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**APPLICATION OF  
VIRGINIA ELECTRIC AND POWER COMPANY**

**FOR APPROVAL AND CERTIFICATION OF ELECTRIC  
TRANSMISSION FACILITIES: LINE # 65 REBUILD ACROSS THE  
RAPPAHANNOCK RIVER**

**REPORT OF**

**ALEXANDER F. SKIRPAN, JR.  
SENIOR HEARING EXAMINER**

**PUE-2016-00021**

**AUGUST 21, 2017**

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION

APPLICATION OF

VIRGINIA ELECTRIC AND POWER COMPANY

CASE NO. PUE-2016-00021

For approval and certification of  
electric transmission facilities:  
Line # 65 rebuild across the  
Rappahannock River

REPORT OF ALEXANDER F. SKIRPAN, JR., SENIOR HEARING EXAMINER

August 21, 2017

Dominion Energy seeks authority to rebuild approximately 2.2 miles of a 115 kV transmission line crossing the Rappahannock River at the Norris Bridge utilizing an overhead transmission line alternative. The Company also provided an HDD underground alternative, and, at the request of Respondents, an on-bridge alternative and a trenching underground alternative. Respondents presented other on-bridge alternatives and trenching underground alternatives. Because of the significant and negative impacts of an overhead line on the viewshed and local economy, I find that an underground alternative best meets the needs identified in this proceeding and will reasonably minimize adverse impact on the scenic assets, historic districts and environment of the area concerned.

**HISTORY OF THE CASE**

On February 29, 2016, Virginia Electric and Power Company (“Dominion Energy” or “Company”)<sup>1</sup> filed with the State Corporation Commission (“Commission”) an application for a certificate of public convenience and necessity (“Certificate”) to construct and operate an electric transmission line in the counties of Lancaster and Middlesex, Virginia, across the Rappahannock River, pursuant to § 56-46.1 of the Code of Virginia (“Code”) and the Utility Facilities Act<sup>2</sup> (“Application”). Specifically, the Company proposes to rebuild approximately 2.2 miles of its existing 115 kilovolt (“kV”) transmission line, Harmony Village-Northern Neck Line # 65, including an approximately 1.9-mile crossing of the Rappahannock River (“Rappahannock” or “River”) at the Robert O. Norris Bridge (“Norris Bridge”).<sup>3</sup>

On March 18, 2016, the Commission entered its Order for Notice and Hearing in which, among other things, the Commission scheduled public hearings to be held at Lancaster Middle

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<sup>1</sup> Effective May 12, 2017, as part of a corporate-wide rebranding effort, Virginia Electric and Power Company changed its “doing business as” name in Virginia from Dominion Virginia Power to Dominion Energy Virginia.

<sup>2</sup> Section 56-265.1 *et seq.* of the Code.

<sup>3</sup> Robert O. Norris was a Commissioner for the Commission from August 30, 1944, to November 20, 1944. 2016 S.C.C. Ann. Rep. at 1.

School in Kilmarnock, Virginia, on July 6, 2016; scheduled a public hearing in Richmond to begin on September 20, 2016; and appointed a Hearing Examiner to conduct all further proceedings in this matter and to file a final report.

On April 21, 2016, the County of Lancaster, Virginia (“Lancaster County”) filed its Notice of Participation. On May 18, 2016, William C. Barnhardt (“Barnhardt”) filed his Notice of Participation. On May 27, 2016, Old Dominion Electric Cooperative (“ODEC”) filed its Notice of Participation. On June 3, 2016, the Save the Rappahannock Coalition, Inc. (“Coalition”), filed its Notice of Participation.

On April 22, 2016, Dominion Energy filed proof of notice as directed by ordering ¶ (9) of the Commission’s Order for Notice and Hearing.<sup>4</sup> The Company certified that it sent property owner notice letters on April 18, 2016, as required by ordering ¶ (6) of the Commission’s Order for Notice and Hearing; made timely publication as required by ordering ¶ (7) of the Commission’s Order for Notice and Hearing; and sent notice letters to the affected municipalities as required by ordering ¶ (8) of the Commission’s Order for Notice and Hearing.

Throughout the course of this proceeding, the Commission received a total of 223 comments from 188 individuals/residents/citizens.<sup>5</sup> Of the comments<sup>6</sup> received, 38 are in favor of the overhead powerlines and against placing the lines underground or on the Norris Bridge. One hundred eighty-five comments<sup>7</sup> were against placing the power lines overhead and were for placing them underground or on the bridge.

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<sup>4</sup> Exhibit No. 7.

<sup>5</sup> Many citizens submitted multiple comments.

<sup>6</sup> Comments in favor of the Application were received from: Bobbi Baber, Steven Bushong, Michael Christopher, Dorothy Claybrook, William Claybrook, Monty Deihl, Roberta Donner, Carlton Dunford, Bryan Epps, William Fickel, Bonnie Hall, Earl Hall, Steven Hoppe, Jean Jeffords, Tom Jeffords, W. Jotelbon, Ted Kattmann, Roger Martin, Jodie Minn, Sharon Perkins, Troy Perkins, Bridget Perrine, Philip Perrine, Ronald Sanders, Ryan Shackelford, Gay Smith, Livia Smith, Norman Smith, Rose Smith, Thomas Smith, Barbara Tasiq, David Teagle, Frank Timmons, James Vick, Herman Wilkins, June Wilkins, Rita Wilson, and Thomas Wilson.

<sup>7</sup> Comments submitted in opposition to the Application were received from: Anne-Shelton Aaron, Gail Aines, Linda Allori, H.W. Anderson, Jack Ashburn, John Barber, Rose Bland, Mitchell Bober, Joyce Bombay, Mari Bonomi, E.D. Booker, George Bott, Mark Brandon, Jacquelyn Brown, William Brubaker, Bryce Bugg, Nancy Bugg, Mary Burgess, Frances Callaghan, Peter Cardozo, Emily Carter, Henry Carter, LeRoy Carter, Charles Cary, Jean Cavin, Jo Chamberlain, John Chamberlain, Katherine Chase, David Cheek, Virginia Chewing, Carolyn Childs, Alice Close, David Coakley, Elizabeth Coakley, Anne Cotter, Robert Cox, Kathryn Creeth, June Dade, Thomas Dade, David Daniel, Don Davidson, Kathleen Davidson, Emily Davies, John De Palma, Ames Diaz, Steven Donofrio, Dean Dort, Lisa Dunn, Carol Engstrom, Julie Ennis, Janice Fadeley, Janet Farrell, Kevin Fay, Richard Fletcher, Edward Fuehrer, Ernest Geisler, Marie Gonsalves, Carol Graham, Merrill Grasso, Charles Guthridge, Joy Gwaltney, Steven Harris, Gwen Head, John Helleberg, Jeffrey Heller, John Henley, David Herndon, John Hoekstra, Katherine Hoekstra, Robert Hood, Phyllis Huffman, Carl Isbrandtsen, Susan Johnson, Susan Johnson (two separate people with the same name), Wesley Kendrick, Michael Kennedy,

In its brief, the Coalition stated that “if all unique contacts are considered, there were 258 public comments or testimony opposing the Application and 43 public comments or testimony supporting the Application . . . .”<sup>8</sup> Similarly, I find that there were 260<sup>9</sup> comments or testimonies submitted opposing the Application and there were 42<sup>10</sup> comments or testimonies in favor of the Application.

On May 9, 2016, the Department of Environmental Quality (“DEQ”) filed comments containing the results of its coordinated review of the Application and its potential impacts to natural and cultural resources (“First DEQ Report”). DEQ stated that its comments were based

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Betty Jo Kight, Laurie King, Greg Kirkbridge, Kenneth Knull, Ann Kramer, John Latell, William Layton, Charles Lee, Deborah Lockhart, Cynthia Madden, Jennifer Maloney, Anthony Marchetti, Boyd McCord, Alexander McKelway, Brian McMenamin, Dermot McNulty, John Mill, Frank Miller, Emma Mobley, Margaret Nickel, Joseph Oren, Hilda Page, Janet Pawlukiewicz, Raymond Pendleton, Tove Power, Margaret Price, Austin Pritchard, James Pruett, Irving Pulling, Laura Purcell, Williams Redlin, Adam Richardson, George Richardson, Lauren Richardson, Denise Robertson, Horace Robison, Marcia Robison, Leslie Rubio, Conrad Sauer, Patricia Sauer, James Schmidt, Cary Schneider, Lucy Schneider, Carroll Schwab, Winthrop Schwab, Mary Scott-Lewis, Carol Shannon, John Sheehan, Greg Silvestri, Anna Skerrett, John Skinner, Gordon Slatford, Carl Smith, Jerry Smith, Peter Southmayd, Blanche Stevens, Elliott Stevens, Scott Stovall, Stacy Stovall, Jeremy Taylor, Charles Taylor, Jan Taylor, Bernard Teunis, Sidney Tiesenga, Joseph Urban, Sylvia Voreas, Whit Wall, Brownie Watkins, Bob Wayland, Jane Wells, Richard Wells, Thomas Wicks, Elizabeth Wilson, Beverly Wine, Gordon Winfield, William Young, Eric Zelman, and Steve Zukor.

<sup>8</sup> Coalition Brief at 4, Exhibit A.

<sup>9</sup> The difference in the number of public comments and testimonies against the Application is summarized below. The Coalition included the public comments from Jason Bellows, Terry Hood, Martha Little, and Ian Ormesher. I did not include these public comments for the following reasons: Jason Bellows appeared as a witness on behalf of Lancaster County; I was unable to locate the comments of Terry Hood and Martha Little; and Ian Ormesher testified on behalf of the Coalition. On the other hand, the Coalition did not include, the following public comments: George Bott, Jean Cavin, Emily Davies (submitted many comments), Joy Gwaltney, and John Henley. The Coalition included the public testimony of Jason Bellows, Jacquelyn Brown, Patrick McCraine, Ian Ormesher, Jeffrey Szyperski, and Michael Pawlukiewicz. I did not include these names because Mr. Bellows appeared as a witness on behalf of Lancaster County; the inability to verify Ms. Brown’s testimony; Sheriff McCraine testified on behalf of Barnhardt; Mr. Ormesher and Mr. Szyperski testified on behalf of the Coalition; and according to the transcript at pp. 139-40, Mr. Pawlukiewicz was called as a witness, but did not testify. I included the public testimony of Roy Carter (testified twice), John Chamberlain, David Coakley, Charles Costello, Joy Gwaltney, and Dermont McNulty.

<sup>10</sup> The difference in the number of public comments and testimonies in favor of the Application is summarized below. The Coalition included the public comment of Ralph Grove. I did not include Mr. Grove’s comment in the count because it was incorrectly filed in this matter. According the subject line of his comment, Mr. Grove intended to file his comments under Case No. PUE-2016-00063.

on reviews conducted by DEQ and the following agencies and localities: Department of Conservation and Recreation (“DCR”); Department of Historic Resources (“DHR”); Department of Health (“DOH”); Virginia Marine Resources Commission (“VMRC”); Department of Aviation (“DOA”); Department of Game and Inland Fisheries (“DGIF”); Virginia Outdoors Foundation (“VOF”); and Department of Transportation (“VDOT”). DEQ noted that it also sought comments from the following: Department of Forestry (“DOF”); Middle Peninsula Planning District Commission (“MPPDC”); Northern Neck Planning District Commission (“NNPDC”); the County of Middlesex, Virginia (“Middlesex County”) and Lancaster County. DEQ’s comments included DEQ’s summary of findings, recommendations, and a listing of potential permits concerning the Application.

On June 22, 2016, Barnhardt filed his Motion to Require Applicant to Supplement Application with Additional Alternatives (“Alternatives Motion”). Specifically, Barnhardt asked that Dominion Energy be directed to supplement its Application to address the following three alternatives: (i) installing a set of insulated transmission lines on the Norris Bridge (“Barnhardt Option 1”); (ii) installing insulated transmission lines in a shallow trench across the river in conjunction with horizontally drilled pathways from the north and south banks traversing shallow depths adjacent to the banks (“Barnhardt Option 2”); and (iii) laying insulated cables on the river bottom itself, in conjunction with horizontally drilled pathways from the north and south banks traversing shallow depths adjacent to the banks (“Barnhardt Option 3”). On July 8, 2016, responses to the Alternatives Motion were filed by Dominion Energy, Lancaster County, the Coalition, and Staff. Barnhardt filed his reply on July 15, 2016.

In a Hearing Examiner’s Ruling dated July 22, 2016, Dominion Energy was directed to conduct further study of Barnhardt Option 1 and Barnhardt Option 2, and the procedural schedule was continued pending further Commission ruling or order. The procedural schedule was revised in a Hearing Examiner’s Ruling dated August 3, 2016, which, among other things, established March 1, 2017, as the date for the public hearing in this matter. Additionally, in a Hearing Examiner’s Ruling dated August 24, 2016, the end of the period for public comment was extended to March 1, 2017.

On July 6, 2016, hearings solely to receive testimony from public witnesses were held in Kilmarnock, Virginia, at 2:00 p.m. and 7:00 p.m., as scheduled. Charlotte P. McAfee, Esquire, of Dominion Energy Services, Inc., appeared on behalf of Dominion Energy. Michael M. York, Esquire, of Wehner & York, PC, appeared on behalf of Barnhardt. James E. Cornwell, Jr., Esquire, of Sands Anderson, PC, appeared on behalf of Lancaster County. E. Stanley Murphy, Esquire, of Dunton, Simmons & Dunton, L.L.P., appeared on behalf of the Coalition. William H. Chambliss, Esquire, and D. Mathias Roussy, Esquire, appeared on behalf of Staff. Fifty-seven public witnesses presented testimony during the hearings.

On July 11, 2016, Dominion Energy filed its Motion for Entry of a Protective Ruling. To facilitate the handling of confidential information and to permit the development of all issues in this proceeding, a Hearing Examiner’s Protective Ruling was entered on July 12, 2016.

On September 20, 2016, a hearing solely to receive testimony from public witnesses was held in the Commission’s courtroom in Richmond, Virginia, as scheduled. Vishwa B. Link,

Esquire, and Lisa R. Crabtree, Esquire, of McGuireWoods LLP, and Charlotte P. McAfee, Esquire, of Dominion Energy Services, Inc., appeared on behalf of Dominion Energy. Michael M. York, Esquire, of Wehner & York, PC, appeared on behalf of Barnhardt. James E. Cornwell, Jr., Esquire, of Sands Anderson, PC, appeared on behalf of Lancaster County. E. Stanley Murphy, Esquire, of Dunton, Simmons & Dunton, L.L.P., appeared on behalf of the Coalition. William H. Chambliss, Esquire, D. Mathias Roussy, Esquire, and Fred Ochsenhirt, Esquire, appeared on behalf of Staff. Twenty-two public witnesses presented testimony during the hearing.

On November 16, 2016, Barnhardt filed his Motion for Prehearing Conference asking that a prehearing conference be held “for the purpose of considering the effect, if any, that the VDOT response can and should have on the currently scheduled proceedings in this case.”<sup>11</sup> In a Hearing Examiner’s Ruling dated November 18, 2016, a telephonic prehearing conference was scheduled for December 8, 2016. On November 30, 2016, Lancaster County filed its Motion to Further Revise Procedural Dates in which it proposed new procedural dates to provide the respondents and Staff with an opportunity to address input from VDOT on the feasibility of Barnhardt Option 1. On December 7, 2016, Barnhardt filed a Motion Relating to Virginia Department of Transportation, asking that VDOT be invited to participate as a party or, in the alternative, that Staff be directed to forward additional questions and concerns to VDOT.

On December 8, 2016, a telephonic prehearing conference was held as scheduled. Based on the discussions during the prehearing conference, the procedural schedule was revised to provide respondents with additional time to address input from VDOT in a Hearing Examiner’s Ruling dated December 12, 2016. This ruling rescheduled the public hearing in this matter from March 1, 2017, to March 15, 2017, and provided for an invitation to VDOT to provide a witness for the public hearing.

On January 12, 2017, DEQ filed comments containing the results of its updated coordinated review with a focus on the Supplemental DEQ Supplement included with the Application and its potential impacts to natural and cultural resources (“Second DEQ Report”). DEQ stated that its comments were based on reviews conducted by DEQ and the following agencies and localities: DCR; DOH; VMRC; DOA; DGIF; VOF; DHR; VDOT; and Lancaster County. DEQ noted that it also sought comments from the following: DOF; MPPDC; NNPDC; and Middlesex County. DEQ’s comments included DEQ’s summary of findings, recommendations, and a listing of potential permits concerning the Application.

Also on January 12, 2017, Barnhardt, the Coalition, and Lancaster County (collectively, “Respondents”) filed their Joint Motion for Leave to Take Depositions of Adverse Third-Party Witnesses and for Related Relief and Expedited Consideration. In this motion, the Respondents sought leave to take the oral depositions of current or former employees of the Crofton Diving Corporation, which has been a contractor for Dominion Energy for projects requiring underwater trenching for distribution cables. A Hearing Examiner’s Ruling dated January 18, 2017, directed that any responses to the motion be filed on or before January 23, 2017, and scheduled a prehearing conference for January 24, 2017. On January 23, 2017, Dominion Energy filed its

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<sup>11</sup> Motion for Prehearing Conference at 4.

Response and, among other things, requested that the motion be denied and that the existing procedural schedule be kept intact. On January 24, 2017, a prehearing conference was held as scheduled. Based on a finding that there are means, other than deposition, for obtaining the desired testimony, the motion was denied in a Hearing Examiner's Ruling dated January 25, 2017.

On March 6, 2017, the Respondents filed a Joint Motion to Hold Date for Evidentiary Hearing in Abeyance, to Conduct a Prehearing Conference, and for Expedited Consideration. Among other things, the Respondents asked that the hearing be held in abeyance pending the outcome of a prehearing conference, and that the prehearing conference be scheduled for the week of March 6, 2017. In a Hearing Examiner's Ruling dated March 6, 2017, a prehearing conference was scheduled for March 7, 2017. On March 7, 2017, a prehearing conference was held as scheduled. Based on the discussions during the prehearing conference, a Hearing Examiner's Ruling dated March 8, 2017, revised the procedural schedule to: (i) retain the currently scheduled hearing date of March 15, 2017, for the purpose of receiving the testimony of public witnesses; (ii) schedule the public hearing for this matter to begin on April 18, 2017; (iii) end discovery on March 24, 2017; and (iv) extend the deadline for public comments concerning this matter to April 18, 2017.

On March 15, 2017, a hearing solely to receive testimony from public witnesses was held in the Commission's courtroom in Richmond, Virginia, as scheduled. Vishwa B. Link, Esquire, of McGuireWoods LLP, appeared on behalf of Dominion Energy. Michael M. York, Esquire, of Wehner & York, PC, appeared on behalf of Barnhardt. Christopher M. Mackenzie, Esquire, of Sands Anderson, PC, appeared on behalf of Lancaster County. D. Mathias Roussy, Esquire, and Fred Ochsenhirt, Esquire, appeared on behalf of Staff. Three public witnesses presented testimony during the hearing.

