFP to 451 "known potential bidders."[96] These developers are in the business of taking reasonable risks to advance projects from conception to completion. They have staff who have developed expertise and relationship with vendors, financial partners, and local governments. It is wholly appropriate to allow these parties to operate in a competitive landscape and work to bring the best price and product to Dominion's customers.

Dominion should not be allowed to play in this space without facing the same level of scrutiny that third-party developers face in the RFP process. While it is authorized to own projects, it should be required to submit all non-RFP-sourced projects to the IE for a side-by-side evaluation with RFP-sourced projects. This avoids potential issues related to the exercise of market power. For instance, there is anecdotal evidence that local governments are confused about the role that Dominion plays in solar development. In some cases, Dominion simply connects the system to its grid, while neither owning nor operating the project. In others, Dominion purchases an active project that may have already gotten local permitting approvals. In yet others, Dominion may negotiate directly with a local government for projects it seeks to self-build.

[96] McMillan Direct at 4.

Confusion among the parties is understandable. When is Dominion acting as a regulated monopoly? When is it playing in a competitive market? When is it obscuring the difference? A local government may consider Dominion-sourced projects to be more likely to be built since the Company presumably knows more about its grid and the right spots to connect to it than independent developers. This puts competitive developers at an unfair disadvantage to Dominion if the Company's projects are not subject to IE scrutiny

Q57. ARE THERE OTHER MISALIGNED INCENTIVES RELATED TO COMPANY-SOURCED PROJECTS?

A57. Yes. Dominion only gets to recover costs of projects that the Commission deems reasonable and prudent. Until this occurs, development costs are at risk. For instance, if the Commission determines in the future that a self-developed Dominion project is not reasonable, all of the development funds that Dominion had spent would be forfeited. These non-recoverable costs would be "billed" to Dominion's shareholders. However, if the project is approved, these development costs will simply roll into its rate base and allow for the return on and return of its capital funded by the Company's ratepayers.

By contrast, for projects that come through the RFP process, the development risk is primarily on the developer. If the project is not approved by the Commission, Dominion can simply walk away with minimal downside as it would have only paid a portion of the development fee to the project developer. So while the Company would surely be disappointed if a RFP-sourced development project is rejected by the Commission (since it would lose the opportunity to earn a return on and of capital on the project), it would not be forced to bill its shareholders for all of the lost development funds. Clearly, the Company is not financially agnostic between the approval of its Company-sourced projects and the approval of RFP-based projects. The former presents a greater risk than the latter, and the Company will have greater financial incentives to secure approval of Company-sourced projects than for RFP-based projects.

Q58. WHAT DO YOU RECOMMEND WITH REGARD TO THESE ISSUES?

A58. CHESSA-SEIA support Dominion's effort to self-develop projects, but a monopoly should not be allowed to participate unchecked in a competitive industry as the risk of market power abuse – in subtle forms such as sowing confusion among localities as to the role of Dominion to more pernicious actions such as leveraging asymmetric information about likely grid interconnection costs – is too great. A straightforward solution to this issue is to require that any projects that are brought to the Commission for cost recovery must go through the same stringent IE review process that third-party developed projects go through in the RFP. Virginia law appears to require this competitiveness review for projects coming online before 2024, and I recommend the Commission use its ability to "liberally construe" the VCEA provisions to extend this through the full 2035 timeline.

Dominion should be required to advance any of its own projects through the same RFP timeline subject to the same IE oversight. Dominion should submit its Company-sourced project documents at the same time as RFP documents are due. Its Company-sourced projects should be scrutinized by the IE on the same price and non-price factors as RFP projects are. Its Company-sourced projects should be cut from the shortlist based on same evaluation criteria that are applied to RFP projects. As long as there is a robust IE that is performing the bid evaluation under specific guidance from the Commission, the risk of Dominion exercising market power by advancing Company-developed projects can be minimized.

