

**COMMONWEALTH OF VIRGINIA**  
**STATE CORPORATION COMMISSION**

**PREFILED STAFF TESTIMONY**

**VIRGINIA ELECTRIC AND POWER COMPANY**

**For approval and certification of the Coastal Virginia  
Offshore Wind Commercial Project and Rider Offshore  
Wind, pursuant to § 56-585.1:11, § 56-46.1, § 56-265.1 *et*  
*seq.*, and § 56-585.1 A 6 of the Code of Virginia**

*Public Version*

**Volume IV of IV**

**PUR-2021-00142**

**April 8, 2022**

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PUR-2021-00142

- 1 My testimony includes the following findings and recommendations:
- 2 1. Staff was not able to verify the Company's estimates of the economic development  
3 benefits of the proposed Coastal Virginia Off-Shore Wind ("CVOW") Project.
- 4 2. The Company's economic development plan does not include the ratepayer costs of  
5 the proposed CVOW Project.
- 6 3. The economic development costs for Dominion's service territory related to the first  
7 five rate-years of the proposed Rider Off Shore Wind could be approximately 1,100  
8 lost jobs, an annual loss of \$78.7 million in pay and benefits, an annual loss of  
9 \$197.7 in economic output, and an annual loss of \$25.2 million in combined state  
10 and local taxes.
- 11 4. The economic development costs described in (3) must be weighed against any  
12 potential economic development benefits of the proposed CVOW Project.  
13

**PREFILED TESTIMONY  
OF  
MARK K. CARSLEY**

**APPLICATION OF  
VIRGINIA ELECTRIC AND POWER COMPANY  
FOR APPROVAL AND CERTIFICATION OF THE COASTAL VIRGINIA  
OFFSHORE WIND COMMERCIAL PROJECT AND RIDER OFFSHORE WIND**

**APRIL 8, 2022**

**CASE NO. PUR-2021-00142**

1 **Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE STATE**  
2 **CORPORATION COMMISSION ("COMMISSION").**

3 **A1.** My name is Mark K. Carsley. I am a Utilities Manager in the Commission's  
4 Division of Public Utility Regulation.

5 **Q2. WHAT ARE YOUR PRESENT RESPONSIBILITIES?**

6 **A2.** My primary functions as a Utilities Manager are to analyze demand-side  
7 management plans proposed by public utilities regulated by the Commission and to  
8 analyze public utility certificate and rate case applications with regard to cost of  
9 service, tariff revisions, and rate design. I am also responsible for presenting  
10 testimony as a Staff witness and making alternative proposals to the Commission  
11 when appropriate.

12 **Q3. PLEASE PROVIDE A BRIEF SUMMARY OF THE COMPANY'S**  
13 **APPLICATION.**

14 **A3.** Pursuant to § 56-585.1:11 of the Code of Virginia ("Code"), Virginia Electric and  
15 Power Company ("Dominion" or "Company") requests review and approval of the

1 proposed Coastal Virginia Offshore Wind Commercial ("CVOW") Project  
 2 ("CVOW Project" or "Project") to be located in a federal lease area located  
 3 approximately twenty-seven miles off the coast of Virginia Beach, Virginia, along  
 4 with the related power export facilities. In addition, pursuant to Code §§ 56-46.1  
 5 and 56-265.1 *et seq.*, the Company requests approval and certification of electric  
 6 interconnection and transmission facilities required to reliably interconnect CVOW  
 7 with the existing transmission system (collectively, "Application").

8 The CVOW Project includes 176 wind turbines, each with a generating  
 9 capacity of 14.7 Megawatts ("MW") of electric power, totaling 2,587 MW of  
 10 generating capacity. The Company expects CVOW to produce approximately  
 11 9,500 gigawatt-hours of carbon-free electrical energy per year.

12 Dominion also requests approval by the Commission of a rate adjustment  
 13 clause designated Rider Offshore Wind ("Rider OSW") for the recovery of costs  
 14 incurred to construct, own, and operate CVOW. Dominion expects the total cost  
 15 of the CVOW Project to be approximately \$9.8 billion. The Company expects  
 16 Rider OSW to increase the bill of a typical residential customer using 1,000  
 17 kilowatt-hours per month by \$1.45 during the initial rate year of the Project.