On March 22, 2017, Dunton, Simmons & Dunton, LLP, and E. Stanley Murphy, Esquire, filed a Motion to Withdraw as Counsel, stating that their client, the Coalition, is jointly represented in this proceeding by Cliona M. Robb, Esquire, of Christian Barton, L.L.P., and consents to his and his firm's withdrawal. The motion was granted in a Hearing Examiner's Ruling dated March 23, 2017.

On April 18, 19, 20, 21, and 24, 2017, hearings on this matter were held in the Commission's courtroom in Richmond, Virginia, as scheduled. Vishwa B. Link, Esquire, and Lisa R. Crabtree, Esquire, of McGuireWoods LLP, and David DePippo, Esquire, of Dominion Energy Services, Inc., appeared on behalf of Dominion Energy. Michael M. York, Esquire, of Wehner & York, PC, appeared on behalf of Barnhardt. James E. Cornwell, Jr., Esquire, and Christopher M. Mackenzie, Esquire, of Sands Anderson, PC, appeared on behalf of Lancaster County. Cliona Mary Robb, Esquire, of Christian Barton, L.L.P., appeared on behalf of the Coalition. John A. Pirko, Esquire, of LeClairRyan, appeared on behalf of ODEC. Jeffrey R. Allen, Esquire, of the Office of the Attorney General, appeared on behalf of VDOT. D. Mathias Roussy, Esquire, and Fred Ochsenhirt, Esquire, appeared on behalf of Staff. Twenty-three witnesses presented testimony during the hearing including one witness from VOF, two witnesses from VDOT, and three other public witnesses. One hundred forty-two exhibits were marked and 140 exhibits were admitted into the record.

On April 26, 2017, Barnhardt, by counsel, filed an Unopposed Motion for Leave to File Exhibit (“Motion”), in which counsel for Barnhardt asked that the attached exhibit be added to the record of this proceeding as Exhibit No. 143. The motion was granted in a Hearing Examiner’s Ruling dated April 27, 2017.

The date for the filing of briefs by the participants was set for June 15, 2017, in a Hearing Examiner’s Ruling dated May 19, 2017.

On July 31, 2017, Barnhardt, by counsel, filed a Motion to Take Judicial Notice of Recent Storm Damage to Nearby Transmission Lines. The motion was denied in a Hearing Examiner’s Ruling dated August 4, 2017. In addition, additional information attached to the motion and offered as an exhibit was marked as Exhibit No. 144 and its admission was denied. With the addition of this exhibit, 144 exhibits were marked in this proceeding and 142 exhibits were admitted into the record.

## SUMMARY OF THE RECORD

In its Application, Dominion Energy sought authority to rebuild an approximately 2.2-mile segment of an existing single circuit 115 kV transmission line, Harmony Village-Northern Neck Line # 65 (“Line # 65”), including: (i) approximately 0.3 mile on land entirely within the existing right-of-way on both sides of the Rappahannock River in Lancaster and Middlesex Counties; and (ii) approximately 1.9 miles in the Rappahannock River utilizing an 80-foot right-of-way permitted by the VMRC, which expands to 200 feet at two sections in the center span of the Norris Bridge.<sup>12</sup> Collectively, the rebuild of an approximately 2.2-mile segment of Line # 65 between White Stone Substation and Harmony Village Substation constitutes the proposed rebuild project (“Rebuild Project”).<sup>13</sup> Included in the Rebuild Project is the replacing of approximately 2.2 miles of existing 477 ACSR (24/7) three-phase conductor and one 3#6 static wire between the existing river bank three-pole structure in Lancaster County and existing monopole on the Middlesex County bank, with approximately 2.2 miles of 900 ACSS/TW/HS-285/MM (20/7) three-phase conductor and two shield wires to be installed between the three-pole double deadend structure in Lancaster County and the existing double deadend monopole in Middlesex County.<sup>14</sup> The proposed in-service date for the Rebuild Project is December 2017.<sup>15</sup> Dominion Energy estimated the total cost of the Rebuild Project to be approximately \$26.2 million.<sup>16</sup> In its Application the Company presented analysis of its proposed route or option (“Proposed 115 kV Overhead Route”), a 230 kV overhead transmission alternative (“230 kV Overhead Alternative”),<sup>17</sup> and an underground option (“Underground Option”), which would be

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<sup>12</sup> Exhibit No. 8, at 2.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.* at 3.

<sup>15</sup> *Id.* at 4.

<sup>16</sup> *Id.*

<sup>17</sup> The Proposed 115 kV Overhead Route and the 230 kV Overhead Alternative are collectively referred to as the “Overhead Alternatives.”



constructed with 230 kV insulated, operated at 115 kV, and installed at least 60 feet below the riverbed by horizontal directional drill (“HDD”) construction method.<sup>18</sup>

During the course of this proceeding, additional options, such as Barnhardt Option 1, and Barnhardt Option 2, were also studied, along with several other proposed variations.

### **Dominion Energy’s Direct Testimony**

In support of its Application, Dominion Energy filed the direct testimony of Dennis D. Kaminsky, consulting engineer in the Electric Transmission Planning Department of the Company; Jacob G. Heisey, transmission line engineer II for the Company; Amanda M. Mayhew, senior siting and permitting specialist for the Company; and Jon M. Berkin, principal environmental consultant with Natural Resource Group, LLC (“NRG”). A summary of the prefiled direct testimony of each witness is presented below.

**Dennis D. Kaminsky** testified that “[i]n order to maintain the structural integrity and reliability of [the Company’s] transmission system and perform needed maintenance on its existing facilities,” Dominion Energy seeks approval of the proposed Rebuild Project.<sup>19</sup> Mr. Kaminsky advised that Dominion Energy’s transmission system serves the Company’s retail customers and provides service to Appalachian Power Company, ODEC, Northern Virginia Electric Cooperative, Central Virginia Electric Cooperative, Virginia Municipal Electric Association, North Carolina Electric Membership Corporation, and North Carolina Eastern Municipal Power Agency.<sup>20</sup> Mr. Kaminsky noted that the Company is part of the Eastern Interconnection transmission grid and is part of PJM Interconnection, L.L.C. (“PJM”), which is the regional transmission organization responsible for ensuring reliability and coordinating the movement of electricity through all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.<sup>21</sup>

Mr. Kaminsky affirmed that the existing Line # 65 supports the Company’s 230 and 115 kV network in the Northern Neck area and provides direct delivery to almost 19,000 customers served out of the “Company’s White Stone, Ocran, and Lancaster Substations, as well as the 115 kV NNEC Garner DP.”<sup>22</sup>

Mr. Kaminsky stated that the Rebuild Project:

will replace aging infrastructure at the end of its service life with infrastructure built to today’s standards and remove impediments that are presently degrading the integrity of the entire Line # 65,

<sup>18</sup> Exhibit No. 8, Attached Alternatives Analysis at 3.

<sup>19</sup> Exhibit No. 16, at 2.

<sup>20</sup> *Id.* at 2-3.

<sup>21</sup> *Id.* at 3.

<sup>22</sup> *Id.* at 4.

thereby enabling the Company to maintain and improve the overall long-term reliability of its transmission system.<sup>23</sup>

Mr. Kaminsky advised this segment of Line # 65 was built in 1962 and has been damaged in the past as a result of debris from bridge traffic.<sup>24</sup> Mr. Kaminsky reported that since 2010, there have been seven unplanned outage events on the Norris Bridge water crossing, which is 30 times the annual rate/mile for the Company’s transmission system.<sup>25</sup> Mr. Kaminsky also pointed out that this segment of Line # 65 has been de-energized over 50% of the time since 2010 due to VDOT maintenance.<sup>26</sup> Mr. Kaminsky contended that such prolonged outages will produce North American Reliability Corporation (“NERC”) violations as soon as 2018, and compromises the reliability of the local transmission network.<sup>27</sup>

Mr. Kaminsky testified that because this Rebuild Project is based on the need to replace aging infrastructure, the Company has not reviewed demand-side resources and has not based the decision on any planning studies conducted by the Dominion Energy or PJM.<sup>28</sup>

**Jacob G. Heisey** provided design characteristics and electric and magnetic field (“EMF”) data for the Rebuild Project.<sup>29</sup> Mr. Heisey pointed out that the close proximity of this segment of Line # 65 to the Norris Bridge deck requires that the line be de-energized anytime VDOT performs bridge maintenance and that the narrow width of the bridge puts Company maintenance personnel at risk.<sup>30</sup>

Mr. Heisey confirmed that a July 2015 Wood Piles Inspection showed that the wooden pile foundations in the river crossing segment of the Rebuild Project have reached the end of their service lives.<sup>31</sup> Moreover, Mr. Heisey stated that damaged insulators attached to the Norris Bridge have reached the end of their service lives.<sup>32</sup> Mr. Heisey testified that after several years of compromised reliability and operational problems on the entire Line # 65 due to the impact and condition of the Norris Bridge segment, the Rebuild Project was submitted by the Company to PJM in June 2014, and accepted as an Operational Performance upgrade by PJM on November 5, 2014.<sup>33</sup>

Mr. Heisey affirmed that the Rebuild Project will replace seven existing wooded H-frames, and 14 davit arm style bridge attachments with 10 galvanized steel H-frame structures on

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<sup>23</sup> *Id.*

<sup>24</sup> *Id.* at 5.

<sup>25</sup> *Id.*

<sup>26</sup> *Id.*

<sup>27</sup> *Id.* at 5-6.

<sup>28</sup> *Id.* at 7-8.

<sup>29</sup> Exhibit No. 22, at 2.

<sup>30</sup> *Id.* at 3.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.* at 3-4.

concrete foundations in the Rappahannock River approximately 100 feet east of the Norris Bridge.<sup>34</sup> Mr. Heisey further described the Rebuild Project to include the following:

On the Lancaster County side of the river, one existing wooden three-pole structure will be removed and replaced by a galvanized steel three-pole double deadend structure. On the Middlesex County side of the river, one existing wooden monopole structure will be eliminated entirely and three existing monopoles will be removed and replaced with one double deadend galvanized steel monopole and two weathering steel monopoles.

Approximately 2.2 miles of existing 477 ACSR (24/7) three-phase conductor and one 3#6 static wire will be removed between the existing river bank three-pole structure in Lancaster County and existing monopole on the Middlesex County bank. Approximately 2.2 miles of 900 ACSS/TW/HS-285/MM (20/7) three-phase conductor and two shield wires will be installed between the new three-pole double deadend in Lancaster County and the existing double deadend monopole in Middlesex County.<sup>35</sup>

Mr. Heisey stated that the H-frame structure was selected for the river crossing due to (i) high wave loading on the foundations; (ii) wind loadings on the structures; (iii) the need for rigidity in the transverse direction and stability longitudinally; (iv) reduced impact to the river bottom; (v) lower overall structure heights; and (vi) required conductor clearance across the main river channel.<sup>36</sup> Mr. Heisey confirmed that the proposed structures in the river will range from 101.8 feet to 172.8 feet for the two structures on either side of the navigational channel.<sup>37</sup>

Mr. Heisey noted that the proposed three-pole structure on the Lancaster County side of the river will have wider pole spacing than the existing three-pole structure to aid in the sequence of construction of the Rebuild Project.<sup>38</sup>

Mr. Heisey estimated that the total cost of the Rebuild Project to be \$26.2 million, with a construction period of fourteen months.<sup>39</sup>

Mr. Heisey calculated the EMF to range from 1.287 milligauss (“mG”) to 23.770 mG for the existing lines at the edges of the right-of-way based on historical average and peak loading.<sup>40</sup> Mr. Heisey calculated the EMF to range from 1.675 mG to 27.504 mG for the Rebuild Project at

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<sup>34</sup> *Id.* at 4.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.* at 5.

<sup>37</sup> *Id.*

<sup>38</sup> *Id.* at 6.

<sup>39</sup> *Id.*

<sup>40</sup> *Id.* at 7.

the edges of the right-of-way based on average and peak loading expected to occur in 2017.<sup>41</sup> Mr. Heisey compared these field strengths to fields created by other electrical sources, such as a hair dryer (300 mG), a copy machine (90 mG), and an electric power saw (40 mG).<sup>42</sup> Furthermore, Mr. Heisey maintained that magnetic field strengths diminish rapidly as the distance from the source increases; more specifically, the magnetic field strengths are proportional to the inverse square of the distance.<sup>43</sup> For example, Mr. Heisey determined that a hypothetical magnetic field strength of 10 mG at the edge of a 100-foot right-of-way would decrease to 2.5 mG at a point 50 feet outside the right-of-way.<sup>44</sup>

**Amanda M. Mayhew** addressed the proposed route for the Rebuild Project.<sup>45</sup> Ms. Mayhew affirmed that Dominion Energy has obtained legislative approval to vacate the public oyster grounds known as the Baylor Grounds, and has received approval from the VMRC to rebuild the line across the river within an 80-foot-wide right-of-way, with 200-foot-wide sections at the river channel.<sup>46</sup> In addition, Ms. Mayhew confirmed that on land, the Rebuild Project will replace structures along an existing right-of-way in approximately the same location within the existing easement.<sup>47</sup>

Ms. Mayhew testified that Dominion Energy began its initial outreach on the Rebuild Project in September 2014, which included meetings with a number of local, state, and federal officials.<sup>48</sup> Ms. Mayhew stated that the Company also met with what is now known as the Coalition.<sup>49</sup>

Ms. Mayhew maintained that the Rebuild Project will “have minimal incremental environmental impacts, since it largely represents the wreck and rebuild of a transmission line in existing right-of-way.”<sup>50</sup>

Ms. Mayhew advised that Dominion Energy considered two alternative routes for the Rebuild Project: (i) a 230 kV Overhead Alternative along the proposed route; and (ii) a 115 kV Underground Option.<sup>51</sup> Ms. Mayhew described the 230 kV Overhead Alternative to be similar to the proposed Rebuild Project, except that it would use a 230 kV design, which would require slightly taller structures and a wider right-of-way along the on-land crossing in Middlesex County.<sup>52</sup> Ms. Mayhew acknowledged that the 230 kV Overhead Alternative would be operated

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<sup>41</sup> *Id.*

<sup>42</sup> *Id.*

<sup>43</sup> *Id.*

<sup>44</sup> *Id.* at 7-8.

<sup>45</sup> Exhibit No. 34, at 2.

<sup>46</sup> *Id.* at 3; *See* Chapter 377 of the 2015 Session of the Virginia Acts of Assembly (effective March 19, 2015).

<sup>47</sup> Exhibit No. 34, at 4.

<sup>48</sup> *Id.*

<sup>49</sup> *Id.*

<sup>50</sup> *Id.* at 5.

<sup>51</sup> *Id.*

<sup>52</sup> *Id.* at 5-6.

at 115 kV for the foreseeable future, provide incrementally improved reliability and operational benefits, and is estimated to cost approximately \$26.3 million, or an increase in costs over the proposed Rebuild Project of approximately \$0.1 million.<sup>53</sup> Ms. Mayhew testified that Dominion Energy rejected the 230 kV Overhead Alternative because there is no foreseeable need for 230 kV operations, its towers would be taller, and would require additional right-of-way.<sup>54</sup>

In regard to the Underground Option, Ms. Mayhew stated that this option generally would follow along the centerline of the proposed Rebuild Project, but would require the following additional right-of-way and permitting:

- There is an existing 75-foot[-]wide right-of-way on [the] north side of [the] Rappahannock River. An additional 25 feet of right-of-way will be required for a 100-foot-wide right-of-way on land. This new right-of-way would be reduced in some areas to avoid crossing homes.
- There is an 80-foot VMRC permitted right-of-way across the river (which expands to 200 feet at two sections in the center span of the Norris Bridge). An additional 20 feet of permitted right-of-way will be required for a 100-foot-wide right-of-way, as well as at the locations where the temporary splice locations extend beyond the 100-foot-wide right-of-way. A total of 5.2 additional acres of Baylor Oyster Grounds will need to be vacated for the Underground Option. This would require a new permit from the VMRC for the larger right-of-way width required for the cables and the splice locations. A new United States Army Corps of Engineers (“Corps”) permit will be required for the splice locations. Also, new Baylor Ground legislation will be required, which would necessitate additional action by the General Assembly.
- There is an overhead pole line easement on the Middlesex County (south) side of the river, which is maintained at a total of 45 feet. An additional 55 feet of right-of-way will be required for a 100-foot-wide right-of-way.<sup>55</sup>

Ms. Mayhew testified that the Underground Option would involve HDD, dredging large pits in the river bed to allow for the splicing of underground electric cables, and the potential for impacts on potable groundwater sources.<sup>56</sup> Also, Ms. Mayhew advised that the Underground

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<sup>53</sup> *Id.* at 6.

<sup>54</sup> *Id.* at 6-7.

<sup>55</sup> *Id.* at 7-8.

<sup>56</sup> *Id.* at 8.

Option would require two transition stations, one on each side of the river crossing.<sup>57</sup> These transition stations would include 80-foot-tall H-frame structures and ancillary buildings to house equipment.<sup>58</sup> Ms. Mayhew contended that the northern transition station would require the acquisition of two acres, but the southern transition station could be located on Company-owned land.<sup>59</sup> Ms. Mayhew reported that the construction time for the Underground Option is approximately 36 months (including additional time for permitting and General Assembly action) and its estimated cost is approximately \$83.6 million, which is \$57.4 million more than the proposed Rebuild Project.<sup>60</sup>

Ms. Mayhew testified that the Underground Option was not selected due to: (i) decreased reliability; (ii) significantly increased costs; (iii) additional impacts to the Rappahannock River bottom; and (iv) significantly longer time to complete.<sup>61</sup>

Ms. Mayhew asserted that the proposed Rebuild Project will minimize adverse impacts on the environment by:

- spanning the wetlands so that no wetlands will be cleared or impacted;<sup>62</sup>
- spanning the Submerged Aquatic Vegetation (“SAV”) beds in the Rappahannock so that there are no impacts to SAV;<sup>63</sup>
- impacting only approximately 3,092 square feet of state-owned subaqueous bottomlands for structure foundations, concrete caps, and fender system;<sup>64</sup>
- directly impacting only approximately 1,014 square feet of river bottom for the installation of the piles used to support the structure foundations and fender system;<sup>65</sup> and
- spanning two private oyster leases so that there is no impact to these oyster beds.<sup>66</sup>

Ms. Mayhew acknowledged that DEQ will conduct an environmental and permitting review of the Application.<sup>67</sup> Ms. Mayhew stated that the Company included a DEQ Supplement in its Application based on previous coordination with DEQ.<sup>68</sup>

Ms. Mayhew asserted that Dominion Energy complied with the requirements of § 15.2-2202 D of the Code by sending letters dated January 8, 2016, to administrators of the Counties of

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<sup>57</sup> *Id.*

<sup>58</sup> *Id.*

<sup>59</sup> *Id.* at 8-9.

<sup>60</sup> *Id.* at 9.

<sup>61</sup> *Id.* at 10.

<sup>62</sup> *Id.*

<sup>63</sup> *Id.* at 10-11.

<sup>64</sup> *Id.* at 11.

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.* at 12.