The Company's Large-Scale RFP Process Can be Improved

Q59. DID THE COMPANY PROVIDE ANY GUIDANCE ON HOW IT MEASURES THE RELATIVE BENEFIT OF STANDALONE SOLAR, STANDALONE STORAGE, OR HYBRID SOLAR PLUS STORAGE PROJECTS?

A59. No, it did not. The Company's discussion of the RFP process was focused on each grouping of projects, but it did not provide any specific guidance as to whether it preferred one type over the other. For instance, all projects appeared to have been sorted by type and then put

through a similar evaluation process. There was no discussion of the relative merit of hybrid projects compared to standalone projects, although the Company did discuss the Dulles hybrid project in more detail to highlight some of the unique attributes of that project.[97]

Q60. DO YOU SUSPECT THERE IS A REASON FOR THIS?

A60. I suspect it may be related to the aggressive top-line capacity targets that the VCEA sets out. Dominion is tasked with developing 16,100 MW of solar or onshore wind, 2,700 MW of storage, and up to 5,200 MW of offshore wind in the next 13 years. Those are massive numbers that will transform the Company's system and operations. Early in the process, the Company may simply be seeking projects that will help it reach its early interim goals.

Q61. ARE THERE BENEFITS TO PROVIDING MORE INFORMATION REGARDING THE TYPES OF PROJECTS THE COMPANY WOULD IDEALLY PROCURE INDEPENDENT OF THE TOP-LINE CAPACITY FIGURES?

A61. Yes. While Dominion must aggressively build all types of projects, it would be helpful to developers if the Company provided more information on project attributes that it is seeking. For instance, if Dominion would benefit from projects that can provide energy and capacity into the evening, developers may respond by proposing more hybrid solar and storage projects as opposed to standalone solar projects. Likewise, Dominion references the potential for storage to provide additional services such as frequency regulation and operating reserves, but it is unclear how these capabilities are scored in the RFP evaluation.[98]

Virginia is also a relatively large state with different load pockets and transmission constraints. There may be benefits from locating projects closer to load centers or siting solar further west where the sun remains up after it has set in the east. None of this information is surfaced in the Company's procurement documents.

Q62. WHAT WAS THE PRIMARY QUANTITATIVE SCREENING THAT DOMINION PERFORMED?

[97] Avram Direct at 20.
[98] Avram Direct at 26.

A62. The primary quantitative screening was based on a simple cost ranking. The Company rank-ordered bids based on a flat price for solar and an escalating price for storage. There was no consideration for location, transmission congestion relief, or the potential for future energy services.

Q63. WHAT DO YOU RECOMMEND WITH REGARD TO THIS ISSUE?

A63. I recommend that the Company seek to provide additional information that could allow projects to differentiate on more than just project maturity. The Company may benefit from more hybrid projects to meet growing demand needs and help shift solar power from midday to evening hours. It may avoid transmission upgrades by siting generation in certain areas of its territory. It may want to increase the flexibility of its generation fleet to respond to higher net-load ramps in the future. These attributes can be addressed by the solar and storage industry, but only if developers are informed of their importance.

The response to the latest RFP demonstrates sizable interest in renewable generation in the Commonwealth, with bids exceeding the requested capacity by nearly a 4:1 margin.[99] Although the Company did not pursue all of these projects, it will benefit Dominion's customers to target procurement towards those projects that can add the most value.

Q64. HOW DOES DOMINION PROCURE COMPANY-OWNED PROJECTS THROUGH THE RFP?

A64. Dominion presents developers three options for asset ownership: a PPA, an asset purchase agreement ("APA") at the Notice to Proceed date ("development proposal"), and an APA at Mechanical Completion ("MC proposal") for projects that do not include storage.[100] Most of the non-PPA projects were completed through a development proposal where the Company would be responsible for constructing the facility.

Q65. ARE THE PROJECTS THAT DOMINION HAS PROPOSED FOR APPROVAL IN THIS DOCKET COMPLETE AND ONLINE?

[99] McMillan Direct at 6.