18 **Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**  
 19 **PROCEEDING?**

20 **A4.** My testimony addresses the Company's Application for approval and certification  
 21 of the proposed CVOW Project and approval of Rider OSW. Specifically, my  
 22 testimony will address the economic development benefits of the proposed Project  
 23 as required by Code §§ 56-585.1:11, 56.46.1, 56-265.1 *et seq.*, and 56-585.1 A 6.

1 My testimony and analysis will concentrate on the provisions of Code § 56-  
2 585.1:11 D.

3 Section 56-585.1:11 D of the Code states:

4 In constructing any such facility contemplated in subsection  
5 B, the utility shall develop and submit a plan to the Commission for  
6 review that includes the following considerations: (i) options for  
7 utilizing local workers; (ii) the economic development benefits of  
8 the project for the Commonwealth, including capital investments  
9 and job creation; (iii) consultation with the Commonwealth's Chief  
10 Workforce Development Officer, the Chief Diversity, Equity, and  
11 Inclusion Officer, and the Virginia Economic Development  
12 Partnership on opportunities to advance the Commonwealth's  
13 workforce and economic development goals, including furtherance  
14 of apprenticeship and other workforce training programs; (iv) giving  
15 priority to the hiring, apprenticeship, and training of veterans, as that  
16 term is defined in § 2.2-2000.1, local workers, and workers from  
17 historically economically disadvantaged communities; and (v)  
18 procurement of equipment from Virginia-based or United States-  
19 based manufacturers using materials or product components made  
20 in Virginia or the United States, if reasonably available and  
21 competitively priced.

22 **Q5. DID DOMINION PROVIDE AN ASSESSMENT OF THE POTENTIAL**  
23 **ECONOMIC DEVELOPMENT BENEFITS THAT MIGHT RESULT**  
24 **FROM THE CONSTRUCTION AND OPERATION OF THE PROPOSED**  
25 **CVOW PROJECT?**

26 **A5.** Yes. Dominion provided an estimate of the economic development benefits of the  
27 proposed CVOW Project that the Company adopted from a report sponsored by the  
28 Hampton Roads Alliance<sup>1</sup> ("HRA"). HRA sponsored this initial study to assess the

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<sup>1</sup> The Hampton Roads Alliance ("Alliance") is a regional economic development organization for the Hampton Roads region of Virginia. The Alliance is a non-profit, public-private partnership supported by regional business leaders, local governments, and academic institutions. The Alliance represents fourteen localities and concentrates its efforts on business attraction, business expansion, and business intelligence (<https://hamptonroadsalliance.com>).

1 economic potential that could result from the construction and operation of the  
 2 proposed CVOW Project. HRA commissioned the Glen Allen, Virginia-based firm  
 3 Mangum Economics to conduct an economic impact study ("Mangum Report" or  
 4 "Report")<sup>2</sup> of the CVOW Project. The Company presented these estimates,  
 5 discussed below, in its Economic Development Plan ("Economic Plan").<sup>3</sup>

6 Dominion did not conduct an independent study of the potential economic  
 7 benefits and job creation potential of the proposed CVOW Project.<sup>4</sup>

**Q6. PLEASE SUMMARIZE THE POTENTIAL ECONOMIC DEVELOPMENT BENEFITS OF THE CONSTRUCTION AND OPERATION OF THE PROPOSED CVOW PROJECT THAT DOMINION PRESENTS.**

8 **A6.** As noted above, the economic benefits of the proposed CVOW Project presented  
 9 by Dominion are those found in the Mangum Report. On page 4 of the Company's  
 10 Economic Plan, Dominion included a table, reproduced below, summarizing the  
 11 projected benefits of the Plan.

12 **Table 1<sup>5</sup>**

Statewide Total Economic Activity from CVOW Commercial Project				
	Total Jobs	Pay (\$M)	Taxes (\$M)	Output (\$M)
Annualized Construction	909	57	4.4	143
Annual Operation	1,110	82	10.6	210

13 Source: Mangum Economics, September 2020

14  
 15 Table 1 indicates that during the construction phase, Dominion expects the  
 16 proposed Project to support approximately 900 jobs annually in Virginia along with

<sup>2</sup> Mangum Economics, *Potential Impact of the Development of the Offshore Wind Energy Industry on Hampton Roads and Virginia, September 28, 2020*. The Mangum Report is publicly available at <https://hamptonroadsalliance.com/news/economic-impact-report-of-offshore-wind-industry/>.