<sup>68</sup> *Id.*

Middlesex and Lancaster advising of the Company's intent to file this Application and inviting the officials to a consult with the Company concerning the Rebuild Project.<sup>69</sup>

**Jon M. Berkin** confirmed that NRG was engaged by Dominion Energy to assist in the identification and evaluation of route alternatives to resolve the identified electrical need.<sup>70</sup> Mr. Berkin sponsored the Alternatives Analysis, which is a part of the Application.<sup>71</sup>

### First DEQ Report

DEQ coordinated a review with other state and local agencies focusing on the environmental information provided in the Application.<sup>72</sup> On May 9, 2016, DEQ filed the First DEQ Report.<sup>73</sup> During the hearing, Staff counsel advised "that DEQ has intended for all of its recommendations to have been rolled up into the [Second DEQ Report]."<sup>74</sup> Thus, DEQ's recommendations will be detailed in the Second DEQ Report summarized below.

### Public Hearing – July 6, 2016

A local public hearing was convened on July 6, 2016, in Kilmarnock, Virginia, where fifty-seven public witnesses appeared. The testimony of each public witness is summarized below.

**Charlie Costello** of Merry Point, Virginia, spoke as the president of The Friends of Lancaster County.<sup>75</sup> Mr. Costello conveyed relevant points of the Lancaster and Middlesex County comprehensive plans. He stated the Lancaster plan was an extensive and collaborative effort of both the citizens and their representatives. Central themes of Lancaster's plan are preservation of the rural character and heritage, protection of natural resources, and control of the character and development of the county. He stated, "The signature of Lancaster County is its river vistas, farmlands and natural heritage."<sup>76</sup> Regarding the Middlesex plan, Mr. Costello read an excerpt from page 17 of the plan, "The county's rural nature and the proximity to the Chesapeake Bay and its tributaries will continue to be the major force influencing residential, commercial and water access for any other development and population growth. The citizens will continue to place a high priority on maintaining the rural nature of the territory while accommodating new development."<sup>77</sup> Mr. Costello closed by saying, actions are being taken to put these plans into effect.<sup>78</sup>

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<sup>69</sup> *Id.* at 15.

<sup>70</sup> Exhibit No. 38, at 4.

<sup>71</sup> *Id.*

<sup>72</sup> Exhibit No. 4.

<sup>73</sup> *Id.*

<sup>74</sup> Roussy, Tr. at 440.

<sup>75</sup> Costello, Tr. at 11.

<sup>76</sup> *Id.* at 13.

<sup>77</sup> *Id.*

<sup>78</sup> *Id.* at 11-15.

**Lillian A. Smith** of Warsaw, Virginia, stated she spoke wearing three hats.<sup>79</sup> Ms. Smith spoke as a concerned consumer, a property owner within 75 feet of the proposed towers, and a Dominion Energy, Inc. stockholder. Ms. Smith stated she is for having these lines placed underground. She asked two questions: “Have you made a study to find an alternate feed down the neck without crossing the river?” and “Is this feed across the river for both the Northern Neck and the Middle Peninsula?”<sup>80</sup> Lastly, Ms. Smith stated she is concerned about the effect the line will have on visual integrity and her property value.<sup>81</sup>

**Marty Mothershead** of Warsaw, Virginia, spoke as the vice president in finance and public relations of Northern Neck Electric Cooperative.<sup>82</sup> Mr. Mothershead stated, “Northern Neck Electric is most concerned about the operation, reliability, the cost and the environmental impact associated with this project. To address each of these concerns we support Dominion Energy’s application to construct the overhead transmission line or towers across the Rappahannock River near Norris Bridge.”<sup>83</sup> Mr. Mothershead spoke against undergrounding the line and attaching it to the bridge. He believes the environmental impact of trenching would create more underwater disturbance than the installation of foundations. Mr. Mothershead maintained the foundations would provide a good habitat for fish and marine life. Based on maintenance issues with past lines on the bridge, Mr. Mothershead spoke against placing these lines on the Norris Bridge.<sup>84</sup>

**William James Haynie, III**, a longtime resident of Irvington, Virginia, spoke in favor of undergrounding the proposed line.<sup>85</sup> While he feels as though Dominion Energy does many good things and cares about the area, he does not agree with placing towers in the Rappahannock River. Mr. Haynie raised safety concerns regarding the power line’s proximity to the local airport and accessibility for potential terrorist attacks. Mr. Haynie’s chief safety concern is for boaters. He relayed his experiences as a boater returning home at night with the winds against him and lacking engine power. Mr. Haynie believes that if the poles and the fenders around them were present, he would have to make at least three attacks to make it though. If other traffic was present on the river at the time, it would have been impossible to achieve. For these reasons, Mr. Haynie supports trenching the cables.<sup>86</sup>

**Dermot McNulty**, president of the Irvington Village Improvement Association (“IVIA”), spoke in favor of trenching the power lines.<sup>87</sup> Mr. McNulty stated the purpose of the IVIA is to raise money to beautify the town since the local government, and its budget, is so small. He maintained there is no industrial base in Irvington so the economy is based on tourism, weekend or retirement homes, and leisure activities. He requests the Commission bear in mind the true

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<sup>79</sup> L. Smith, Tr. at 16.

<sup>80</sup> *Id.* at 17.

<sup>81</sup> *Id.* at 16-20.

<sup>82</sup> Mothershead, Tr. at 20.

<sup>83</sup> *Id.* at 23.

<sup>84</sup> *Id.* at 20-27.

<sup>85</sup> Haynie, Tr. at 28.

<sup>86</sup> *Id.* at 28-31.

<sup>87</sup> McNulty, Tr. at 31.



nature of the economy of the area, the fragility of its natural beauty, and what the common man would do. In conclusion, Mr. McNulty advocated “sink[ing] the cable to save the view.”<sup>88</sup>

**James A. Vick** of Morattico, Virginia, spoke on behalf of the tax payers and consumers of Lancaster County.<sup>89</sup> He relayed that many people disagree with the power lines going underground and having to pay for it. Mr. Vick stated he has 40 years of experience in the electrical business laying cable. He communicated, “there is a lot of difference between transmission and underground handling distribution.”<sup>90</sup> Mr. Vick pointed out that over the Currituck Sound on the way to Nags Head and down in Hatteras there are overhead transmission lines. He maintained these lines have not stopped tourists from visiting those areas. Mr. Vick further stated burying the cable in the Rappahannock is a complete unknown. Finally, he said this is an existing line; we are not changing anything except improving the service to Lancaster County.<sup>91</sup>

**Michael Sutherland**, a ten-year resident of Kilmarnock, Virginia, spoke in favor of Dominion Energy’s proposed plan.<sup>92</sup> He thinks “it is morally wrong to expect the citizens of Virginia as well as the [Dominion Energy, Inc.] shareholders to bear these additional costs [to submerge the line] so that a handful of persons should have their way.”<sup>93</sup> Mr. Sutherland maintained the claim that the gateway from the Southern Neck to the Northern Neck would be ruined and that the Norris Bridge would be spoiled are specious. He closed by saying, he believes it is in the best interest of the people of Kilmarnock to allow Dominion Energy to “get on with the upgrade without further delay and obstruction.”<sup>94</sup>

**Edwin E. Blanks** of Richmond, Virginia, spoke as the owner of a vacation home on the Rappahannock.<sup>95</sup> Mr. Blanks requested the Commission consider the financial impact of both options. He spoke of a time when he came to his vacation home to find the power off. Dominion Energy was called and arrived within two hours. The cause was determined to be in the underground line going directly to Mr. Blanks’ home. The men from Dominion Energy dug a hole to fix the issue and power was restored within four hours. He summarized the event by saying just because the Times Dispatch reports fixing underground power outages takes four months, does not make it true.<sup>96</sup>

**Cundiff Simmons** of White Stone, Virginia, spoke against placing the towers over the Rappahannock.<sup>97</sup> Mr. Simmons stated he knows that undergrounding will be expensive.

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<sup>88</sup> *Id.* at 31-35.

<sup>89</sup> Vick, Tr. at 35-36.

<sup>90</sup> *Id.* at 36.

<sup>91</sup> *Id.* at 35-41.

<sup>92</sup> Sutherland, Tr. at 41.

<sup>93</sup> *Id.* at 43.

<sup>94</sup> *Id.* at 41-43.

<sup>95</sup> Blanks, Tr. at 44.

<sup>96</sup> *Id.* at 44-47.

<sup>97</sup> Simmons, Tr. at 48.

Therefore, he suggested considering suspending the lines from the Norris Bridge as a third option.<sup>98</sup>

**Nancy Hamm** of Lancaster, Virginia, spoke as a resident of the area.<sup>99</sup> Ms. Hamm stated the reasons she and her husband moved to this area were “the river and the rural character of this county.”<sup>100</sup> She believes that the towers for the overhead lines will negatively impact the boating community and therefore tourism in the area. Ms. Hamm closed by saying, “I believe that the power lines need to run under the river, under a bridge or around the river but definitely not over the river.”<sup>101</sup>

**Albert Pollard**, a former member of the Virginia General Assembly from Irvington, Virginia, spoke in favor of placing the power lines on the bridge or under the river and for a power line application process that is transparent.<sup>102</sup> Mr. Pollard maintained that Dominion Energy has a higher duty to its customers since it a public utility providing a public service. He believes, “there is a pattern of obfuscation with these infrastructure . . . projects.”<sup>103</sup> He continued by saying, Dominion Energy has not been forthcoming and complete in the information it has provided the public. Mr. Pollard stated his position in a nutshell, “in addition to the remedies of burying this line or connecting it to the bridge, that the SCC creates a standard protocol for public service corporations to inform the public of these infrastructure projects.”<sup>104</sup>

**Peter Mansfield**, a mechanical engineer from Saluda, Virginia, spoke, as a member of the Board of Supervisors with Middlesex County, in favor of placing the power line underground.<sup>105</sup> Mr. Mansfield made the suggestion that Dominion Energy bore into the shallow parts of the Rappahannock and in the deeper parts of the river simply lay the lines on the bottom of the river and let it sink into the muck. He maintained this option would be cheaper than placing the lines aboveground. Mr. Mansfield stated this is not a new solution and it was done under the Erie Canal for about 100 miles.<sup>106</sup>

**Donna Thompson** of White Stone, Virginia, spoke as the vice-chair of the first congressional district of the Democratic Party of Virginia and presented a resolution that the Lancaster County Democratic Committee approved regarding the towers.<sup>107</sup> Ms. Thompson stated Dominion Energy sent representatives to the committee to present very effective information on the overhead transmission line. In response, she stated the committee

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<sup>98</sup> *Id.* at 48.

<sup>99</sup> Hamm, Tr. at 49.

<sup>100</sup> *Id.*

<sup>101</sup> *Id.* at 49-51.

<sup>102</sup> Pollard, Tr. at 52.

<sup>103</sup> *Id.* at 53.

<sup>104</sup> *Id.* at 52-56.

<sup>105</sup> Mansfield, Tr. at 57.

<sup>106</sup> *Id.* at 57, 58.

<sup>107</sup> Thompson, Tr. at 59.

“overwhelmingly, strongly support[s] the installation, operation, maintenance of new underwater transmission lines rather than the overhead transmission line.”<sup>108</sup>

**Roy Carter** of White Stone, Virginia spoke against building the towers over the Rappahannock River.<sup>109</sup> Mr. Carter argued that tourism, driven by the area’s natural beauty, is the main economic driver for the area. He stated first impressions are very important and he believes the towers on the river will leave a negative first impression on tourists. Mr. Carter maintained if the towers are built and affect the natural beauty of the area, tourism will be negatively impacted. To support his position Mr. Carter brought a report from the Virginia Employment Commission showing the unemployment for Lancaster County in relation to the unemployment figures of Virginia and the U.S. Mr. Carter stated, “Our unemployment figures are twice the Virginia average in the months of November, December, January, February because we don’t have the tourism. Tourism is crucial to our business and the reason people come is for the natural beauty.”<sup>110</sup>

**Gary Hooper** of Irvington, Virginia, spoke as a relatively recent resident of Lancaster County.<sup>111</sup> Mr. Hooper stated he believes the towers in the Rappahannock River will negatively impact the largest economic sector in the area – tourism. He maintains that while Dominion Energy does have an obligation to its shareholders and customers to provide low cost options, “I do not believe it should come at the cost of negatively impacting the leading economic generator in our region.”<sup>112</sup>

**Gordon Slatford**, general manager of the Tides Inn in Irvington, Virginia, spoke in favor of burying the transmission lines.<sup>113</sup> Mr. Slatford is against the overhead power lines because he believes they will have an unfavorable impact on tourism which is the backbone of the local economy. Mr. Slatford voiced dissatisfaction with Dominion Energy and the fact that it did not consult with the local community regarding the impact of overhead lines on tourism even though information provided by the Company indicates it has taken the importance of tourism into consideration.<sup>114</sup>

**James Carter** of Irvington, Virginia, stated he believes Dominion Energy’s plans are at odds with the communities efforts to build its economy.<sup>115</sup> Mr. Carter spoke of the improvements underway such as investing in the hospital, creating a satellite in Kilmarnock of the Rappahannock Community College, branding and marketing the oyster as Maryland does the crab, among other economy bolstering initiatives. He requested a “fair transparent process that [the community] can really understand.”<sup>116</sup>

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<sup>108</sup> *Id.* at 59, 60.

<sup>109</sup> R. Carter, Tr. at 61.

<sup>110</sup> *Id.* at 61-70.

<sup>111</sup> Hooper, Tr. at 70.

<sup>112</sup> *Id.* at 70-75.

<sup>113</sup> Slatford, Tr. at 75.

<sup>114</sup> *Id.* at 75-79.

<sup>115</sup> J. Carter, Tr. at 80.

<sup>116</sup> *Id.* at 80-85.

**Ammon Dunton** of White Stone, Virginia, spoke against placing the power lines across the Rappahannock.<sup>117</sup> Mr. Dunton stated the economy of the area has shifted over the years from farming and oyster production to tourism and retirement living. He stated many of the retirees first came as tourists and have come back to retire. Mr. Dunton believes the first impressions of the area, from the Norris Bridge, are important in maintaining the influx of tourists and retirees. He maintains the addition of power lines “will obscure or certainly diminish in a very significant way the first impression of this region.”<sup>118</sup> Mr. Dunton asked the Commission to “require . . . [Dominion Energy] to develop a reasonable specification for the project. And also require them to put it out in competitive bids.”<sup>119</sup>

**Jeff Szyperski** from Irvington, Virginia, spoke as the CEO of Chesapeake Bank in favor of placing the power lines under water.<sup>120</sup> Mr. Szyperski maintained, due to their scenic impact, the towers will negatively effect the growth of tourism, the movement of retirees to the area, and the service sector jobs which support these industries. Mr. Szyperski stated, “I would make an appeal to the Commission that they would hold . . . [Dominion Energy] to the task of providing better cost estimates and I would strongly encourage that those lines go underwater.”<sup>121</sup>

**Ian Ormesher** of Irvington, Virginia, maintained that Dominion Energy’s tower proposal is unsuitable.<sup>122</sup> Mr. Ormesher stated that the setting for the proposed towers is very unique. He described the Norris Bridge as the “highest major water crossing in Virginia.”<sup>123</sup> The bridge is also longer than a mile, making it one of only 82 bridges of that length or greater in the United States. Mr. Ormesher stated the river itself is exceptional in that it is a premier location for sailing due to its extensive deep unobstructed water. According to Mr. Ormesher, from looking at “the charts . . . this crossing is not just in the deepest water anywhere near a bridge but we put it as the deepest water crossing of any transmission towers across rivers in the whole of the U.S.A.”<sup>124</sup> Mr. Ormesher questioned Dominion Energy’s proposed cost of construction, especially as it relates to the depth of the river.<sup>125</sup>

**Bruce Julian**, a 30-year boater and past director of the Rappahannock River Yacht Club from Weems, Virginia, spoke against the towers and for undergrounding the power lines across the river.<sup>126</sup> Mr. Julian’s main concern is boater safety. He maintained the towers will create safety risks because their proposed placement does not align with the current bridge spans, skipper’s sight lines would be impaired by the fenders, and the fenders would “concentrate and

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<sup>117</sup> Dunton, Tr. at 85.

<sup>118</sup> *Id.* at 87.

<sup>119</sup> *Id.* at 85-90.

<sup>120</sup> Szyperski, Tr. at 90.

<sup>121</sup> *Id.* at 90-93.

<sup>122</sup> Ormesher, Tr. at 93.

<sup>123</sup> *Id.* at 94.

<sup>124</sup> *Id.* at 98.

<sup>125</sup> *Id.* at 93-100.

<sup>126</sup> Julian, Tr. at 101.

congest and restrict the traffic to this choke point created.”<sup>127</sup> Mr. Julian continued by saying the local businesses, which depend on the boating community, will be negatively impacted economically if boaters decided to go elsewhere due to increased safety concerns caused by the towers. In summary Mr. Julian stated, “The power lines and towers will restrict this prime boating area between Mosquito Point and Towles Point by 50 percent and make it 400 percent more difficult to sail and immeasurably more dangerous.”<sup>128</sup>

**Tom Chapman**, of Irvington, Virginia, and the fleet captain of the Rappahannock Yacht Club with 50 years of sailing experience, spoke in favor of placing the power lines underground.<sup>129</sup> Mr. Chapman shares Mr. Julian’s concern regarding the proposed tower’s impact on boating safety. He stated a sailor’s ability to navigate through the bridge and proposed towers will depend on the wind direction and speed and river currents. Mr. Chapman continued by saying the proposed placement of the towers and their proximity to the current bridge supports would make navigation hazardous because it creates an “alleyway” in the middle in which sailing traffic can pass.<sup>130</sup>

**Joe Heyman** of Urbanna, Virginia, spoke on behalf of the Urbanna Town Council in favor of placing the power lines underground and he stated the council passed a resolution in August of 2015 to that effect.<sup>131</sup> Mr. Heyman stated Urbanna depends on tourism and boating as its only source of income. To that end, Mr. Heyman communicated that the council recently approved a project to dredge its slips to make them deeper in order to attract larger vessels. He is concerned the proposed towers will not only impact the beauty of the area but also pose “a navigational impediment as well.”<sup>132</sup> Mr. Heyman maintains this impediment will adversely impact Urbanna’s ability to attract tourists and boaters.<sup>133</sup>

**Joy Gwaltney** of White Stone, Virginia, spoke on her own behalf through a visual presentation of the Norris Bridge in art, marketing, and photography as a symbol of the community.<sup>134</sup> She is concerned about the Norris Bridge and how this symbol of the area might be altered if the proposed power lines are built. Ms. Gwaltney concluded her presentation by saying, “So I urge you to just take the temperature of the community and realize the importance of that particular spot in our region.”<sup>135</sup>

**Bob Wayland** of White Stone, Virginia, spoke in favor of maintaining the rural appearance of the Rappahannock River and the alternatives to Dominion Energy’s proposed power lines across the river.<sup>136</sup> Mr. Wayland maintains that the area is a tranquil retreat from the

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<sup>127</sup> *Id.* at 104.

<sup>128</sup> *Id.* at 101-07.

<sup>129</sup> Chapman, Tr. at 107.

<sup>130</sup> *Id.* at 107-10.

<sup>131</sup> Heyman, Tr. at 110-11.

<sup>132</sup> *Id.* at 112.

<sup>133</sup> *Id.* at 110-12.

<sup>134</sup> Gwaltney, Tr. at 112-13.

<sup>135</sup> *Id.* at 112-15.