[100] McMillan Direct Extraordinarily Sensitive Schedule 1 at 3 (Public Version with Extraordinarily Sensitive Information redacted).

A65. No. The projects are still in the development process and are not expected to be online until 2023.

Q66. WHO BEARS THE RISK OF UNEXPECTED CHANGES BETWEEN NOW AND THE COMMERCIAL OPERATION DATE OF A PROJECT?

A66. It depends on the ownership structure. For projects procured through a PPA, the PPA contract dictates the terms of payment and performance expectations. If projects become more expensive, or weather delays construction, the risk is on the PPA holder.

For development proposals, the Company will work with an independent developer before purchasing the assets, at which point it will hire an engineering, procurement, construction ("EPC") contractor who is responsible for building the projects on time and on budget. The original developer faces risk prior to finalizing the purchase deal with Dominion, and the contract between Dominion and the EPC contractor will contain the terms and conditions that dictate which party faces which risks as the projects is built

Q67. BASED ON YOUR UNDERSTANDING OF THESE CONTRACTS, HOW ARE THE RISKS ALLOCATED BETWEEN DOMINION, THE DEVELOPER, AND THE EPC CONTRACTOR?

A67. My understanding is that the contract risk is heavily tilted towards the developer and EPC contractor. The Company provides a lengthy checklist of documents that must be filed as part of the RFP process, some of which require substantial funding and time to attain (e.g., interconnection studies and local permitting).[101] Dominion as a buyer places tight restrictions on the total build costs despite the natural uncertainty surrounding the development cycle of solar and storage projects. Some of these restrictions, such as limitations of change orders related to force majeure as well as representations and warranties beyond the scope of the control of the firm, are inconsistent with general industry practices. There are also no publicly available template contracts that the Commission and interested parties can review for consistency with industry norms.

[101] Dominion 2021 RFP APA Checklist. Available at https://cdn-dominionenergy-prd-001.azureedge.net/-/media/pdfs/global/renewable-projects/rfp/2021-ce3-rfp-checklist-apa.xlsx?la=en&rev=eaa8fbb9e4034e0cb15dd4d9a8561f0b&hash=84583D690976F706223CE9CB74988176

Q68. WHAT IS A POTENTIAL RESULT OF THIS OVERLY-STRICT CONTRACT APPROACH?

A68. When Dominion shifts the majority of risk onto the developer or EPC firm, it is only reasonable for that developer or EPC firm to increase their bid price in response to the added risk. If there were more balanced risk sharing between the developer, EPC contractor, and Dominion, the Company might benefit from lower costs.

In its RPS Plan, Mr. Avram provides an update on several CE-1 projects currently under construction. He filed a document "providing an explanation for any cost categories that exhibit a greater than 5% variance from the budget for the CE-1 Solar Projects as presented in Case No. PUR-2020-00134 where the Commission approved these projects, consistent with past practice." [102] That the Company does not need to report cost variances under this 5% threshold suggests Dominion has some flexibility to absorb small cost changes. If it were to loosen some of the more restrictive EPC contract terms, it should benefit from lower bids on most projects while still being able to control costs in line with its Commission-approved figures.

Conclusion and Recommendations

Q69. PLEASE SUMMARIZE YOUR TESTIMONY

A69. Dominion, independent developers, and the Commission are in the early stages of VCEA compliance and are grappling with reasonable challenges as each acts to advance renewable energy in the Commonwealth. Dominion's efforts in its 2021 RPS Plan should be commended as a good initial step, and I recommend the Commission approve its proposed projects as reasonable and prudent.

That said, improvements are needed going forward to ensure efficient, accountable, and cost-effective VCEA implementation. One of the most foundational steps is to establish a clear, simple, and efficient REC registration process. Fortunately, PJM-GATS already exists and the Commission should leverage that platform's experience and maturity. Once

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[102] Avram Direct at 11.

registered, small projects should be able to easily record their generation to mint RECs used for compliance with the RPS. This step alone should open up substantial supply of RECs from smaller systems that can meet the 1% Carve Out and unbundled DG projects.