<sup>3</sup> Attachment VI.A of the Generation Appendix (Vol. 2 Dominion's Application).

<sup>4</sup> See Attachment No. MKC-1.

<sup>5</sup> Attachment VI.A, Generation Appendix at 4.



1 approximately \$57 million in pay and benefits annually and over \$143 million in  
2 annual economic output. The Company also represents that this new economic  
3 activity will produce approximately \$2 million in local government revenues and  
4 approximately \$3 million in Virginia state tax revenues annually.<sup>6</sup>

5 Based on the data presented in Table 1, during the operational phase,  
6 Dominion projects the proposed Project will create 1,100 jobs, provide \$81.6  
7 million in pay and benefits annually, yield \$209.8 million in annual economic  
8 output, and provide \$10.6 million annually in combined state and local tax revenue.

9 **Q7. HAS STAFF REVIEWED THE MANGUM REPORT?**

10 **A7.** Yes.

11 **Q8. WAS STAFF ABLE TO VERIFY THE FINDINGS AND CONCLUSIONS**  
12 **OF THE MANGUM REPORT, WHICH THE COMPANY PRESENTS IN**  
13 **ITS ECONOMIC PLAN?**

14 **A8.** Staff was not able to verify the results of the Mangum Report. As noted above, the  
15 Mangum Report was commissioned by HRA. In response to interrogatory requests  
16 from Staff seeking data supporting the conclusions in the Report, the Company  
17 states it does not possess any models or data supporting the Report, and was  
18 therefore not able to provide Staff with any of this information.<sup>7</sup>

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<sup>6</sup> These estimates are derived only from the construction period (Mangum Report at 14). Dominion represents these estimates are viable over the 2020-2026 period (Generation Appendix at 139). The mis-timing appears to result due to the Mangum Reports date of publication.

<sup>7</sup> See the Company's response to Staff Interrogatory No. 4-61 which is attached to this testimony as Attachment No. MKC-2.

1 **Q9. GIVEN THAT STAFF CANNOT VERIFY THE RESULTS AND FINDINGS**  
 2 **OF THE MANGUM REPORT, CAN STAFF PROVIDE AN ASSESSMENT**  
 3 **OF THE MANGUM REPORT?**

4 **A9.** Yes, to some degree. Staff can assess the Report based on the information and data  
 5 found in the finished Report. There are a number of points that influence the  
 6 reliability of the Mangum Report's estimates. First, the analysis is somewhat  
 7 "stale," having been completed in 2020 – almost 2 years ago. Also, the cost data  
 8 utilized in the Report's analysis is derived from data from the United Kingdom.<sup>8</sup>  
 9 Moreover, Staff was not able to see the specific industry codes in which the costs  
 10 were entered into the model utilized by Mangum.<sup>9</sup> The Report also draws  
 11 conclusions from its analysis covering a time span of 6-10 years beyond the initial  
 12 date of the analysis.<sup>10</sup> Specifically, the Mangum Report results shown above cover  
 13 a six-year period from 2020-2026.<sup>11</sup> The Report also draws conclusions over a  
 14 longer period beyond 2026.

15 **Q10. ARE THERE ANY MAJOR FLAWS IN THE MANGUM REPORT?**

16 **A10.** Yes. In addition to the points noted above, the Report does not consider the  
 17 economic reality that the costs of developing, constructing, and operating the  
 18 CVOW Project will be borne by Dominion customers. The Company's ratepayers  
 19 will pay the cost of the Project directly through Rider OSW. These costs to

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<sup>8</sup> Mangum Report at 4.

<sup>9</sup> Mangum utilized IMPLAN, a leading input-output software program produced by the IMPLAN Group L.L.C. The Mangum Report's use of IMPLAN is documented in the Report (Mangum Report at 26). Staff is also licensed to use the IMPLAN software.

<sup>10</sup> Based on the data utilized in input-output analysis and the nature of input-output methodology, the results obtained from this methodology should rarely be used for periods of five years or longer.