<sup>136</sup> Wayland, Tr. at 116.

hustle and bustle of life and provides many opportunities to enjoy nature such as sailing, kayaking, fishing and swimming. In his view, the natural beauty of the area is worth protecting from the industrialization other rivers in Virginia have sustained.<sup>137</sup>

**Alexander J. McKelway** of White Stone, Virginia, spoke in favor of preserving the natural beauty of the Rappahannock River and specifically the area around the Norris Bridge.<sup>138</sup> Mr. McKelway noted that “[a]mong Virginia’s great tidal rivers the Rappahannock remains relatively untouched.”<sup>139</sup> Since other rivers in Virginia, such as the James and the York, have had a large amount of industrial growth, Mr. McKelway maintains there is even more reason to preserve the beauty of the Rappahannock.<sup>140</sup>

**John Barber**, a full-time professional artist from Richmond, Virginia, spoke in favor of placing the power lines under the river so as not to destroy the natural beauty of the Rappahannock River.<sup>141</sup> Mr. Barber stated he has spent most of his 40-year career using the Chesapeake Bay and her rivers as the subject of his art. He and his wife owned homes in Lancaster County and Middlesex County, with the Rappahannock River at the center of his personal life and career. Mr. Barber recounted a visit he had with friends from Malmo, Sweden, who enjoyed their visit to the Northern Neck and the Rappahannock River so much that they commissioned a piece of art to be placed in their home from Mr. Barber depicting a scene from the Rappahannock. Mr. Barber contended “this is not only a national treasure but also an international treasure, loved and enjoyed by incalculable numbers of people.”<sup>142</sup> Mr. Barber referred to Chief Seattle of the Duwamish Indians and admonished that “we do not inherit the earth from our ancestors, we borrow it from our children.”<sup>143</sup> He requested “that the SCC not allow this magnificent river scape to be blighted by the proposed gargantuan towers.”<sup>144</sup>

**Emily Davies** of Urbanna, Virginia, spoke in favor of placing the power lines underground.<sup>145</sup> Ms. Davies raised questions about the Company’s ability to accurately estimate project schedules and costs. She pointed to inaccuracies regarding the Company’s projected cost of the towers. The Company’s application to VMRC stated the estimated cost is \$10 million but this figure grew at the hearing to \$30 million.<sup>146</sup> In the Application to the Commission the figure provided was \$26.2 million.<sup>147</sup> According to Ms. Davies, when the Company provided a cost projection to place the power lines underground, the number they provided was \$84 million.<sup>148</sup> Ms. Davies stated that the actual cost to place the power lines under the York River, at a crossing

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<sup>137</sup> *Id.* at 116-21.

<sup>138</sup> McKelway, Tr. at 121-22.

<sup>139</sup> *Id.* at 123.

<sup>140</sup> *Id.* at 121-24.

<sup>141</sup> Barber, Tr. at 126.

<sup>142</sup> *Id.* at 127.

<sup>143</sup> *Id.*

<sup>144</sup> *Id.*

<sup>145</sup> Davies, Tr. at 128.

<sup>146</sup> *Id.* at 131.

<sup>147</sup> *Id.*

<sup>148</sup> *Id.* at 132.

approximately 3.3 miles in length, was \$83 million.<sup>149</sup> She questioned the accuracy of the \$84 million estimate since the length for the crossing of the Rappahannock is approximately 2.2 miles, or two-thirds the length of the York River crossing.<sup>150</sup> In Ms. Davies view, the Line 65 crossing of the Rappahannock River meets all the criteria of House Bill 1319, including the requirement that undergrounding the line should not cost more than two and a half times the cost of placing them overhead. Based on Ms. Davies calculation, two and a half times \$26.2 million is \$65.5 million which is “\$10 million more than the estimate extrapolated from the actual York crossing costs.”<sup>151</sup>

**Gerhard Lehman** of Weems, Virginia, raised questions regarding the placement options being considered for the power lines and spoke in favor of placing them under the river.<sup>152</sup> If the power lines are put on towers over the river, he is concerned about the towers obstructing the placement of the new bridge once it is under construction.<sup>153</sup>

**Carol Nelson** of Lancaster, Virginia, spoke in favor of maintaining the beauty of the area.<sup>154</sup> She stated that as a school teacher she used depictions and dioramas, among other things, to tell children about their history and culture. Ms. Nelson stated the Rappahannock River is a gem in that the area is still the way early settlers found it when they arrived. Ms. Nelson feels “morally obligated” to preserve the beauty for generations to come.<sup>155</sup>

**John Nelson** of Lancaster, Virginia, requested the Commission “not let [Dominion Energy] . . . detract from the beautiful presence of this river and even the bridge.”<sup>156</sup> Mr. Nelson retired from working for the National Park Service in Washington, D.C. He likened the purpose of the National Park Service, to preserve landmarks and make them available to the public, to what needs to be done to preserve the beauty of the Rappahannock River.<sup>157</sup>

**Neill Shultz** of Kilmarnock, Virginia, spoke strongly against erecting the towers.<sup>158</sup> Mr. Shultz said his parents moved to the area from Washington, D.C., because they were drawn to its beauty. He has fond memories of growing up and learning to sail on the Rappahannock. Mr. Shultz is in the real estate business and said that in his profession he regularly hears people say the reason they chose to buy property in the area is the beauty. In closing, Mr. Shultz expressed concerns about the navigational impact the towers will have on boating on the river.<sup>159</sup>

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<sup>149</sup> *Id.*

<sup>150</sup> *Id.* at 132-33.

<sup>151</sup> *Id.* at 133.

<sup>152</sup> Lehman, Tr. at 134-36.

<sup>153</sup> *Id.* at 136-37.

<sup>154</sup> C. Nelson, Tr. at 137-38.

<sup>155</sup> *Id.* at 138.

<sup>156</sup> J. Nelson, Tr. at 138-39.

<sup>157</sup> *Id.*

<sup>158</sup> Shultz, Tr. at 140.

<sup>159</sup> *Id.* at 140-42.

**Terry Smith** of Irvington, Virginia, provided testimony on issues he sees with the power line application process, what he views as the six potential options for the power lines, and security.<sup>160</sup>

Mr. Smith testified that better state and SCC regulations which provide “clearer substantive standards” would have required Dominion Energy provide more complete and forthcoming information on their application. This, in turn, would provide the community with better understanding upon which to form an opinion on the matter.<sup>161</sup>

Of the six potential options for the power lines, Mr. Smith maintained three of them should be dismissed as unsuitable. First he would dismiss exposed lines on insulators over the existing bridge because it creates a maintenance conflict and a problem for the loop redundancy requirement. The second and third options Mr. Smith would dismiss are lines running across the bottom and plowing through the river floor because both choices would have environmental consequences.<sup>162</sup>

There are three options Mr. Smith considers viable. The first option Mr. Smith describes as a “very minor modification of the original plan.”<sup>163</sup> He believes placing a wider, navigable space at the south end of the line between the towers holding the power lines and the bridge would be workable. Mr. Smith noted it is easier to make adjustments on aerial lines for grid redesign and customer’s changing load needs.<sup>164</sup>

Mr. Smith’s second option is bridge attachment. The lines would not be open lines but rather XLP cable or something comparable that could be run under the bridge and during bridge maintenance, there would be no need to turn power off. Mr. Smith states this option will likely have a life expectancy range between 30 to 50 years. This option would change the load distribution on the bridge which would be a concern for VDOT.<sup>165</sup>

The third option Mr. Smith would consider is horizontal directional drilling. Mr. Smith stated with traditional technology the life expectancy was about 35 years, however with current plastics aging lab tests indicate their life expectancy could be in the 70- to 100-year range. While this is still an unknown, Mr. Smith maintained this option has the potential to be the most reliable and have the longest life expectancy. However, Mr. Smith stated if lightning struck the line it could cause a failure and to repair this line is much more difficult. Mr. Smith noted that due to the aesthetics and potential commercial effects, there would be strong community support for horizontal drilling.<sup>166</sup>

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<sup>160</sup> T. Smith, Tr. at 143-58.

<sup>161</sup> *Id.* at 145-46.

<sup>162</sup> *Id.* at 147.

<sup>163</sup> *Id.*

<sup>164</sup> *Id.* at 147-50.

<sup>165</sup> *Id.* at 150-52.

<sup>166</sup> *Id.* at 152-54.



An additional option Mr. Smith suggested was migration of lines to other existing facilities. Mr. Smith stated:

They could more easily than running . . . transformer facilities at either side of the river, simply connect the south side lines that are already built for 230 from Harmony Grove Substation and run to the White Stone Substation at 230, keep the 115 kilovolt substation gear . . . at White Stone, . . . Ocran, Kilmarnock and the other one between there and Warsaw until at some time it's worth making the investment, replacing the switch gear and major transformers that are huge costs that probably are prohibitive given the load factors that [Dominion Energy's] talked about so far.<sup>167</sup>

The last point Mr. Smith discussed was the disclosure of factual details about the project. Mr. Smith maintained that "fake security feeder standards also interfere with the public's ability to comment."<sup>168</sup> Mr. Smith said by so doing, it makes it more difficult and even tedious for the public to accurately evaluate each option. He opined that if there was a way to fix that it would be very helpful.<sup>169</sup>

**Sue Lane Conrad** of Weems, Virginia, spoke against Dominion Energy's Application to build towers across the Rappahannock River.<sup>170</sup> Ms. Conrad expressed frustration about how she feels "[Dominion Energy] railroaded [the Application] through subterfuge."<sup>171</sup>

**Robert C. Hood** of Lancaster, Virginia, spoke against placing the towers on the river. Mr. Hood made three points.<sup>172</sup> First, he thanked the Commission for its work in allowing the public to be involved. Second, Mr. Hood requested that further research be done by outside parties regarding the design and cost of each of the potential options. Finally, Mr. Hood raised questions regarding the ability to navigate a sail boat up the Rappahannock with the proposed barriers in place. He maintained the barriers create "a serious hazard."<sup>173</sup>

**Patrick McCraine**, the Sheriff of Lancaster County, Virginia, spoke against building the towers because of safety concerns.<sup>174</sup> Sheriff McCraine maintained that many visitors are drawn to the area for water recreation. There has been increased boating on the Rappahannock which has also lead to additional boating accidents, some of which were fatal. He is concerned that the "original proposal submitted by [Dominion Energy] consisting of 10 massive double steel towers on concrete bases along two very large fenders in the channel . . . would add major new hazards to navigation increasing the possibility of accidents. The math is simple. Obstacles equal[] more

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<sup>167</sup> *Id.* at 154-55.

<sup>168</sup> *Id.* at 156.

<sup>169</sup> *Id.* at 156-58.

<sup>170</sup> Conrad, Tr. at 159.

<sup>171</sup> *Id.* at 159-60.

<sup>172</sup> Hood, Tr. at 165.

<sup>173</sup> *Id.* at 165-67.

<sup>174</sup> McCraine, Tr. at 168.

accidents.”<sup>175</sup> Sheriff McCraine stated the increased risk to public safety, when these risks can be mitigated by reasonable alternatives, is unwarranted.<sup>176</sup>

**General John J. Sheehan** of Kilmarnock, Virginia, and former Commander and Chief of U.S. Forces Command, spoke in favor of placing the power lines across the Rappahannock underground for security reasons.<sup>177</sup> General Sheehan maintained that “following the attacks of 911 it was very clear to those in Washington that there was a need for new thinking regarding the private sector’s role in insuring our nation’s security.”<sup>178</sup> The General stated “85 percent of the U.S. key infrastructure is privately owned and operated by companies like [Dominion Energy].”<sup>179</sup> If the towers were built across the Rappahannock and an act of terrorism or a natural disaster occurred, General Sheehan stated, it would take weeks to restore power to the area.<sup>180</sup>

**David Coakley**, owner of a second home in White Stone, Virginia, spoke in favor of placing the proposed power lines underground.<sup>181</sup> Mr. Coakley spoke from an economic perspective regarding the effects of the towers over the river. He said the reason he and his wife built a house in White Stone was the appeal of the “easy pace, rural nature and quality of life.”<sup>182</sup> Mr. Coakley indicated that is the same reason many other people come to the area. When the tourists or second homeowners come to the area, they boost many sectors of the local economy. He pointed out that power cables were placed under the York, Elizabeth and Piankatank Rivers as well as Urbanna Creek. Mr. Coakley requested that the Commission consider the quality of life in the Northern Neck and to do what it can to encourage the Company to do the same.<sup>183</sup>

**Michael Merrill** of Irvington, Virginia, serves on the town council and the planning commission.<sup>184</sup> Mr. Merrill spoke against the proposed towers. He maintains that building the towers would have a negative economic impact on the area by deterring “people from visiting . . . investing . . . retiring . . . and shopping here.”<sup>185</sup> Mr. Merrill noted that, in addition to the security risks and hazards Gen. Sheehan and Sheriff McCraine spoke of, during construction of the towers there is the potential for additional accidents due to the distraction of drivers. He stated “We have an idyllic, rural, historic setting and we prize that very highly.”<sup>186</sup>

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<sup>175</sup> *Id.* at 168-69.

<sup>176</sup> *Id.*

<sup>177</sup> Sheehan, Tr. at 169-70.

<sup>178</sup> *Id.* at 170.

<sup>179</sup> *Id.* at 171.

<sup>180</sup> *Id.* at 169-73.

<sup>181</sup> Coakley, Tr. at 173-74.

<sup>182</sup> *Id.* at 174.

<sup>183</sup> *Id.* at 173-76.

<sup>184</sup> Merrill, Tr. at 176-77.

<sup>185</sup> *Id.* at 177.

<sup>186</sup> *Id.* at 176-80.

**Jack Chamberlain** of Lancaster, Virginia, spoke in favor of placing the power lines underground.<sup>187</sup> Mr. Chamberlain is an avid sailor and stated the towers, and the fenders around them, will be restrictive for boating. Additionally, Mr. Chamberlain maintained “we must keep up with our power needs but not at the cost of our natural beauty and quality of life.”<sup>188</sup>

**George Bott** of Lancaster, Virginia, displayed pictures of the area and spoke about the effect the proposed towers might have on the boating economy of the area.<sup>189</sup> Mr. Bott stated that upon request William and Mary, Virginia Institute of Marine Science did a study of the boating economy in 2013.<sup>190</sup> When direct and indirect expenditures were totaled, boaters spent \$24 million in the local marinas and slips which were only 58% occupied.<sup>191</sup> Mr. Bott stated a tax reduction was put in place in 2015 for large boats.<sup>192</sup> At that time, boat taxes in Lancaster County were three times greater than real estate taxes. After the tax reduction, the marinas started to fill up and a positive effect was felt on the local boating economy. Mr. Bott stated this year the boat tax on the remaining 4,000 boats in Lancaster County has been removed.<sup>193</sup> He stated if straight line projections were used, the county would be receiving a \$40 million contribution to the local economy from boaters.<sup>194</sup> Mr. Bott continued by saying boating is an economic driver for the area. If boaters are deterred from coming to the area because of the towers, then that’s about \$500 to \$1,000 per boat the economy does not receive.<sup>195</sup>

Mr. Bott continued by stating, based on Dominion Energy’s criteria as posted on their website, he believes the Rappahannock River meets the requirements for undergrounding. According to Mr. Bott, Dominion Energy’s site states that it reserves “going underground for large water crossing” and “other areas not suitable for overhead lines.”<sup>196</sup> Mr. Bott stated, “The solution fits our situation according to Dominion Energy’s own slide.”<sup>197</sup> He closed by requesting that the power lines be placed underwater.<sup>198</sup>

**Hilda Page** of White Stone, Virginia, spoke in favor of preserving the beauty of the area.<sup>199</sup> She stated, “Historically, environmentally, economically, we just respectfully ask [for] an alternative along the lines of what you see at the Coleman on the York or the Piankatank.”<sup>200</sup>

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<sup>187</sup> Chamberlain, Tr. at 181.

<sup>188</sup> *Id.* at 181-82.

<sup>189</sup> Bott, Tr. at 182.

<sup>190</sup> *Id.* at 184.

<sup>191</sup> *Id.*

<sup>192</sup> *Id.*

<sup>193</sup> *Id.*

<sup>194</sup> *Id.* at 185.

<sup>195</sup> *Id.* at 185-86.

<sup>196</sup> *Id.* at 187.

<sup>197</sup> *Id.*

<sup>198</sup> *Id.* at 187-88.

<sup>199</sup> Page, Tr. at 189.

<sup>200</sup> *Id.* at 189-90.

**C. Scott Vail**, a 16-year resident of Irvington, Virginia, and owner of a yacht brokerage business, spoke against damaging the beauty of the area.<sup>201</sup> In support of its preservation Mr. Vail stated, “The Rappahannock is the only non-commercial river in Virginia. It has no ship traffic. It has only limited barge traffic and is enjoyed by thousands . . . of recreational boaters year round.”<sup>202</sup> Mr. Vail asked that the existing beauty be preserved.<sup>203</sup>

**Anne Cotter**, a 14-year resident of Kilmarnock, Virginia, spoke against constructing power lines across the Rappahannock River.<sup>204</sup> Ms. Cotter maintained that while Dominion Energy claims it is too expensive to place the power lines underwater, Dominion Energy is building a new twenty-story building in Richmond. Ms. Cotter stated, “if [Dominion Energy] is [ ] spending so much time worrying about Richmond’s skyline, do they not care about our skyline?”<sup>205</sup> She closed by requesting that a more suitable solution be used for the power lines.<sup>206</sup>

**Doug Monroe** of Irvington, Virginia, spoke of the growth of the population and infrastructure since he first came to the Northern Neck as a boy in 1938.<sup>207</sup> He relayed information regarding the community involvement of the locals and how nature and the beauty of the area are what draws people to this part of the world. Mr. Monroe maintained that “If the proposed towers are built the mental vision of the community’s peaceful, rural beauty and infrastructure will be compromised by strong, negative and continuing false visual impressions created by [Dominion Energy’s] offensive Rube Goldberg electric towers.”<sup>208</sup>

**Susan Clingan**, a 37-year resident of Kilmarnock, Virginia, spoke of how welcoming the Northern Neck community was to her and others.<sup>209</sup> Ms. Clingan raised concerns regarding potential problems regarding the towers the Company has proposed. Her concerns include the towers’ impact on boating and aircraft safety, and the local appeal of the area. She stated the proposed towers “would create a visible eyesore and destroy some of the beauty that welcomes many to our county.”<sup>210</sup>

**Arabella Denvir** of White Stone, Virginia, owns Premier Sailing School based at the Tides Inn.<sup>211</sup> Ms. Denvir raised concerns regarding the impact the towers, with their surrounding fenders, would have on the sailing community. She stated that as it is now, the area is perfectly situated for sailing with Carter’s Creek for children, since it is protected, and the Corrotoman for larger boats. Ms. Denvir explained she would be forced to curtail the sailing area for her

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<sup>201</sup> Vail, Tr. at 191.

<sup>202</sup> *Id.*

<sup>203</sup> *Id.* at 191-92.

<sup>204</sup> Cotter, Tr. at 192-93.

<sup>205</sup> *Id.* at 193.

<sup>206</sup> *Id.* at 193-94.

<sup>207</sup> Monroe, Tr. at 194.

<sup>208</sup> *Id.* at 198.

<sup>209</sup> Clingan, Tr. at 199.