The Commission should consider modifications to its Distributed Solar procurement process. The current process, which borrows from the Company's large-scale RFP, is too onerous for developers. In addition to removing barriers to the RFP process, the Company should be required to offer fixed-price REC contracts when it becomes clear that it will face shortfall penalties.

Meeting the VCEA's targets is already a daunting task, and it is likely that interconnection hurdles and land use debates will get more challenging in the future. The Commission should pay heed to proceedings at PJM, FERC, and localities that impact these important issues, and where feasible, weigh in with support for proposals that accelerate development timelines and reduce costs.

Dominion should be allowed to bring forward projects through multiplate pathways, but it is critical that it not be able to unfairly advantage its own Company-sourced projects. The Commission should establish a robust IE process that takes control of the RFP and non-RFP project evaluation process and seek to increase transparency where possible.

Q70. PLEASE SUMMARIZE YOUR SPECIFIC RECOMMENDATIONS.

A70. I recommend the following action items:

- The Commission should approve Dominion's CE-2 projects.
- The Commission should reject Dominion's proposed reporting metrics and instead require the Company to work through a stakeholder process to improve its REC reporting metrics and template documents by May 2022.
- The Commission should use PJM-GATS for RPS compliance purposes and develop a streamlined process to register existing and new projects.
    - Separate production meters should not be required. Instead, the Commission should approve a PJM-GATS generation recording calculation methodology through which small rooftop systems under a certain size (such as 10 kW_{AC}) use production estimates, medium projects (e.g. between 10 kW_{AC} and 100 kW_{AC}) use inverter metering readings, and large projects (e.g. over 100 kW_{AC}) use inverter metering readings from ANSI C-12 compliant inverters.

- If the Company is projecting a shortfall in its 1% Carve Out, it should issue a fixed-price offer to purchase unbundled RECs before paying the $75/MWh shortfall payment.
- The Company should improve and simplify the Distributed Generation RFP process, moving to a rolling procurement process that targets a specified capacity level with a price cap that is determined by the Commission to be reasonable and prudent. It should also increase its communications efforts and develop a "likely bidder" contact list.
- The Commission should ensure that all filings are submitted as digital versions that are fully legible and that documents are not printed and rescanned.
- The Commission should require an Independent Evaluator to oversee the procurement process for projects that are used to meet the Company's RPS requirements.
    - The Commission should provide input on the bid evaluation parameters.
    - The Company's role should be limited to activities that can be defined through a clear quantitative step (such as calculating levelized PPA prices) or require internal expertise (such as interconnection cost estimates)
    - All Company-sourced bids must move through the same evaluation process on the same timeline as RFP-source bids
    - The Company should provide additional clarity on project attributes that it is seeking in the RFP process.
- The Commission should actively engage in PJM and FERC proceedings that directly impact the ability of Dominion to meet its VCEA targets.
- The Company should clarify the status of the three projects that are on Mr. McMillian's project development list but are not on Mr. Avram's list.
- The Commission should direct Dominion to rebalance the relative risk between developers, EPC contractors, and the Company and create publicly-available template contracts for future Commission review.

Q71. DOES THIS CONCLUDE YOUR TESTIMONY?

A71. Yes, it does.

Kevin M. Lucas

Solar Energy Industries Association

Mr. Lucas is Senior Director of Utility Policy and Regulation for the Solar Energy Industries Association (SEIA). SEIA is the national trade association for the U.S. solar industry. SEIA is leading the transformation to a clean energy economy, creating the framework for solar to achieve 30% of U.S. electricity generation by 2030. SEIA works with its 1,000 member companies and other strategic partners to fight for policies that create jobs in every community and shape fair market rules that promote competition and the growth of reliable, low-cost solar power.