<sup>11</sup> The study period described here is an example of the "staleness" to which Staff refers.

1 ratepayers can, and should, be modeled to develop a realistic assessment of the total  
2 economic development benefits of the Project. In the case of the Mangum Report,  
3 the analysis of the economic development benefits of the investment in the CVOW  
4 Project are considered, but the impact of higher electricity rates, through Rider  
5 OSW, are not.

6 **Q11. HAS STAFF ANALYZED THE ECONOMIC DEVELOPMENT COSTS OF**  
7 **PROPOSED CVOW PROJECT?**

8 **A11.** Yes. Given the deficiencies in the Mangum Report that are discussed above and  
9 the unavailability to Staff of the specific underlying modeling and related data used  
10 in the Report, Staff could not reproduce a Mangum Report-type analysis that  
11 includes the economic development costs of the construction and operation of the  
12 proposed CVOW Project; however, Staff was able to use the same input-output  
13 software underlying the Report to perform an analysis of the economic  
14 development costs that are likely to occur as a result of the construction and  
15 operation of the proposed CVOW Project.

16 While the results presented in the Mangum Report and Staff's analysis  
17 cannot be directly compared, Staff utilized actual data obtained from the Company's  
18 Application and the identical computer software used by the Mangum Economic<sup>12</sup>  
19 to develop an estimate of the economic development costs of the proposed CVOW  
20 Project within the Company's service territory

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<sup>12</sup> IMPLAN.

1 Q12. PLEASE BRIEFLY SUMMARIZE STAFF'S METHODOLOGY TO  
2 ESTIMATE THE ECONOMIC DEVELOPMENT COSTS OF THE  
3 PROPOSED CVOW PROJECT.

4 A12. Staff based its analysis on the proposed annual revenue requirements found in the  
5 Direct Testimony of Company witnesses Timothy P. Stuller and the Schedule 46  
6 filing of Company witness Christopher J. Lee.<sup>13</sup> The proposed revenue requirement  
7 for the rate year ending August 31, 2023 may be found on Schedule 1, Page 7 of  
8 Company witness Stuller's testimony. The expected revenue requirements for the  
9 succeeding rate years through 2057 may be found in Company witness Lee's  
10 schedule. Staff examined the economic development costs for a five-year period  
11 which included the proposed revenue requirement for the rate year ending August  
12 31, 2023 and the expected revenue requirement for the rate years ending in 2024-  
13 2027. Staff then utilized IMPLAN software to estimate the economic development  
14 costs within Dominion's service territory over the respective a five-year period.<sup>14</sup>

15 Q13. WHAT ARE THE RESULTS OF STAFF'S ANALYSIS?

16 A13. The results of Staff's analysis are shown in Table 2.

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<sup>13</sup> Company Exhibit No. \_\_, Witness: TPS, Schedule 1, Page 7 of 10 and Company Exhibit No. \_\_, Witness: CJL, Filing Schedule 46.b.1.vi, Statement 2, Page 2 of 2, respectively.

<sup>14</sup> It should be noted that the total revenue requirement for the initial five-year period that Staff analyzed is approximately 56% of the total revenue requirement expected for the Project over the succeeding five-year period, 2028-2032. See Company Exhibit No. \_\_, Witness: CJL, Filing Schedule 46.b.1.vi, Statement 2, Page 2 of 2

Table 2

	Total Jobs	Pay (\$M)	Output (\$M)	State/Local Taxes (\$M)
<b>Annualized Economic Costs in Dominion Service Territory</b>	(1,082)	(\$78.7)	(\$197.9)	(\$25.2)

Staff found that under the proposed and projected rate years that Staff analyzed, the economic development costs for ratepayer in Dominion's service territory would be approximately 1,100 lost jobs, a loss of \$78.7 million in annual pay and benefits, an annual loss of \$197.9 million in economic output, and an annual loss \$25.2 million in combined state and local taxes.

These potential losses must be weighed against any proposed economic development benefits that might be expected to result from the proposed CVOW Project.

**Q14. HOW DOES STAFF'S ANALYSIS COMPARE TO THE ANALYSIS FOUND IN THE MANGUM REPORT?**

**A14.** Staff's analysis is not directly comparable to that of the Mangum Report, nor is it intended to be. For instance, the time periods used are different, Staff utilized actual data, the Mangum Report and Staff used different modeling within IMPLAN, etc.