<sup>210</sup> *Id.* at 199-01.

<sup>211</sup> Denvir, Tr. at 201-02.

students if the towers were built. She went on to describe the process required to sail through the proposed towers and fenders in normal weather. She then continued by discussing the difficulty of sailing through the fenders in windy or otherwise difficult weather conditions. Ms. Denvir stated that if a powerboat and a sail boat were traveling through the fenders at the same time, the wake from the powerboat would further impede the sail boat's ability to navigate through the fenders.<sup>212</sup>

**Judy Fay** of Irvington, Virginia, is a lifelong resident of the Northern Neck.<sup>213</sup> After questioning visitors for years, Ms. Fay maintained the main reason they come and return to the area is the feeling of stress relief and relaxation when the river is in sight or as they cross over the bridge. She explained that if "industrial towers" are built over the bridge, she believes the area will no longer evoke this type of feeling in visitors. Ms. Fay is in favor of implementing another solution. In closing she said, "I kindly ask that you do not allow [Dominion Energy] to pave paradise to put up a parking lot."<sup>214</sup>

**Ann Sullivan** of White Stone, Virginia, spoke against building the towers over the Rappahannock.<sup>215</sup> She maintains, while there are beautiful river views in Virginia, "the Rappahannock and the view to the bay are the most beautiful."<sup>216</sup>

**Glenn C. Cockvell** of Irvington, Virginia, spoke against building the towers over the river.<sup>217</sup> Mr. Cockvell contended that, if built, the "region's soul would be irreparably diminished."<sup>218</sup> Mr. Cockvell referenced or quoted Captain John Smith, Theodore Roosevelt, the Bible and John Barber in support of maintaining the Rappahannock's visual beauty. He believes the power lines would not complement the beauty of the area, but instead create a blemish on it.<sup>219</sup>

**John S. Henley**, a professional engineer and member of the Rappahannock Racing and Cruising Club from Lancaster, Virginia, spoke in opposition to building the towers over the river and in favor of placing them underground.<sup>220</sup> Mr. Henley provided an example of the difficulty of navigating the river on a sail boat while the proposed towers are under construction.<sup>221</sup>

**Carl Smith**, President of the Coalition from White Stone, Virginia, compared the Rappahannock River to national treasures such as Yellowstone, Yosemite and the Grand Canyon.<sup>222</sup> Mr. Smith maintained the Rappahannock is just as worthy of protection as these

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<sup>212</sup> *Id.* at 202-07.

<sup>213</sup> Fay, Tr. at 207.

<sup>214</sup> *Id.* at 209.

<sup>215</sup> Sullivan, Tr. at 209-10.

<sup>216</sup> *Id.* at 210-11.

<sup>217</sup> Cockvell, Tr. at 211-12.

<sup>218</sup> *Id.* at 217.

<sup>219</sup> *Id.* at 211-17.

<sup>220</sup> Henley, Tr. at 217-18.

<sup>221</sup> *Id.* at 218-19.

<sup>222</sup> C. Smith, Tr. at 220.

national treasures. He listed multiple examples of Dominion Energy providing, what he believes to be, false and misleading information. Mr. Smith described Dominion Energy as having a “culture of deception.”<sup>223</sup> In closing Mr. Smith stated, “I urge you to preserve the irreplaceable beauty of the Rappahannock and direct Line 65 [to] be installed under the riverbed.”<sup>224</sup>

**Carolyn Prescott**, an 18-year resident of Kilmarnock, Virginia, spoke about what she described as the “soul of [the] community.”<sup>225</sup> Ms. Prescott passed around two paintings of the area done by Jane Carter which she believes captures the “artistic soulful feeling . . . of an unspoiled view.”<sup>226</sup> She also described a well-loved and iconic symbol of the area which is a boat named Miss Ann. Ms. Prescott described the community’s response when the decision was made to sell the Miss Ann due to repair issues. She closed by saying the river and the bridge hold a lot of sentiment and meaning for the local community.<sup>227</sup>

**Joanna Carrington** of White Stone, Virginia, stated she agreed with much of the other testimony presented.<sup>228</sup> Ms. Carrington echoed the belief that the Rappahannock is a beautifully unspoiled river and should be afforded protection. She requested that the power lines be placed underground instead of on towers over the river.<sup>229</sup>

**Patricia Taylor** of White Stone, Virginia, stated that she, like others who make the Northern Neck their home, have lived many places around the world but choose to come back here.<sup>230</sup> She spoke about integrity and questioned Dominion Energy’s integrity in this proceeding. She hopes that “the integrity of that bridge and this place, this magical wonderful place” is maintained.<sup>231</sup>

**Keith L. Butler**, a lifelong resident of Kilmarnock, Virginia, raised many questions regarding the effect of the tower construction over the river.<sup>232</sup> He questioned the effect on the economy and ecology of the area. In closing Mr. Butler stated, “our jobs, our way of life, our tourist community could all end with these towers.”<sup>233</sup>

**Anthony Blackstone** of White Stone, Virginia, stated that the people of the area are “successors to John Smith, we’re the custodians of this treasure.”<sup>234</sup> Mr. Blackstone is against

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<sup>223</sup> *Id.* at 221.

<sup>224</sup> *Id.* at 228.

<sup>225</sup> Prescott, Tr. at 230.

<sup>226</sup> *Id.* at 231.

<sup>227</sup> *Id.* at 229-33.

<sup>228</sup> Carrington, Tr. at 233.

<sup>229</sup> *Id.* at 233-34.

<sup>230</sup> Taylor, Tr. at 234-35.

<sup>231</sup> *Id.* at 235-37.

<sup>232</sup> Butler, Tr. at 237-38.

<sup>233</sup> *Id.* at 239.

<sup>234</sup> Blackstone, Tr. at 239-41.

having the towers built over the river due to the effect on the view. He stated, “National treasures and industrial structures just don’t match and they never will.”<sup>235</sup>

### Public Hearing – September 20, 2016

On September 20, 2016, a public hearing solely for the purpose of receiving testimony from public witnesses was convened in the Commission’s courtroom in Richmond, Virginia. Twenty-two public witnesses presented testimony. The testimony of each witness is summarized below.

**Duane R. Bushey** of Weems, Virginia, spoke against the power lines being placed on towers across the river.<sup>236</sup> He raised concerns regarding the security of above ground lines. Mr. Bushey favored the completion of studies for alternatives to the tower option. He supported review of the possible joint effort between Dominion Energy and VDOT of placing the power lines on the new bridge being considered and thought placing the lines under the bridge would mitigate the aesthetic effect of the lines and provide protection to the power lines. Mr. Bushey stated he believes “challenging our university engineering and technology departments will produce someone thinking outside the box and will come up with the right solution.”<sup>237</sup>

**John Chamberlain**, a strong supporter of the Coalition from Lancaster, Virginia, spoke in opposition to the building of towers across the river to transmit power.<sup>238</sup> Mr. Chamberlain maintained Dominion Energy has not considered any alternatives to the towers due to the belief that aerial lines are cheaper. He further maintained Dominion Energy has not shown credible figures to support its belief. Mr. Chamberlain argued that due to Dominion Energy’s large political contributions on both sides of the aisle, the Company is allowed to have what it desires. Mr. Chamberlain closed by saying, “We must not allow [Dominion Energy’s] political clout to overrule common sense.”<sup>239</sup>

**Charlie Costello** of Merry Point, Virginia, raised questions regarding the accuracy of numbers in testimony regarding power outages on the Norris Bridge provided by Mr. Alan and Mr. Kaminsky on behalf of the Company.<sup>240</sup> Mr. Costello stated he is against having the towers on the river and is for placing the power lines under the water.<sup>241</sup>

**David H. Herndon**, a licensed merchant marine captain and Squadron port captain for the U.S. Power Squadrons from White Stone, Virginia, spoke against placing towers on the

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<sup>235</sup> *Id.* at 242.

<sup>236</sup> Bushey, Tr. at 253.

<sup>237</sup> *Id.* at 253-55.

<sup>238</sup> Chamberlain, Tr. at 256.

<sup>239</sup> *Id.* at 256-60.

<sup>240</sup> Costello, Tr. at 261.

<sup>241</sup> *Id.* at 261-70.

river.<sup>242</sup> In support of his position, Mr. Herndon raised two points of concern regarding the aerial power lines.<sup>243</sup>

His first concern is regarding the unique nature of the Rappahannock River. Mr. Herndon provided the following facts regarding the river: (i) it is the longest free-flowing river east of the Mississippi, (ii) it is the only major river in Virginia that is not heavily industrialized, (iii) it is the only wide-entrance river in America with a bridge, and (iv) its total watershed area measures 2,848 square miles.<sup>244</sup>

Mr. Herndon's second concern regarding the proposed towers is the navigational hazard they create for boaters. He estimated daily boat travel under the bridge as 12 boats in the winter and up to 100 boats during warmer months. Of those boats, approximately half are sail boats. Mr. Herndon stated when crossing under the bridge, "sailboats can't go directly into the wind; they have to zig back and forth at an angle to get through."<sup>245</sup> He went on to say that "If the proposed towers and fenders are constructed, the passage of sailing vessels through the center channel will become significantly more difficult when traveling against both tidal currents and the wind, as the area for maneuvering and [tacking back and forth] can become seriously restricted."<sup>246</sup> Additionally, Mr. Herndon pointed out that in sailboat races, boaters are not allowed to use their engines; therefore, these barriers would prevent the racing of sailboats through the bridge.<sup>247</sup>

**Joseph Sarnowski** of White Stone, Virginia, stated his opposition to Dominion Energy's proposal to replace the existing lines with elevated towers.<sup>248</sup> Mr. Sarnowski recounted the opposition consensus of those in attendance at the July hearing. In support of his opposition, he stated that he, like many current residents of the area, was drawn to the beauty of the area and the sailing opportunities. Mr. Sarnowski stated he and his family lived in many places due to job relocations, but were drawn to the Northern Neck as their final residence like many other "new come-heres." Mr. Sarnowski maintained, "As an important segment of the local populous, these new come-heres, whether tourists or new homeowners, became one of the principal driving forces for the economic transformation of the area."<sup>249</sup> He further stated, "We, the new arrivals, win big and the community's economic growth and prosperity also win big."<sup>250</sup> In closing, Mr. Sarnowski stated his disappointment and embarrassment at Dominion Energy's lack of planning and disclosure. He stated Dominion Energy has experience in underwater alternatives and he requested the Company provide more accurate and substantive information regarding alternatives to the erection of towers to transmit the needed power.<sup>251</sup>

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<sup>242</sup> Herndon, Tr. at 271.

<sup>243</sup> *Id.* at 271-72, 277-78.

<sup>244</sup> *Id.* at 272, 276.

<sup>245</sup> *Id.* at 280.

<sup>246</sup> *Id.*

<sup>247</sup> *Id.* at 278-81.

<sup>248</sup> Sarnowski, Tr. at 284.

<sup>249</sup> *Id.* at 285-86.

<sup>250</sup> *Id.* at 288.

<sup>251</sup> *Id.* at 284-90.



**Carol L. Engstrom** of White Stone, Virginia, spoke against placing the towers across the Rappahannock River.<sup>252</sup> She stated her appreciation of the process by which she, as a citizen, is able to voice her opinion on this issue. Ms. Engstrom further stated she is aware Dominion Energy must answer to many different groups of people and government agencies. She compared power transmission issues to oil transmission and distribution issues. Ms. Engstrom believes while there are shared issues in these industries, the costs are much different. She closed by stating her hope that the Commission will rule in opposition to building “unsightly towers crossing our beautiful Rappahannock River.”<sup>253</sup>

**Len Engstrom**, a 14-year resident of White Stone, Virginia, stated his opposition to the “construction of ugly industrial towers across the Rappahannock River.”<sup>254</sup> He continued by saying he and his wife moved to the area, like many others, because of its beauty and opportunities for sailing. He closed by saying it is his desire to preserve this beauty for many more generations.<sup>255</sup>

**Wendy D. Smith** of White Stone, Virginia, stated, “I oppose the construction of the transmission line towers as proposed by . . . [Dominion Energy]. The Rappahannock River is an unspoiled treasure, and I feel the transmission lines should be installed out of sight, under the water to preserve the beauty of our area.”<sup>256</sup>

**Roy Carter** of White Stone, Virginia, spoke of local life in the Northern Neck.<sup>257</sup> He stated it’s not like the city, the pace is much slower and people hangout at the post office where they get their mail. Mr. Carter said the population of the area has grown very little since the 1910 census, and as recently as 2000 the population has decreased. The economy of the area is heavily dependent on tourism. Mr. Carter summarized his position by stating, “We need [underground transmission lines] to preserve our way of life and to also keep our economy hopefully strong and keep some employment. We don’t want to lose tourism because we’re going to become industrialized and look like other areas . . . in the State of Virginia.”<sup>258</sup>

**Mark Brandon** of Richmond, Virginia, spoke in opposition to placing the transmission lines across the Rappahannock River.<sup>259</sup> Mr. Brandon believes it is important to preserve the history and beauty of Virginia. While he holds stock in the Company he stated, “I have no crocodile tears for what’s affordable for Dominion Energy . . . They have the money to do things the right way. They should.”<sup>260</sup>

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<sup>252</sup> C. Engstrom, Tr. at 290.

<sup>253</sup> *Id.* at 290-92.

<sup>254</sup> L. Engstrom, Tr. at 292-93.

<sup>255</sup> *Id.* at 293.

<sup>256</sup> W. Smith, Tr. at 293.

<sup>257</sup> R. Carter, Tr. at 293-94.

<sup>258</sup> *Id.* at 294-96.

<sup>259</sup> Brandon, Tr. at 296-97.

<sup>260</sup> *Id.* at 297-98.

**Justin Sarafin** from Charlottesville, Virginia, spoke on behalf of Preservation Virginia.<sup>261</sup> Mr. Sarafin maintained that “utility infrastructure proposals such as the Line 65 rebuild threatens to undermine the integrity of key natural and historic resources, inserting industrial infrastructure into a landscape directly affects the health of the tourist industry, the jobs [the tourists] create, and the local businesses that benefit from the dollars they bring.”<sup>262</sup> He supports exploring alternative solutions to placing the power lines over the river. Mr. Sarafin provided “preliminary findings from an economic impact study on heritage tourism in Virginia.”<sup>263</sup> In addition, he stated a view of the towers would be visible from Pop Castle, which is registered as a national historic property, and the Rappahannock River is on Preservation Virginia’s list of most endangered historic places.<sup>264</sup>

**Carl Isbrandtsen**, a sailor and 11-year resident of White Stone, Virginia, spoke in opposition of interfering with the environment of the Rappahannock River.<sup>265</sup> At this point in the process, Mr. Isbrandtsen believes the community and Dominion Energy should work together towards a compromise. To that end, Mr. Isbrandtsen stated with the possibility of the construction of a new bridge, the interests of all parties might be aligned.<sup>266</sup>

**Hylah Boyd** from Richmond, Virginia, and founder of Scenic Virginia, stated, “This is no place for towering power lines when alternatives exist.”<sup>267</sup> Mr. Boyd maintained that placing the towers east of the bridge would mar the historic view and damage the tourist economy in the area.<sup>268</sup>

**Kathleen Davidson** from White Stone, Virginia, stated, “I’m very much opposed to the towers.”<sup>269</sup> The Rappahannock River is the only river in Virginia with no industry on it, and it would be a great tragedy to put concrete and steel towers over this river that will last forever when you have an option to go under the water.”<sup>270</sup>

**Warren Hottle** from Lancaster, Virginia, stated he is against placing transmission towers at the Norris Bridge.<sup>271</sup> Mr. Hottle raised the question, “What is the marginal cost of an environmentally friendly alternative to the towers?”<sup>272</sup> Based on the cost of other similar projects, Mr. Hottle estimated the high-end cost difference is \$38 million more for the environmentally friendly option. He concluded that price tag would cost individual ratepayers

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<sup>261</sup> Sarafin, Tr. at 298.

<sup>262</sup> *Id.* at 299.

<sup>263</sup> *Id.* at 300.

<sup>264</sup> *Id.* at 298-01.

<sup>265</sup> Isbrandtsen, Tr. at 301.

<sup>266</sup> *Id.* at 301-03.

<sup>267</sup> Boyd, Tr. at 304.

<sup>268</sup> *Id.* at 304-05.

<sup>269</sup> Davidson, Tr. at 306.

<sup>270</sup> *Id.* at 306.

<sup>271</sup> Hottle, Tr. at 306.

<sup>272</sup> *Id.* at 307.

about \$0.50 more a year. In conclusion, Mr. Hottle stated, “is it not worth about \$0.50 per ratepayer or a lot less each year to do the right thing?”<sup>273</sup>

**Brian Dillistin** of Richmond, Virginia, agreed with the testimony presented by other witnesses at the hearing.<sup>274</sup> Mr. Dillistin stated his family, the Stevens, have lived on Town Creek in Queenstown for many generations. His property is south facing and, if built, he would see the towers every day. Mr. Dillistin stated he is against the proposal to place the towers over the river. He concluded by saying, “We would all have to see what we would consider an awful addition to the view down river, so I would highly recommend that we revisit this.”<sup>275</sup>

**Conrad Sayer** of Richmond, Virginia, stated 11 years ago he bought a small home in White Stone and crosses the Norris Bridge many times.<sup>276</sup> Mr. Sayer stated his opposition to building the towers across the river.<sup>277</sup>

**George H. Kuper**, a retiree and indirect stockholder in Dominion Energy, Inc. from Irvington, Virginia, stated, “I oppose the construction of the new transmission towers across the Rappahannock River at the Norris Bridge crossing for reasons both of navigational safety and the destruction of the remarkable and unique viewshed.”<sup>278</sup> Mr. Kuper believes the Company’s chief financial officer is sympathetic to the viewshed issue since the CFO “attempted to prevent an extension of a floating dock at the local yacht club intended to facilitate the multiple boats used for junior regattas and sailing camps on the grounds of protecting his river vacation house’s viewshed.”<sup>279</sup>

**Mark Beardon** from Henrico, Virginia, concurred with other witnesses by stating that he is against the towers.<sup>280</sup> Mr. Beardon stated, “I think . . . the proposed idea that we’d spoil the viewshed with a least-cost alternative, something that’s at best is inelegant and at worst is ugly, visually disruptive and obstructive, I think it’s a ludicrous idea, it doesn’t represent our best thinking. I don’t think it’s worthy of the Commonwealth of Virginia.”<sup>281</sup>

**Janet Ferrell** of Henrico, Virginia, indicated she is strongly opposed to building transmission towers across the river.<sup>282</sup> In support of her position she stated, “Industrialization is not consistent with any of the benefits or objectives afforded by this natural environment. And more importantly, economically and environmentally sound alternatives exist.”<sup>283</sup>

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<sup>273</sup> *Id.* at 306-08.  
<sup>274</sup> Dillistin, Tr. at 309.  
<sup>275</sup> *Id.* at 309-10.  
<sup>276</sup> Sayer, Tr. at 311.  
<sup>277</sup> *Id.*  
<sup>278</sup> Kuper, Tr. at 312.  
<sup>279</sup> *Id.* at 311-13.  
<sup>280</sup> Beardon, Tr. at 313.  
<sup>281</sup> *Id.* at 313-15.  
<sup>282</sup> Ferrell, Tr. at 315.  
<sup>283</sup> *Id.* at 315-16.