Since 2010, Mr. Lucas has worked in the energy and environment industry focusing on renewable energy, energy efficiency, and greenhouse gas reduction. In his role at SEIA, Mr. Lucas develops expert witness testimony for rate cases, integrated resource plans, and other regulatory proceedings. He has also been actively involved in the ongoing New York Reforming the Energy Vision docket, focusing on distributed energy resource valuation and rate design. Prior to joining SEIA, Mr. Lucas worked for the Alliance to Save Energy, a Washington DC-based nonprofit focused on reducing energy use in the built environment. Before the Alliance, he worked for the Maryland Energy Administration, the state energy office, on numerous legislative and regulatory issues and developed and presented testimony before the Maryland General Assembly and the Maryland Public Service Commission.

Prior to entering the energy and environment field, Mr. Lucas was a manager at Accenture, a leading consulting firm. Mr. Lucas implemented enterprise resource planning software for Fortune 500 companies in industries such as consumer electronics, oil and gas, and manufacturing.

Areas of Expertise

- Renewable Energy Policy Analysis: extensive experience analyzing renewable energy policy issues and communicating results to both expert and general audiences.
- Energy Efficiency Policy Analysis: detailed understanding of energy efficiency policies, including the development of potential studies and utility efficiency program design and implementation.
- Quantitative Analysis: deep expertise in quantitative analysis across a broad range of topics including analyzing financial and operational data sets, constructing models to explore electricity industry data, and incorporating original analysis into expert witness testimony.
- Energy Markets: studies interaction of renewable energy and energy efficiency policies with wholesale market operation and price impacts.
- Legislative Analysis: reviews legislation related to energy issues to discern potential impacts on markets, utilities, and customers.

Education

Mr. Lucas holds a Masters of Business Administration from the University of North Carolina, Kenan-Flagler Business School (2009) and a Bachelor of Science in Engineering, Mechanical Engineering from Princeton University (1998).

Academic Honors

- Beta Gamma Sigma Honor Society
- Paul Fulton Fellowship, Kenan-Flagler Business School
- Graduated *cum laude* from Princeton University

EXPERT WITNESS TESTIMONY

Arizona Corporation Commission

- Docket No. E-01345A-19-0236 - *In the Matter of the Application of Arizona Public Service Company for a Hearing to Determine the Fair Value of the Utility Property of the Company for Ratemaking Purposes, to Fix a Just and Reasonable Rate of Return Thereon, to Approve Rate Schedules Designed to Develop Such Return.*
    - Analyzing and modifying APS's class cost of service study, arguing for changes to time of use rate design, proposing new rate designs for solar plus storage installations, proposing improvements to non-residential rate designs, advocating for a "bring your own device" program.

Public Utilities Commission of the State of Colorado

- Proceeding 17A-0797E – *Public Service Company - Accelerated Depreciation - AD/RR*
    - Advocating for appropriate structure to utilize renewable energy funds to support the early retirement of coal facilities and to continue to support distributed resources
- Proceeding 19A-0369E – *In the Matter of The Application of Public Service Company of Colorado For Approval of Its 2020-2021 Renewable Energy Compliance Plan*
    - Advocating for changes to better support solar and solar plus storage installations
- Proceeding 19AL-0687E - *In the Matter of Advice No. 1814-Electric of Public Service Company of Colorado to Revise its Colorado P.U.C. No. 8 – Electric Tariff to Reflect a Modified Schedule RE-TOU and Related Tariff Changes to be Effective on Thirty-Days' Notice*
    - Designed and advocated for new data-based default time of use rate
- Proceeding No. 21A-0141E – *In the Matter of the Application of Public Service Company of Colorado for Approval of its 2021 Electric Resource Plan and Clean Energy Plan.*
    - Argued for changes to proposed resource plan to more accurately reflect capabilities of solar and storage, to updated template contracts, and improve procurement process

Maryland Public Service Commission

- Case 9153, 9154, 9155, 9156, 9157, 9362 - *In the Matter of Maryland Utility Efficiency, Conservation And Demand Response Programs Pursuant To The Empower Maryland Energy Efficiency Act Of 2008*
    - Multiple filings regarding the design and implementation of Maryland's energy efficiency portfolio standard
- Case 9271 - *In re the Merger of Exelon Corp. & Constellation Energy Grp., Inc.*
    - Analysis of renewable energy commitments in merger proposal
- Case 9311 - *In re the Application of Potomac Elec. Power Co. for an Increase in its Retail Rates for the Distrib. of Elec. Energy*
    - Supporting the implementation of a limited cost tracker to accelerate reliability investments after 2012 Derecho

Maryland Public Service Commission (cont.)