Staff's analysis is intended to examine the economic development impacts of all economic factors that must be considered in any assessment of economic development benefits of the proposed CVOW Project. There is an economic cost to developing the proposed CVOW Project, and this cost must be considered in tandem with any potential benefits.

However, drawing a comparison between Staff's analysis and the Mangum Report's analysis does lead to an inference that any economic development benefits

1 within the Company's service territory resulting from to the proposed CVOW  
2 Project largely will be equaled by the Project's economic development costs.

3 **Q15. DOES STAFF'S ANALYSIS AND CONCLUSIONS IMPLY THAT NO**  
4 **ECONOMIC DEVELOPMENT BENEFITS ARE LIKELY TO RESULT**  
5 **FROM THE DEVELOPMENT, CONSTRUCTION, AND OPERATION OF**  
6 **THE PROPOSED CVOW PROJECT?**

7 **A15.** No; however, any economic benefits that are likely to arise will do so as a result of  
8 new investment in industries in Hampton Roads and Virginia that support off shore  
9 wind facility development. The degree to which this new investment occurs is  
10 speculative; however, the costs of these investments must not be borne by  
11 Dominion ratepayers, and if not, these new investments will generate positive  
12 economic benefits for Hampton Roads and the Commonwealth.

13 **Q16. DOES THIS CONCLUDE YOUR TESTIMONY?**

14 **A16.** Yes.

**Virginia Electric and Power Company**  
**Case No. PUR-2021-00142**  
**Virginia State Corporation Commission Staff**  
**Sixth Set**

The following response to Question No. 68 of the Sixth Set of Interrogatories and Requests for Production of Documents propounded by the Virginia State Corporation Commission Staff received on February 16, 2022, has been prepared under my supervision.

John Larson  
Director, Public Policy & Economic Development  
Dominion Energy Services, Inc.

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**Question No. 68**

Please refer to the Company's response to Staff Interrogatory No. 4-61. Has the Company conducted any internal analyses or reviews of the economic development benefits, such as Total Jobs, Pay, Taxes, and Output in the Commonwealth, that the proposed CVOW Project is expected to create during construction and operation of the proposed Project beyond those estimates provided to the Company by the Hampton Roads Alliance or contained in the Mangum Report?

**Response:**

No. For estimates of economic development benefits and job creation from the CVOW Commercial Project, the Company relied on the Mangum Report provided to the Company by the Hampton Roads Alliance ("HRA"). This report and other aspects of the Company's economic development analysis is discussed in *Attachment VI.A: Economic Development Plan* of the Generation Appendix.

**Virginia Electric and Power Company**  
**Case No. PUR-2021-00142**  
**Virginia State Corporation Commission Staff**  
**Fourth Set**

The following response to Question No. 61 of the Fourth Set of Interrogatories and Requests for Production of Documents propounded by the Virginia State Corporation Commission Staff received on February 3, 2022, has been prepared under my supervision.

John Larson  
Director, Public Policy and Economic  
Development  
Dominion Energy Services, Inc.

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**Question No. 61**

Please refer to the Generation Appendix, Attachment VI.A. On pages 139-140 of this attachment, the Company references a report entitled *Potential Impact of the Development of the Offshore Wind Energy Industry on Hampton Roads and Virginia* ("Mangum Report") and provides economic data derived from the Mangum Report.

- (a) Provide all models supporting the findings of the Mangum Report including the models, the outputs of those models, and all data utilized in estimating these models;
- (b) Provide the models and data requested in (a) in an electronic format with formulas intact;
- (c) Provide the names of all economic, statistical, and input-output computer programs utilized to determine the potential economic impacts of offshore wind generation that are presented in the Mangum Report and/or otherwise presented on pages 139-140 of Attachment VI.A.

**Response:**

(a) The Hampton Roads Alliance ("HRA") commissioned Mangum Economics to conduct an economic impact analysis for it that resulted in the Mangum Report. HRA provided the finished Mangum Report to the Company. Therefore, the Company is not in possession of data or models utilized in the development of the report.

(b)-(c) See the Company's response to subpart (a) above.