**Ellen Shuler** from both Richmond and Lancaster, Virginia, spoke against the towers which she described as “both unsightly and as well as dangerous to mariners.”<sup>284</sup> In support of her position she read a news article regarding the York River’s underground line from the Daily Press dated June 25, 2010. In the article, Company spokesman Chuck Penn described the underground line at the York River crossing as the most cost-effective and safe route. In response Ms. Shuler asked, “If [Dominion Energy] thought that the underground line was the safest and most cost-effective option for the York River, then why on earth wouldn’t that be the case for the Rappahannock River?”<sup>285</sup>

**Edward Meyers** of Topping, Virginia, raised concerns regarding boating safety with the addition of the proposed towers on the river.<sup>286</sup> Mr. Meyers maintained that building towers in the river would create a navigational hazard especially during windy or otherwise bad weather. He also expressed apprehension regarding the effect of the towers on the economy of the area.<sup>287</sup>

### **Dominion Energy’s Supplemental Direct Testimony**

On October 31, 2016, Dominion Energy filed the supplemental direct testimony of Wesley D. Keck, strategic project advisor for Dominion Technical Solutions; Dennis D. Kaminsky; Jacob G. Heisey; Donald E. Koonce, principal consultant with Power Delivery Consultants, Inc. (“PDC”); Amanda M. Mayhew; Jon M. Berkin; and Benjamin W. Sussman, consultant with Environmental Resources Management (“ERM”). A summary of the prefiled supplemental direct testimony of each witness is presented below.

**Wesley D. Keck** summarized the Company’s study results for Barnhardt Option 1 and Barnhardt Option 2 and the Company’s communications with VDOT.<sup>288</sup> Mr. Keck testified that as developed by Dominion Energy:

**Barnhardt Option 1** would involve the replacement and relocation of a section of Line # 65 that parallels Route 3 and crosses the Rappahannock River with new cables entirely attached to the Norris Bridge, until the transition to land at the north and south bridge abutments . . . . The route generally follows along the centerline of the Proposed 115 kV Overhead Route until crossing Norris Bridge, utilizing approximately 0.45 mile of land in Lancaster and Middlesex Counties, and 1.86 miles over the Rappahannock River on the Norris Bridge. This option would involve the placement of seven cables (two per phase with one spare) within approximately 1,100 feet of concrete-encased duct bank on the south shore and 1,200 feet of concrete-encased duct bank on the north shore. The remaining approximately 10,000 feet

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<sup>284</sup> Shuler, Tr. at 317.

<sup>285</sup> *Id.* at 317-19.

<sup>286</sup> Meyers, Tr. at 320-21.

<sup>287</sup> *Id.* at 321-23.

<sup>288</sup> Exhibit No. 11, at 2-3.

of cable will be installed within eight separate 8-inch-diameter fiberglass conduits (seven will contain cable and one will be a spare) attached to the underside of the bridge. In addition, two 4-inch-diameter fiberglass conduits will also be included to contain ground conductors and fiber optic cables. Where the conduits reach the ends of the bridge, they would curve to the east of the bridge and turn downward to enter the ground. At this point, the cables would transition from the conduit into the concrete-encased duct bank described above. Barnhardt Option 1 would require the same transition stations as the [Underground Option] that the Company presented for the Commission's consideration in the [Application].<sup>289</sup>

**Barnhardt Option 2** involves the replacement and relocation of a section of Line # 65 that parallels Route 3 and crosses the Rappahannock River with new cables trenched into the bottom of the Rappahannock River . . . . This option would replace approximately 2.3 miles of existing Line # 65 with 2.4 miles of new underground and overhead construction generally following along the centerline of the Overhead Alternatives' route on land, utilizing approximately 0.4 mile of land in Lancaster and Middlesex Counties, and approximately 2.0 miles under the Rappahannock River. This option would involve the placement of seven cables within 800 feet of concrete duct bank on each shore. At the end of the duct bank, the land cables would enter manholes where they would be spliced to submarine cables. These manholes would measure 10 feet in width, 28 feet in length and 8 feet in depth. At the on-land splice locations, the seven submarine cables would enter into seven conduits. The conduits, installed via [HDD] construction method, would extend below the riverbed and would surface on the river bottom between 1,308 and 1,781 feet from shore on the south side and between 910 and 1,400 feet from the top of bank on the north side. The use of conduit in these locations would avoid direct disturbance to existing oyster leases. In the river, between the south- and north-side conduits, the submarine cables would be installed in seven trenches excavated into the river bottom using water jet plow technology. These seven trenches for the submarine cables would vary in length between 7,500 and 8,100 feet long. Barnhardt Option 2 would also require the same transition stations described for the Underground Option.<sup>290</sup>

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<sup>289</sup> *Id.* at 3-4.

<sup>290</sup> *Id.* at 4-5.

Mr. Keck affirmed that based on meeting the identified need, costs, operational, and environmental impacts, Dominion Energy continued to support the Proposed 115 kV Overhead Route.<sup>291</sup> Mr. Keck acknowledged that Barnhardt Option 1 has less environmental impacts than the Proposed 115 kV Overhead Route, but stated that Barnhardt Option 1 would have a greater cost and fail to resolve the identified need for the Rebuild Project, and result in a mandatory NERC violation.<sup>292</sup> As for Barnhardt Option 2, Mr. Keck testified that if an underground route is chosen, the Company's Underground Option is less costly and has fewer operational and environmental impacts than Barnhardt Option 2.<sup>293</sup> Mr. Keck provided the following breakdown of costs for the various options or alternatives:<sup>294</sup>

Option/Alternative	Cost
Proposed 115 kV Overhead Route	\$26.2 million
230 kV Overhead Alternative	\$26.3 million
Underground Option	\$83.6 million
Barnhardt Option 1 (before bridge enhancements required by VDOT)	\$44.8 million
Barnhardt Option 2	\$102.1 million

Mr. Keck advised that he met with VDOT officials regarding the Rebuild Project, current and future bridge maintenance, lane closure issues, and transmission line outage requirements.<sup>295</sup> Based on VDOT's planning for a new bridge at its current location or to the west, Mr. Keck confirmed that Dominion Energy planned to stay east of the Norris Bridge.<sup>296</sup> In addition, Mr. Keck stated that VDOT appeared with the Company on August 25, 2015, with Lancaster County to discuss the Rebuild Project.<sup>297</sup>

Mr. Keck reported that Dominion Energy and VDOT discussed Barnhardt Option 1 on August 18, 19, 31, 2016, and on October 3, 2016.<sup>298</sup> Mr. Keck provided a copy of the October 14, 2016, letter from Dominion Energy to VDOT that provided detailed conceptual engineering of Barnhardt Option 1 for VDOT's review and comment.<sup>299</sup> Mr. Keck also provided VDOT's response dated November 30, 2016.<sup>300</sup>

**Dennis D. Kaminsky** addressed the operational impacts of Barnhardt Option 1 from a transmission planning perspective and the operational deficiencies with maintaining the current Line # 65 bridge attachment.<sup>301</sup> Mr. Kaminsky affirmed that Barnhardt Option 1 would fail to

<sup>291</sup> *Id.* at 5.

<sup>292</sup> *Id.* at 5-6.

<sup>293</sup> *Id.* at 6.

<sup>294</sup> *Id.* at 7 (as revised January 10, 2017).

<sup>295</sup> *Id.* at 8.

<sup>296</sup> *Id.*

<sup>297</sup> *Id.* at 9.

<sup>298</sup> *Id.* at 11.

<sup>299</sup> *Id.* at Attached Supplemental Direct Schedule 1.

<sup>300</sup> *Id.* at Attached Supplemental Direct Schedule 2.

<sup>301</sup> Exhibit No. 17, at 2.

resolve safety, operational performance, and violations of the NERC Reliability Standards.<sup>302</sup> Mr. Kaminsky stated that placing the insulated cables in conduits on the underside of the bridge, as proposed in Barnhardt Option 1, would continue to require de-energizing during VDOT maintenance work.<sup>303</sup>

Mr. Kaminsky testified that as of January 1, 2015, NERC Reliability Standards now require that planned outages longer than six months must be modeled as normal system conditions.<sup>304</sup> Thus, the 115 kV Line # 65 segment between Harmony Village and Whitestone must be modeled as out-of-service due to the present 811 day outage of this segment of Line # 65 due to VDOT maintenance.<sup>305</sup> Mr. Kaminsky confirmed that with this segment of Line # 65 modeled as out-of-service, results in a NERC Reliability Violation for an N-1-1 contingency starting in 2018.<sup>306</sup> In addition, Mr. Kaminsky maintained that Barnhardt Option 1 would require routine maintenance, which would put Company personnel at risk due to the narrow width of the bridge.<sup>307</sup>

**Jacob G. Heisey** presented the results of the Company’s inspection of the current Line # 65 transmission crossing facilities.<sup>308</sup> Mr. Heisey reported that the davit arms and hardware are cracking and corroding, and the insulators appear to be in poor condition.<sup>309</sup> Mr. Heisey asserted that “[a]ll on land, in-water, and bridge attachment structures supporting Line # 65 as it crosses the Rappahannock River (wooden poles, davit arms, hardware, insulators, and shield wire) would be in need of replacement if an “as is” option were pursued.”<sup>310</sup> Mr. Heisey contended that an “as is” option would not meet the need for the Rebuild Project identified by the Company.<sup>311</sup>

**Donald E. Koonce** advised that Dominion Energy hired PDC to evaluate the feasibility of Barnhardt Option 1 and Barnhardt Option 2, and to do the conceptual engineering for these options.<sup>312</sup> Mr. Koonce testified that unlike the Company’s Underground Option, which uses high-pressure, fluid-filled (“HPFF”) cables, Barnhardt Option 2 would use cross-linked polyethylene (“XLPE”) insulated cables operating at 230 kV, which he asserted have a short operating history in Dominion Energy’s transmission system and that armored submarine XLPE cables are very rare.<sup>313</sup> Mr. Koonce maintained that based on the large capital investment, it is

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<sup>302</sup> *Id.*

<sup>303</sup> *Id.* 2-3.

<sup>304</sup> *Id.* at 3.

<sup>305</sup> *Id.*

<sup>306</sup> *Id.* at 4.

<sup>307</sup> *Id.*

<sup>308</sup> Exhibit No. 23, at 1.

<sup>309</sup> *Id.* at 3.

<sup>310</sup> *Id.* at 4.

<sup>311</sup> *Id.*

<sup>312</sup> Exhibit No. 27, at 1 (the PDC conceptual engineering for Barnhardt Option 1 and Barnhardt Option 2 is attached as Supplemental Direct Schedule 1).

<sup>313</sup> *Id.* at 2.

prudent to choose a system with a proven operating history such as HPFF cable.<sup>314</sup> Furthermore, Mr. Koonce stated that Barnhardt Option 2 is estimated to cost \$102.1 million, or approximately \$18.5 million more than the Company's Underground Option's estimated cost of \$83.6 million.<sup>315</sup>

**Amanda M. Mayhew** addressed the permitting requirements for Barnhardt Option 1 and Barnhardt Option 2.<sup>316</sup> For Barnhardt Option 1, Ms. Mayhew confirmed that the Company would be required to submit a Joint Permit Application ("JPA") to the Corps, VMRC, and the local wetlands board for Middlesex County.<sup>317</sup> In addition, Ms. Mayhew stated that Barnhardt Option 1 would require applications and approvals for the transition stations at the ends of the river crossing, and a new VDOT permit.<sup>318</sup> Ms. Mayhew noted that hanging the conduits beneath the concrete pile caps of the bridge would reduce the vertical clearance of the bridge above the water and could be an issue.<sup>319</sup>

Ms. Mayhew testified that for Barnhardt Option 2, the Company also would be required to submit a JPA to the Corps, VMRC, and local wetlands board.<sup>320</sup> Ms. Mayhew also expressed concern that: (i) the Corps could require an Individual Permit, which could take up to a year; (ii) Dominion Energy would need to address impacts to private and public oyster beds; and (iii) the Company would need to obtain a Construction General Permit for the on-land trenching.<sup>321</sup>

Finally, Ms. Mayhew noted that permits it has received from the Corps and VMRC associated with the Proposed 115 kV Overhead Route could expire if construction is not commenced in July of 2017.<sup>322</sup>

**Jon M. Berkin** sponsored the Supplemental Alternatives Analysis, except for the visual assessment section, and co-sponsored the Supplemental DEQ Report with Company witness Mayhew.<sup>323</sup>

**Benjamin W. Sussman** sponsored the visual assessment section of the Supplemental Alternatives Analysis.<sup>324</sup>

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<sup>314</sup> *Id.* at 2-3.

<sup>315</sup> *Id.* at 3 (as corrected on January 10, 2017).

<sup>316</sup> Exhibit No. 35, at 2.

<sup>317</sup> *Id.*

<sup>318</sup> *Id.*

<sup>319</sup> *Id.* at 3.

<sup>320</sup> *Id.* at 4.

<sup>321</sup> *Id.* at 4-5.

<sup>322</sup> *Id.* at 7.

<sup>323</sup> Exhibit No. 39, at 3.

<sup>324</sup> Exhibit No. 36, at 3.



## Second DEQ Report

On January 12, 2017, DEQ filed the Second DEQ Report.<sup>325</sup> DEQ advised that the proposed transmission line would likely require the following permits and approvals:<sup>326</sup>

### 1. Water Permits:

- a. Section 404 permit (e.g. Nationwide Permit 12, if appropriate). Required pursuant to the federal Clean Water Act and issued by the Corps for impacts to jurisdictional wetlands and/or waters of the United States.
- b. Virginia Water Protection Permit (9 VAC 25-210 *et seq.*) issued by DEQ for impacts to waters and jurisdictional wetlands, including isolated wetlands.

### 2. Subaqueous Lands Management:

Subaqueous Lands Permit pursuant to § 28.2-1204 of the Code. Issued by the Virginia VMRC for encroachments in, on or over state-owned subaqueous beds.

### 3. Erosion and Sediment Control, and Stormwater Management Plans:

- a. General erosion and sediment control specifications pursuant to § 62.1-44.15:55 of the Code. General erosion and sediment control specifications are subject to annual approval by DEQ.
- b. Erosion and Sediment Control Plans for construction of facilities not covered under § 62.1-44.15:55 of the Code that are subject to approval by the appropriate plan approving authority.

### 4. Stormwater Management Permit:

General Virginia Pollutant Discharge Elimination System (“VPDES”) Permit for Discharges of Stormwater from Construction Activities (VAR 10) (9 VAC 25-880-70 *et seq.*) involving land disturbance of one acre or more. Coverage under this general permit is approved by DEQ.

### 5. Air Quality Permits or Approvals:

- a. Open Burning Permit (9 VAC 5-130 *et seq.*). For open burning involving demolition debris.
- b. Fugitive dust emissions (9 VAC 5-50-60 *et seq.*). Governs abatement of visible emissions.

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<sup>325</sup> Exhibit No. 5.

<sup>326</sup> *Id.* at 3-5.

6. Solid and Hazardous Waste Management:

- a. Applicable state laws and regulations include:
- Virginia Waste Management Act (§ 10.1-1400 *et seq.* of the Code);
  - Virginia Hazardous Waste Management Regulations (9 VAC 20-60);
  - Virginia Solid Waste Management Regulations (9 VAC 20-81); and
  - Virginia Regulations for the Transportation of Hazardous Materials (9 VAC 20-110).
- b. Applicable Federal laws and regulations include:
- Resource Conservation and Recovery Act – 42 U.S.C. § 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and
  - U.S. Department of Transportation Rules for Transportation of Hazardous Materials (49 CFR Part 107).

7. VDOT Right-of-Way Permit:

The General Rules and Regulations of the Commonwealth Transportation Board (24 VAC 30-151) are adopted pursuant to the authority of § 33.1-12 of the Code. These rules and regulations provide that no work of any nature shall be performed on any real property under the ownership, control or jurisdiction of VDOT until written permission has been obtained from VDOT.

8. Protected Species Legislation:

The Federal Endangered Species Act and Virginia protected species legislation may apply if there is any taking of protected species. The applicant must comply with the Federal Endangered Species Act (16 U.S.C. §§ 1531 *et seq.*), Virginia protected species legislation (§ 29.1-563 *et seq.*), and the Virginia Endangered Plant and Insect Species Act of 1979 as amended (Chapter 39 of Code §§ 3.1-1020 through 1030).

9. Aviation:

Form 7460-1 should be submitted to the Federal Aviation Administration (“FAA”) if a proposed development is 200 feet above ground level or within 20,000 linear feet of a public use airport pursuant to Title 14 CFR Part 77 or if the development involves any construction or alteration at any height greater than the imaginary surfaces identified in the Federal Air Regulations Part 77.

10. Waterworks:

The method for delineation of protection zones for compliance with § 1453 of the 1996 Amendments to the Safe Drinking Water Act’s Source Water Assessment

Program (“SWAP”) was left up to the individual states. The Virginia DOH’s Office of Drinking Water uses these SWAP zones for environmental reviews. The Commonwealth of Virginia determined that, for groundwater, Zone 1 is a 1,000 foot radius from the well, and Zone 2 is a 1 mile radius from the well.

#### 11. Chesapeake Bay Preservation Act Compliance:

The project must satisfy the applicable requirements of the Chesapeake Bay Preservation Act (§§ 62.1-44.15:67 – 62.1-44.15:78) and Chesapeake Bay Preservation Area Designation and Management Regulations.

In regard to the overall route recommendations, DEQ reported that the VOF preferred route is the Underground Option or Barnhardt Option 2 as it will limit the visual impacts to nearby open space easements.<sup>327</sup> VOF also favored Barnhardt Option 1 over the Overhead Alternatives.<sup>328</sup> DCR recommended that the new line be attached to the Norris Bridge to limit impacts on recreation and visual impacts.<sup>329</sup> The DEQ Office of Wetlands and Stream Protection recommended the Overhead Alternatives and the Underground Option based on minimization of impacts to wetlands and waters of the United States.<sup>330</sup>

DEQ provided the following summary of other recommendations:

- Follow DEQ’s recommendations to avoid and minimize impacts to wetlands and streams if Barnhardt Option 1 or Barnhardt Option 2 is chosen.<sup>331</sup>
- Follow DEQ’s recommendations to avoid the use of dielectric fluid that contains polychlorinated biphenyls (“PCB”) due to a Fish Advisory for PCBs.<sup>332</sup>
- Coordinate with VMRC if it is determined that a revised Joint Permit Application is necessary.<sup>333</sup>
- Follow DEQ’s recommendations regarding air quality protection, as applicable.<sup>334</sup>
- Reduce solid waste at the source, reuse it and recycle it to the maximum extent practicable, as applicable.<sup>335</sup>

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<sup>327</sup> *Id.* at 6.

<sup>328</sup> *Id.*

<sup>329</sup> *Id.*

<sup>330</sup> *Id.*

<sup>331</sup> *Id.* at 6, 9-11.

<sup>332</sup> *Id.*

<sup>333</sup> *Id.* at 6, 12.

<sup>334</sup> *Id.* at 6, 15.

<sup>335</sup> *Id.* at 6, 16.