- Case 9326 - *In re the Application of Balt. Gas & Elec. Co. for Adjustments to its Elec. & Gas Base Rates.*
  - Supporting the implementation of a limited cost tracker to accelerate reliability investments after 2012 Derecho
- Case 9361 - *In re the Matter of the Merger of Exelon Corporation and Pepco Holdings, Inc.*
  - Policy analysis of merger proposal

Michigan Public Service Commission

- Case U-18419 – *In the matter of the application of DTE ELECTRIC COMPANY for approval of Certificates of Necessity pursuant to MCL 460.6s, as amended, in connection with the addition of a natural gas combined cycle generating facility to its generation fleet and for related accounting and ratemaking authorizations.*
  - Arguing against DTE Electric's proposal to construct a new natural gas combined cycle generating facility and instead meet its future capacity and energy needs with a distributed portfolio of solar, wind, energy efficiency, and demand response.
- Case U-20162 – *In the matter of the Application of DTE Electric Company for authority to increase its rates, amend its rate schedules and rules governing the distribution and supply of electric energy, and for miscellaneous accounting authority*
  - Arguing against DTE Electric's proposal for a net energy metering successor tariff that improperly undervalued the contribution of distributed solar.
- Case U-20165 - *In the matter of the application of Consumers Energy Company for approval of its integrated resource plan pursuant to MCL 460.6t and for other relief.*
  - Discussing Consumers Energy Company's integrated resource plan, arguing for advancing the deployment of solar to meet its capacity requirements, arguing against Consumers' proposed financial compensation mechanism for third-party PPA contracts, supporting a robust PURPA market, and supporting transparent and equitable competitive procurement guidelines.
- Case U-20471 - *In the matter of the Application of DTE Electric Company for approval of its integrated resource plan pursuant to MCL 460.6t, and for other relief.*
  - Evaluating DTE's integrated resource plan, arguing for the Company to modify its modeling assumptions for solar, analyzing the operation and reliability of DTE's aging peaker fleet, demonstrating that solar and solar plus storage could replace some of DTE's peakers, advocating for robust competition and third-party access to new resources.

Public Utility Commission of Nevada

- Docket Nos. 17-06003 & 17-06004 Phase III – Rate Design – *Application of Nevada Power Company d/b/a NV Energy for authority to adjust its annual revenue requirement for general rates charged to all classes of electric customers and for relief properly related thereto.*
  - Arguing against Nevada Power Company's proposal to increase fixed customer charge

KEVIN M. LUCAS

SOLAR ENERGY INDUSTRIES ASSOCIATION

North Carolina Utility Commission

- Docket E-100 Sub 165 – *2020 Integrated Resource Plans*
    - Advocating for modifications to Duke Energy's IRP, including assumptions on capital and O&M costs, operational assumptions, and natural gas forecast methodology

Public Service Commission of South Carolina

- Docket Nos. 2019-224-E and 2019-225-E – *South Carolina Energy Freedom Act (House Bill 3659) Proceeding Related to S.C. Code Ann. Section 58-37-40 and Integrated Resource Plans for Duke Energy Carolinas, LLC and Duke Energy Progress, LLC*
    - Advocating for modifications to Duke Energy's IRP, including assumptions on capital and O&M costs, operational assumptions, and natural gas forecast methodology

Public Utility Commission of Texas

- Docket 46831 – *Application of El Paso Electric Company to change rates*
    - Critiquing El Paso Electric's proposal to implement a three-part rate for residential and small commercial net metered customers