- Coordinate with DCR’s Division of Natural Heritage regarding its recommendations to protect natural heritage resources, including its recommendation to adhere to a time-of-year restriction on bridge work, as well as for updates to the Biotics Data System database if six months have passed before the project is implemented.<sup>336</sup>
- Coordinate with DGIF as necessary regarding protected species and its recommendation to minimize adverse impacts to wildlife resources.<sup>337</sup>
- Coordinate with DHR regarding its recommendations to protect historic and archaeological resources.<sup>338</sup>
- Coordinate with VDOT on outstanding structural and operations concerns if Barnhardt Option 1 is selected and its recommendation to epoxy-coat the piles from five feet below the tide line to five feet above the tide line.<sup>339</sup>
- Coordinate with the Virginia DOH regarding its recommendations to prevent impacts to public water supplies.<sup>340</sup>
- Coordinate with VOF regarding its recommendations to minimize visual impacts.<sup>341</sup>
- Follow the principles and practices of pollution prevention to the maximum extent practicable.<sup>342</sup>
- Limit the use of pesticides and herbicides to the extent practicable.<sup>343</sup>

### **Barnhardt’s Direct Testimony**

On January 30, 2017, Barnhardt filed the direct testimony and exhibits of: the Honorable Patrick McCranie, sheriff and chief law enforcement officer of Lancaster County; George Daniel “Danny” Sanders, a member of the White Stone Volunteer Fire Department, serving as chief during the mid-1970s; and Henry J. Soleski, senior vice president and chief engineer for Kerite/Marmon Utility LLC (“Kerite”).

**Honorable Patrick McCranie** described the emergency response to motor vehicle accidents on the Norris Bridge, especially cases where the victims have fallen from the bridge into the water.<sup>344</sup> Sheriff McCranie advised that accidents, emergencies, and vehicles that have

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<sup>336</sup> *Id.* at 7, 18.

<sup>337</sup> *Id.* at 7, 19-20.

<sup>338</sup> *Id.* at 7, 22.

<sup>339</sup> *Id.* at 7, 24.

<sup>340</sup> *Id.*

<sup>341</sup> *Id.* at 7, 25.

<sup>342</sup> *Id.* at 7, 27.

<sup>343</sup> *Id.* at 7, 28.

<sup>344</sup> Exhibit No. 67, at 1.

left the bridge have happened on a number of occasions.<sup>345</sup> Sheriff McCranie testified that first responders must first reach such victims and then transport them to safety.<sup>346</sup> Sheriff McCranie stated that in most cases, first responders attempt to reach victims by boat, but boats are not always available.<sup>347</sup> Sheriff McCranie stressed that time can be a factor, depending on water temperature.<sup>348</sup> In addition, high wind and waves may eliminate a boat rescue as an option.<sup>349</sup> Sheriff McCranie advised that the only alternative to rescue boats is an aerial rescue by helicopter, with the closest helicopter assets being the Virginia State Police in Richmond, the Maryland State Police in Salisbury and possibly the United States Coast Guard in Elizabeth City, North Carolina.<sup>350</sup> Sheriff McCranie expressed concern that Dominion Energy's proposed overhead towers could obstruct or eliminate aerial rescue as an option.<sup>351</sup> Sheriff McCranie noted that the overhead towers would be constructed 100 feet from the bridge with arms that extend 30 feet in both directions, reducing the distance from the bridge to 70 feet.<sup>352</sup> Sheriff McCranie contended:

Some helicopters that would be called, such [as] the Maryland State Police helicopter, have rotor diameters that would leave very little clearance for hovering above a vehicle in the water near the Bridge. So it's obvious that, under many conditions and clearly foreseeable accident scenarios, aerial rescues would not be an option.<sup>353</sup>

**George Daniel "Danny" Sanders** affirmed that as a firefighter, he has responded to motor vehicle emergencies on the Norris Bridge.<sup>354</sup> Mr. Sanders provided examples of accidents on the Norris Bridge that involved vehicles and drivers falling into the river.<sup>355</sup> Mr. Sanders confirmed that in most instances a rescue boat is used to reach victims.<sup>356</sup> Mr. Sanders advised that the rescue boats used for rescues near the Norris Bridge are from the Rescue Squad, the Virginia Marine Police of the United States Coast Guard.<sup>357</sup> Mr. Sanders testified that if a boat rescue operation is not possible, the next alternative is a helicopter rescue.<sup>358</sup>

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<sup>345</sup> *Id.* at 2.

<sup>346</sup> *Id.*

<sup>347</sup> *Id.* at 2-3.

<sup>348</sup> *Id.* at 3.

<sup>349</sup> *Id.*

<sup>350</sup> *Id.*

<sup>351</sup> *Id.* at 4.

<sup>352</sup> *Id.*

<sup>353</sup> *Id.*

<sup>354</sup> Exhibit No. 68, at 1.

<sup>355</sup> *Id.* at 2.

<sup>356</sup> *Id.*

<sup>357</sup> *Id.* at 2-3.

<sup>358</sup> *Id.* at 3.

**Henry J. Soleski** focused his testimony on installing the transmission line under the riverbed by means of trenching, with portions at both shorelines using HDD.<sup>359</sup> Mr. Soleski noted that for this option, Dominion Energy planned to bury the trenched cables 10 to 15 feet deep.<sup>360</sup> Because commercial traffic on the Rappahannock is limited to tugs and barges, Mr. Soleski maintained that depths of three feet or greater would be reasonable and consistent with the depths of previous Company projects.<sup>361</sup>

In comparing the use of an all-HDD crossing and the proposed trenching crossing, Mr. Soleski advised that “the costs of HDD normally are greater, at least by a factor of two or three, than the costs of trenching.”<sup>362</sup>

Mr. Soleski disagreed with Company witness Koonce’s statement that underwater 230 kV XLPE transmission cable installations are rare.<sup>363</sup> Mr. Soleski contended that such installations are becoming increasingly common, and provide the benefits of greater reliability, increased longevity, elimination of aesthetic problems, and lower costs of installation.<sup>364</sup> Mr. Soleski also disagreed with Mr. Koonce’s opinion that HPFF cables are superior to XLPE cables.<sup>365</sup> Mr. Soleski testified that HPFF cables represent old and more expensive technology.<sup>366</sup>

It involves a pumping plant to maintain the oil in the system. It requires a steel pipe that must be provided with cathodic protection, and the pipe itself must [be] . . . inspected, maintained and repaired. Not only are these items recurring costs, but the system itself costs significantly more to purchase and install. It is fair to say that the industry has already moved to XLPE cables. . . . Not only are XLPE cables less expensive, they are much less likely to be damaged in the remote possibility that anything comes in contact with the cable.<sup>367</sup>

Mr. Soleski affirmed that trenching for a transmission line is little different than trenching for a distribution line.<sup>368</sup> Mr. Soleski stated that “[t]he equipment used in a trenching operation -- the barge, water craft, the mechanical apparatus, the embedment plow -- are all essentially the same.”<sup>369</sup> Mr. Soleski maintained that it should not cost more to trench for a

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<sup>359</sup> Exhibit No. 69, at 2.

<sup>360</sup> *Id.*

<sup>361</sup> *Id.* at 2-3.

<sup>362</sup> *Id.* at 3.

<sup>363</sup> *Id.*

<sup>364</sup> *Id.* at 3-4.

<sup>365</sup> *Id.* at 4.

<sup>366</sup> *Id.*

<sup>367</sup> *Id.*

<sup>368</sup> *Id.* at 5.

<sup>369</sup> *Id.*

transmission line than for a distribution line, but acknowledged that transmission cable is more expensive than distribution cable and that a transmission line may require an additional trench.<sup>370</sup> Mr. Soleski testified that if an additional trench is necessary, it would be unfair to simply double the cost of a single trench because much of a contractor's cost is in the transportation of the equipment to the site.<sup>371</sup>

Mr. Soleski disagreed with Dominion Energy's proposal to install the underwater cable as separate cables.<sup>372</sup> Mr. Soleski testified that this project could be completed with a single three-conductor cable, or with three single-conductor cables in one trench.<sup>373</sup> Mr. Soleski advised that if Dominion Energy required full redundancy, this could be accomplished with another trench and either a second three-conductor cable, or with three additional single-conductor cables.<sup>374</sup> Mr. Soleski noted that he based his recommendation on the 230 kV/292 MVA specifications provided by the Company in discovery.<sup>375</sup> Mr. Soleski pointed out that the additional cost of full redundancy should be weighed against the "remarkable" reliability of XLPE cables.<sup>376</sup> Mr. Soleski further stated that Dominion Energy has not proposed a redundant system for its overhead towers option.<sup>377</sup>

Mr. Soleski estimated the cost of a trenching/HDD option mirroring the capacity of the overhead towers to be \$12.7 million, and estimated the cost of a fully redundant trenching/HDD option to be \$23.6 million to \$24.2 million, depending on the configuration.<sup>378</sup> Mr. Soleski affirmed that these estimates cover "all costs of constructing the transmission line, including the cables with 230 kV/300 MVA capacity, HDD segments at each shoreline, duct banks and terminations."<sup>379</sup> The following table provides further detail of Mr. Soleski's cost estimates.<sup>380</sup>

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<sup>370</sup> *Id.*  
<sup>371</sup> *Id.*  
<sup>372</sup> *Id.* at 6.  
<sup>373</sup> *Id.*  
<sup>374</sup> *Id.*  
<sup>375</sup> *Id.*  
<sup>376</sup> *Id.* at 7.  
<sup>377</sup> *Id.*  
<sup>378</sup> *Id.*  
<sup>379</sup> *Id.* at 7-8.  
<sup>380</sup> Exhibit No. 80.

Items	Single Circuit (Mirror)		Double Circuit (Redundant)	
	One 3-Conductor Cable in One Trench	Three 1-Conductor Cables in One Trench	Two 3-Conductor Cable in Two Trenches	Three 1-Conductor Cables in Two Trenches
Cable	\$4,800,000	\$4,850,000	\$9,600,000	\$9,700,000
HDD	\$1,275,000	\$1,275,000	\$2,470,000	\$2,470,000
Terrestrial Work From HDD to Substation Cable Installation Substation Termination and Testing	\$805,000	\$805,000	\$920,000	\$920,000
	\$4,000,000	\$4,250,000	\$7,000,000	\$7,500,000
	\$1,800,000	\$1,800,000	\$3,600,000	\$3,600,000
<b>Total</b>	<b>\$12,680,000</b>	<b>\$12,980,000</b>	<b>\$23,590,000</b>	<b>\$24,190,000</b>

More specifically, Mr. Soleski made the above estimates based on the following assumptions and forecasts:

- Cable cost per foot “based on my own experience and knowledge of the industry, taking into account the amounts set forth in [Dominion Energy’s] discovery responses.”<sup>381</sup>
- HDD costs reflect a per-foot cost of \$750, or \$650 for a double circuit.<sup>382</sup>
- Trenching costs are based on a per-foot cost of \$439 for a single trench, and a per-foot cost of \$384 for two trenches.<sup>383</sup>
- For the duct banks, Mr. Soleski used a per-linear-foot cost estimate of \$350 for a single-circuit duct bank and \$400 per linear foot for a double-circuit duct bank.<sup>384</sup>
- Mr. Soleski estimated the cost of termination stands, termination materials, labor and final testing at \$900,000 per end.<sup>385</sup>

Mr. Soleski attributed much of the difference in the cost estimates for the trenching/HDD option to Dominion Energy’s per-linear-foot estimate for the cost of trenching.<sup>386</sup> Mr. Soleski asserted that “[Dominion Energy’s] per-linear-foot number is far in excess of costs I am familiar

<sup>381</sup> Exhibit No. 69, at 8.

<sup>382</sup> *Id.*

<sup>383</sup> *Id.*

<sup>384</sup> *Id.*

<sup>385</sup> *Id.*

<sup>386</sup> *Id.* at 9.



with, and the cost is also far in excess of the average per-linear-foot [Dominion Energy] itself has paid for trenching projects over the past decade, even after adjusting for inflation.”<sup>387</sup>

Mr. Soleski reported that the Company has paid about \$300 per linear foot for the trenching of its most recent projects.<sup>388</sup> In reviewing other trenching projects Mr. Soleski contended that the cost of installing distribution cables and transmission cables should be similar because the trenching operations are similar.<sup>389</sup>

Mr. Soleski testified that in 2002, Dominion Energy used trenching/HDD to install a single line across almost two miles of the Rappahannock, just south of Tappahannock at a cost of \$870,000, or just under \$90 per linear foot.<sup>390</sup>

Mr. Soleski took issue with the testimony of Mr. Koonce that underground lines in general are not as reliable as overhead lines in Dominion Energy’s transmission system.<sup>391</sup> Mr. Soleski testified that at his company, he was “not aware of any failure or any time our underground cables have required a replacement under our warranty.”<sup>392</sup> Mr. Soleski emphasized that Dominion Energy’s proposed overhead towers will be subject to weather and difficult to repair “[i]f and when a tropical storm or hurricane damages the line . . . .”<sup>393</sup>

Mr. Soleski estimated that the trenching operation should have an in-water construction period of a week, and the HDD work on the shorelines and in the shallows could take up to a month.<sup>394</sup>

### **Lancaster County’s Direct Testimony**

On January 30, 2017, Lancaster County filed the direct testimony and exhibits of: Jason D. Bellows, a member of the Lancaster County Board of Supervisors and a teacher in the Essex County School System; Peter J. Lanzalotta, a principal of Lanzalotta & Associates, LLC; and Michael A. Matthews, P.E., president/CEO of The Structures Goup, Inc. The prefiled direct testimony of each witness is summarized below.

**Jason D. Bellows** affirmed that he has been a member of the Lancaster County Board of Supervisors since 2011, and has been a lifelong resident of Lancaster County.<sup>395</sup>

Mr. Bellows presented excerpts from Lancaster County’s Comprehensive Plan.<sup>396</sup> Mr. Bellows asserted that currently the predominant economic engines for Lancaster County are

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<sup>387</sup> *Id.*

<sup>388</sup> *Id.*

<sup>389</sup> *Id.*

<sup>390</sup> *Id.* at 10-11.

<sup>391</sup> *Id.* at 11.

<sup>392</sup> *Id.* at 12.

<sup>393</sup> *Id.*

<sup>394</sup> *Id.* at 13.

<sup>395</sup> Exhibit No. 40, at 1.

<sup>396</sup> *Id.* at 2, Attached JDB-1.

tourism and retirees moving into the area.<sup>397</sup> Mr. Bellows stated that the Comprehensive Plan emphasizes protecting key natural assets such as the Rappahannock River.<sup>398</sup> Mr. Bellows contended that the proposed overhead towers “would impose an industrial facility in an area of Virginia that is prized for its natural beauty and would be in direct conflict with our efforts to protect the River as stated in our Comprehensive Plan.”<sup>399</sup>

Mr. Bellows pointed to efforts to promote and brand the area based on the River and its natural beauty and resources such as the recent dedication of the Oyster Trail and Northern Neck Artisan Trail, and collaboration with the Town of Kilmarnock on “The River Realm.”<sup>400</sup> Mr. Bellows emphasized the importance of boating and sailing to the area’s economy.<sup>401</sup> Mr. Bellows testified that the proposed towers and fender system would increase navigational hazards that could deter boaters “resulting in loss of business to not only the local marine trades but also related businesses like retail, restaurants and lodging.”<sup>402</sup>

Mr. Bellows advised that hurting the local regional economy would also hurt the Commonwealth’s economy as Lancaster and Middlesex Counties “generate more revenue for the State than they receive from it . . . .”<sup>403</sup> Mr. Bellows contended:

First impressions are a decisive factor for tourist visiting the area and in a retiree’s choice when settling here. We should not compromise the unspoiled beauty of the Rappahannock River, arguably our greatest asset in attracting these folks and revenues. Constructing industrial towers that disrupt the natural and recreational paradise we have here today would do just that.<sup>404</sup>

Finally, Mr. Bellows complained of a total lack of transparency and communication concerning this project, with no public input engaged in the planning process.<sup>405</sup> Mr. Bellows faulted the Company for its lack of accurate visuals.

The lack of visuals at the Lancaster [Board of Supervisors] presentation and the gross inaccuracies in the first and second sets of visuals misled not only the public but every agency that reviewed these documents in the permitting process.<sup>406</sup>

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<sup>397</sup> *Id.* at 2.

<sup>398</sup> *Id.* at 2-3.

<sup>399</sup> *Id.* at 3.

<sup>400</sup> *Id.* at 4.

<sup>401</sup> *Id.*

<sup>402</sup> *Id.*

<sup>403</sup> *Id.* at 5.

<sup>404</sup> *Id.* at 6.

<sup>405</sup> *Id.*

<sup>406</sup> *Id.* at 7.

In support, Mr. Bellows pointed to a reversal of the findings and recommendations of DCR Division of Planning and Recreational Resources, which now recommends that the new line be reattached to the bridge in order to limit obstacles and visual impacts.<sup>407</sup> Mr. Bellows also took issue with the notices Dominion Energy used in local newspapers and with advertisements by the Company when opposition began grow.<sup>408</sup>

Mr. Bellows described Dominion Energy's talking points on underground installation as inconsistent and pointed to presentations made to the public regarding the Haymarket Project that stated that underground was used primarily for "large water crossings."<sup>409</sup>

In addition, Mr. Bellows pointed to inaccuracies of Dominion Energy's testimony in Mr. Barnhardt's petition for injunction in Case No. PUE-2015-00109.<sup>410</sup> Mr. Bellows provided an example of testimony that a photograph depicted the current condition of the line on the bridge that was taken before repairs and upgrades were made to those lines.<sup>411</sup>

**Peter J. Lanzalotta** addressed: (i) the level of transmission capacity needed and proposed by Dominion Energy; (ii) the greater opportunity to scale non-overhead transmission alternatives; (iii) use of two cables, each with three XLPE conductors, trenched into the river bottom at an estimated cost lower than the Company's overhead tower proposal; and (iv) customer benefits that justify use of underground alternatives.<sup>412</sup>

Mr. Lanzalotta acknowledged that Dominion Energy projected a NERC transmission planning violation starting as soon as 2018 based on the PJM 2016 Load Forecast Report.<sup>413</sup> Mr. Lanzalotta reported that in the Preliminary PJM 2017 Load Forecast Report, "the Company's summer peak load level which was projected to occur in 2018, based on the 2016 PJM Load Forecast Report, now has been pushed out into the future until about 2027."<sup>414</sup> Based on the decrease in future forecasted peak loads, Mr. Lanzalotta questioned whether the forecasted NERC violation will now occur further in the future.<sup>415</sup>

Mr. Lanzalotta testified that an overhead transmission line across the Rappahannock has several drawbacks compared to other available alternatives, and questioned Dominion Energy's preference for overhead transmission based on cost and reliability.<sup>416</sup> Mr. Lanzalotta maintained that overhead transmission lines, unlike underground transmission lines, are subject to transient

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<sup>407</sup> *Id.*

<sup>408</sup> *Id.* at 8.

<sup>409</sup> *Id.* at 9, Attached JDB-10.

<sup>410</sup> *Id.* at 9; *see, Petition of William C. Barnhardt, For a declaratory judgment, injunctive relief, Case No. PUE-2015-00109, 2015 S.C.C. Ann. Rep. 395 ("Injunction Order").*

<sup>411</sup> *Id.* at 9-10.

<sup>412</sup> Exhibit No. 43, at 3.

<sup>413</sup> *Id.* at 5-6.

<sup>414</sup> *Id.* at 6.

<sup>415</sup> *Id.*

<sup>416</sup> *Id.* at 7.

faults caused by lightning strikes and windblown debris.<sup>417</sup> Mr. Lanzalotta also noted that overhead transmission lines have more weather-related outages.<sup>418</sup>

Mr. Lanzalotta stated that Dominion Energy has proposed to use XLPE cables for Barnhardt Option 1 and Barnhardt Option 2.<sup>419</sup> Based on interrogatory responses from the Company, Mr. Lanzalotta advised that Dominion Energy has never experienced a splice failure or cable failure on an XLPE cable operating at 115 kV or higher, and all unplanned outages for underground transmission lines of all voltages have been “due to equipment or relay failures in substations to which the lines connect.”<sup>420</sup>

Mr. Lanzalotta pointed out that the existing transmission line over the River is rated at 147 MVA Summer and 185 MVA Winter, and is not anticipated to overload under any planning contingency in the next ten years.<sup>421</sup> While other portions of Line # 65, other than the River crossing, are rated 147 MVA, Mr. Lanzalotta advised that the Company’s proposed new overhead transmission line will have a capacity of 437 MVA.<sup>422</sup> Because operation of the overhead transmission line will be limited to 147 MVA by other sections of Line # 65, Mr. Lanzalotta questioned the need for capacity of 437 MVA.<sup>423</sup> Moreover, Mr. Lanzalotta contended that because underground alternatives can be installed in increments, an underground option could be sized to more closely match the load-carrying needs of the circuit, which initially will be 147 MVA.<sup>424</sup>

Mr. Lanzalotta also questioned Dominion Energy’s proposed configuration of both Barnhardt Option 1 and Barnhardt Option 2 to have seven XLPE conductors, which provides two complete circuits, plus one additional conductor for use as a spare.<sup>425</sup> Mr. Lanzalotta contended that the seventh conductor is unnecessary because without it, the two circuits would provide more than sufficient capacity to match the capacity of other elements of Line # 65, with Barnhardt Option 1 at a capacity of 369 MVA, and Barnhardt Option 2 at a capacity of 455 MVA.<sup>426</sup> In addition, Mr. Lanzalotta asserted that the seventh XLPE conductor exceeds the redundancy provided for in other XLPE cable installations in the Company’s system.<sup>427</sup>

Mr. Lanzalotta supported the testimony of Barnhardt witness Soleski and agreed that Barnhardt Option 2 could be achieved by using two three-conductor XLPE cables instead of using seven single conductor XLPE cables.<sup>428</sup>

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<sup>417</sup> *Id.*

<sup>418</sup> *Id.* at 8.

<sup>419</sup> *Id.*

<sup>420</sup> *Id.*

<sup>421</sup> *Id.* at 9.

<sup>422</sup> *Id.*

<sup>423</sup> *Id.*

<sup>424</sup> *Id.*

<sup>425</sup> *Id.* at 10.

<sup>426</sup> *Id.*

<sup>427</sup> *Id.*

<sup>428</sup> *Id.* at 11.

In regard to the Company’s original HDD underground alternative, Mr. Lanzalotta testified that this option would be less expensive if constructed for and operated at 230 kV.<sup>429</sup> In support, Mr. Lanzalotta pointed to the Company’s recent Hayes to Yorktown 230 kV underground river crossing (“Hayes-Yorktown”) which was installed at a cost of about \$17.4 million per mile, as compared to the estimated HDD underground alternative cost in this case of about \$32.1 million per mile.<sup>430</sup> Mr. Lanzalotta estimated that if the HDD underground alternative was constructed for and operated at 230 kV in this case, the cost of that option would go from \$83.6 million to \$59.65 million, or a savings of approximately \$23.95 million.<sup>431</sup>

Finally, Mr. Lanzalotta testified that previous public opinion surveys have shown that minimizing visibility of a transmission line was one of the highest routing considerations, and minimizing cost was one of the lowest routing considerations.<sup>432</sup>

**Michael A. Matthews, P.E.**, reviewed the three letters to Dominion Energy from VDOT concerning the Norris Bridge and the Company’s transmission line, and took the position that there is no lack of support from VDOT in regard to the transmission line, just concern for coordination and response time.<sup>433</sup> Mr. Matthews noted that VDOT referred to the Norris Bridge as a “fracture critical bridge.”<sup>434</sup> Mr. Matthews defined “fracture critical bridge” as a bridge “that does not contain redundant supporting elements.”<sup>435</sup> Mr. Matthews advised that there are 326 such bridges in the Commonwealth and that such bridges are required to have annual bridge inspections.<sup>436</sup> Furthermore, Mr. Matthews reported that the Norris Bridge has a bridge rating of 5.<sup>437</sup> Mr. Matthews defined this as a numerical rating provided through the National Bridge Inventory (“NBI”) General Condition Ratings (“GCRs”) from 0-9.<sup>438</sup> Mr. Matthews provided the following concerning the NBI GCRs:

- Rating of 9 – Excellent Condition – requiring only preventative maintenance;
- Rating of 8 – Very Good Condition – requiring only preventative maintenance;
- Rating of 7 – Good Condition – requiring only preventative maintenance;
- Rating of 6 – Satisfactory Condition with some elements exhibiting minor deterioration – requiring preventative maintenance and/or repairs;
- Rating of 5 – Fair Condition with all primary structural elements sound, but there may be some minor section loss in steel members with cracking, spalling in the concrete elements, or minor evidence of scour at the pile foundations – requiring preventative maintenance and/or repairs;

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<sup>429</sup> *Id.*

<sup>430</sup> *Id.* at 12.

<sup>431</sup> *Id.*

<sup>432</sup> *Id.* at 14.

<sup>433</sup> Exhibit No. 51, at 6-8.

<sup>434</sup> *Id.* at 9.

<sup>435</sup> *Id.*

<sup>436</sup> *Id.*

<sup>437</sup> *Id.*

<sup>438</sup> *Id.* at 9-10.

- Rating of 4 – Poor Condition with one or more major defect – requiring rehabilitation or replacement;
- Rating of 3 – requiring rehabilitation or replacement; and
- Rating of 2 or below – requires closure of the bridge.<sup>439</sup>

Mr. Matthews testified that the preventative maintenance and/or repairs for the Norris Bridge include painting of the through truss channel spans, which is currently underway, and structural steel remedial repairs, which are scheduled for 2017.<sup>440</sup>

Mr. Matthews affirmed that he met with VDOT regarding the Norris Bridge on April 5, 2016.<sup>441</sup> Mr. Matthews stated that among other things, VDOT was receptive to considering suspension of a conduit from below or beside the bridge, provided there is enough clearance for inspections, repairs, and river traffic without deenergizing the transmission lines.<sup>442</sup>

Mr. Matthews reviewed Dominion Energy’s proposed Barnhardt Option 1 and found that the transmission line would continue to need deenergizing during VDOT bridge inspections, repairs, and maintenance.<sup>443</sup> Mr. Matthews maintained that deenergizing could be avoided by using transmission cables that are in appropriately insulated conduits.<sup>444</sup> Mr. Matthews also recommended an alternative means of attaching and supporting the transmission lines through additional steel members (“Matthews Bridge Option”).<sup>445</sup>

Mr. Matthews testified that he met with VDOT on October 13, 2016, and among other things, provided VDOT with information on his proposed cross section support for the transmission lines.<sup>446</sup> Mr. Matthews proposed using the same spans that currently support the existing 115 kV transmission line, and used two 12-inch-diameter insulated protective cables with each containing the three phase 115 kV transmission lines.<sup>447</sup> Mr. Matthews advised that the insulated protective cables will not need to be de-energized during VDOT bridge inspections, maintenance, or repairs.<sup>448</sup> In addition, Mr. Matthews stated that his alternative method of attachment, which used two new beams that allow the dead loads of the transmission lines to be carried directly by the transverse floor beams between the trusses, will provide catwalks and access to the cables.<sup>449</sup> Mr. Matthews asserted that the Company’s proposed method of supporting the transmission lines with the bridge deck beams would “directly reduce the live

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<sup>439</sup> *Id.* at 10.

<sup>440</sup> *Id.*

<sup>441</sup> *Id.* at 12; Attached Exhibit MAM-2.

<sup>442</sup> *Id.* at 13.

<sup>443</sup> *Id.* at 18.

<sup>444</sup> *Id.*

<sup>445</sup> *Id.* at 18-19.

<sup>446</sup> *Id.* at 21-22.

<sup>447</sup> *Id.* at 22.

<sup>448</sup> *Id.*

<sup>449</sup> *Id.*

load capacity and lane loading of the bridge deck beams, which will reduce both the Inventory Load Rating as well as the Operating Load Rating of the bridge.”<sup>450</sup>

Mr. Matthews also reviewed VDOT’s letter of November 29, 2016, which responds to the Company’s Barnhardt Option 1 proposal.<sup>451</sup> Mr. Matthews noted that VDOT included an alternative option of replacing the existing cantilevered davit arms with new cantilevered davit arms capable of supporting the dead loads proposed by the Company.<sup>452</sup>

Mr. Matthews opined that the Company’s Barnhardt Option 1 proposal was offered up as an option that would fail.<sup>453</sup>

Mr. Matthews estimated that the Matthews Bridge Option could be constructed for approximately \$29 million, as compared to the Company’s revised estimate of \$44.8 million.<sup>454</sup>

**Coalition’s Direct Testimony**

On January 30, 2017, the Coalition filed the direct testimony and exhibits of: Jeffrey M. Szyperski, chief executive officer (“CEO”) for Chesapeake Bank, Kilmarnock, Virginia; W. Bruce Sanders, owner and operator of Rappahannock Yachts (“Sanders Yacht Yard, Inc.”); and Ian Ormesher of Profile Marketing Associate LLC. The prefiled direct testimony of each witness is summarized below. The Coalition also prefiled the direct testimony and exhibits of Brian William Clarke, senior executive for Macquarie Bank and IFM Investors, which was not offered into the record and therefore, is not summarized herein.

**Jeffrey M. Szyperski** presented information concerning the economic importance of tourism and the attraction of retirees relocating to Lancaster and Middlesex counties.<sup>455</sup> Mr. Szyperski maintained that the Company’s proposed overhead towers would be detrimental to the economies of the Northern Neck and Middle Peninsula.<sup>456</sup> Mr. Szyperski stated that the local economy is based on tourism, retirees, and the seafood industry. Mr. Szyperski asserted that “[t]he majority of the workforce is employed in the health care, real estate, retail, home services, hospitality, and seafood sectors.”<sup>457</sup> Mr. Szyperski testified that the natural beauty of the region, particularly the Rappahannock River, is the prime asset that underpins the local economy.<sup>458</sup> Mr. Szyperski pointed to a 2014 survey by the Virginia Tourism Corporation (“VTC”) that showed that Lancaster County ranked 7<sup>th</sup> among Virginia’s 133 localities for tourism spending per resident and Middlesex County ranked 5<sup>th</sup>.<sup>459</sup> Mr. Szyperski asserted that competition for

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<sup>450</sup> *Id.*  
<sup>451</sup> *Id.* at 23-24.  
<sup>452</sup> *Id.* at 24.  
<sup>453</sup> *Id.* at 25.  
<sup>454</sup> *Id.* at 26.  
<sup>455</sup> Exhibit No. 56, at 3.  
<sup>456</sup> *Id.*  
<sup>457</sup> *Id.* at 4.  
<sup>458</sup> *Id.*  
<sup>459</sup> *Id.* at 4-5.

tourism spending is fierce and that “introducing the industrial appearance of transmission towers across the Rappahannock would be detrimental to tourism.”<sup>460</sup>

In regard to the local economy’s dependence on retirees, Mr. Szyperski referred to U.S. Census Bureau data from 2015 that showed that Lancaster County has the highest percentage of residents over age 65 of any county in Virginia.<sup>461</sup>

Mr. Szyperski emphasized that there are no other industries underpinning the local economy besides those activities based on the area’s natural resources.<sup>462</sup> Mr. Szyperski stated that there are “no manufacturing facilities, no major port or rail facilities, no major airport, no universities or college campuses, no gambling casinos, and we are too remote to attract any retail outlet centers.”<sup>463</sup> Mr. Szyperski affirmed that the focus on tourism and protecting the area’s natural beauty are not new initiatives and quoted from the *2010 Comprehensive Economic Development Strategy* submitted to the U.S. Department of Commerce Economic Development Administration:

The (analysis of) strengths, weaknesses, opportunities and threats showed that love for the region’s natural beauty to be the most valued asset. There is pride in the region and its history. The Northern Neck is a region with assets.<sup>464</sup>

In summary, Mr. Szyperski contended that Dominion Energy’s proposed overhead towers “would be deleterious to the beauty of the river crossing and, therefore, to our fragile economy.”<sup>465</sup> Mr. Szyperski encouraged the Commission to consider one of the other reasonable non-tower alternatives.<sup>466</sup>

**W. Bruce Sanders** testified that Dominion Energy’s proposed overhead towers adjacent to the Norris Bridge, including two 150-foot-long and 9-foot-high fenders, will restrict passage under the bridge, “significantly impair the public’s ability to enjoy the river and dramatically increase safety hazards to the boating public.”<sup>467</sup> Mr. Sanders maintained that the Company’s overhead tower proposal “would effectively divide Virginia’s premier sailing area in two, limiting and restricting the free movement of boaters.”<sup>468</sup>

Mr. Sanders asserted that the Rappahannock “is the finest sailing area along the entire Chesapeake Bay.”<sup>469</sup> Mr. Sanders stated that the Rappahannock offers the unique combination

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<sup>460</sup> *Id.* at 5.  
<sup>461</sup> *Id.* at 6.  
<sup>462</sup> *Id.* at 7.  
<sup>463</sup> *Id.* at 7-8.  
<sup>464</sup> *Id.* at 9.  
<sup>465</sup> *Id.* at 10.  
<sup>466</sup> *Id.*  
<sup>467</sup> Exhibit No. 57, at 3.  
<sup>468</sup> *Id.*  
<sup>469</sup> *Id.* at 4.



of water breadth and depth, weather protection, and undeveloped shorelines.<sup>470</sup> Mr. Sanders contended that the Rappahannock is devoid of commercial and military traffic that may be found on the more industrial Elizabeth, James and York rivers.<sup>471</sup> Mr. Sanders maintained that “[f]rom Towles Point to Mosquito Point, the Rappahannock provides 25 square miles of the best boating waters in the United States.”<sup>472</sup> Mr. Sanders acknowledged that this expanse of protected water is bisected by the Norris Bridge and its highly visible and widely spaced piers.<sup>473</sup>

Mr. Sanders advised that the Norris Bridge can be transited for about 1,500 feet of its middle section by all boats except those requiring clearances between 50 and 110 feet, which are limited to passage through the 50 foot long (15 foot wide) center span.<sup>474</sup> Mr. Sanders asserted that the Norris Bridge and its piers currently present minor considerations, and under most conditions a sailboat can cross under the bridge without tacking.<sup>475</sup>

However, Mr. Sanders warned that the proposed towers/fenders would create a “chute” to the center span of the bridge.<sup>476</sup> Mr. Sanders questioned whether boaters would know that the purpose of the fenders is to protect the tower bases, or would they assume the fenders are meant to guide vessels safely beneath the bridge (as with similar fenders on the James River).<sup>477</sup> Mr. Sanders contended that such funneling of boats will lead to congestion and increase the probability of accidents.<sup>478</sup> For sailboats, Mr. Sanders advised that the fenders will create a special hazard.<sup>479</sup> Mr. Sanders testified that if a sailboat is sailing under the bridge against the wind, the boat may be forced to tack while still in the chute.<sup>480</sup>

This would be inherently dangerous since it would involve a change in heading of 90 degrees or more while in a restricted passage with the possibility of opposing traffic. Bear in mind that while powerboats will proceed in an orderly fashion (like automotive traffic) aligned with the corridor, boats under sail may not have that option. More often than not, sailboats will be sailing at an angle, cutting diagonally across the corridor. The hazards to oncoming traffic, whether they are powerboats or sailboats, will be significant.<sup>481</sup>

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<sup>470</sup> *Id.*

<sup>471</sup> *Id.*

<sup>472</sup> *Id.* at 5.

<sup>473</sup> *Id.*

<sup>474</sup> *Id.* at 6.

<sup>475</sup> *Id.*

<sup>476</sup> *Id.*

<sup>477</sup> *Id.* at 7.

<sup>478</sup> *Id.*

<sup>479</sup> *Id.*

<sup>480</sup> *Id.* at 8.

<sup>481</sup> *Id.*

Mr. Sanders pointed to additional problems that will be caused by the building of the towers and fenders, including: (i) altering wind and tidal currents in the center passageway; (ii) obscuring sight lines for boats approaching and traversing the chute; and (iii) creating a greater attraction for anglers to concentrate boats near the center span.<sup>482</sup>

Mr. Sanders contended that Dominion Energy did not consider any of the issues he raises in his testimony.<sup>483</sup> Mr. Sanders maintained that no government agency responsible for boating safety has reviewed the Company's tower and fender proposal.<sup>484</sup>

**Ian Ormesher** asserted that in this case, Dominion Energy has failed to note the numerous examples of underwater transmission lines using XLPE cables.<sup>485</sup> Mr. Ormesher based his testimony on information obtained from databases found on a website maintained by 4C Offshore ("4C"), a United Kingdom-based consultancy.<sup>486</sup> Mr. Ormesher advised that the 4C databases included "export" cables used for offshore wind projects and interconnector cables.<sup>487</sup> Mr. Ormesher noted that the 4C databases contained nearly 300 interconnector projects on the publicly available section of the website.<sup>488</sup> In addition, Mr. Ormesher referred to a second database published by Thomas Worzyk that "contains design features and installation base data for more than 200 submarine power cable projects all over the world."<sup>489</sup>

Mr. Ormesher argued that by limiting the discussion to the 230kV submarine projects occurring in the United States, the Company "may give the incorrect impression that XLPE transmission projects are less common than they are."<sup>490</sup> Mr. Ormesher contended that such an approach also limits the discussion of potential installation techniques and practices.<sup>491</sup> Mr. Ormesher pointed out that Company witness Koonce "makes no reference to bundled cables and implies that every cable must have its own trench, a requirement that also has significant impact on the cost of installation."<sup>492</sup>

Finally, Mr. Ormesher testified that Dominion Energy's website had a slide titled, "Why not underground?" that stated that underground was primarily used for large water crossings, dense metro areas, and other areas not suitable for overhead lines.

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<sup>482</sup> *Id.* at 9-10.

<sup>483</sup> *Id.* at 11.

<sup>484</sup> *Id.* at 12.

<sup>485</sup> Exhibit No. 59, at 3.

<sup>486</sup> *Id.* at 4.

<sup>487</sup> *Id.*

<sup>488</sup> *Id.* at 7.

<sup>489</sup> *Id.*

<sup>490</sup> *Id.* at 8.

<sup>491</sup> *Id.*

<sup>492</sup> *Id.*