

part 2

160620004

Shevenock

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Robert J. Shevenock II

Title: Consulting Engineer – Electric Transmission Line Engineering

Summary:

Company Witness Robert J. Shevenock II corrects certain aspects of the report sponsored by Neil Joshipura on behalf of the Commission Staff, including depictions of the existing and proposed structures for the Project and approximate average height of the proposed structures.

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A. Attachment 3 is the Company's representation of the existing typical structures between Gainesville and Haymarket Junction.

1 **Q. On page 8, Lines 17 and 18 of the Staff Report, Staff Witness Joshipura states that**
 2 **the proposed 3-pole structures at Haymarket Junction have an approximate height**
 3 **of 120 feet and require a right-of-way width of 240 feet. Is this correct?**

4 **A. The approximate height of the two proposed single circuit 3-pole structures is 55 feet.**
 5 **The structures would be installed in the existing 240 foot right-of-way under the existing**
 6 **500 kV line number 535.**

7 **Q. On page 8, Line 22 of the Staff Report, Staff Witness Joshipura states that the steel**
 8 **structures shown in his Attachment 4 have an average height of approximately 100**
 9 **feet. Is this correct?**

10 **A. The average height of the proposed double circuit steel pole structures is approximately**
 11 **112 feet as shown in Attachment 4.**

12 **Q. Does this conclude your rebuttal testimony?**

13 **A. Yes, it does.**

Velazquez

150620094

WITNESS REBUTTAL TESTIMONY SUMMARY

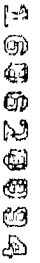
Witness: Wilson O. Velazquez

Title: Engineer III – Substation Engineering

Summary:

Company Witness Wilson O. Velazquez addresses testimony filed by respondent Southview 66, LLC Witness Arthur N. Fuccillo related to the transition station required for the I-66 Hybrid Alternative Route.

Mr. Velazquez explains the need for the transitions stations for the I-66 Hybrid Alternative and clarifies that the transition stations are not required for any overhead route. He details the anticipated space requirements for the Hybrid transition stations and confirms that the space required for the proposed transition station would comprise a substantial portion of Southview Parcel Two's acreage and could perhaps take up the majority of the acreage.



**REBUTTAL TESTIMONY
OF
WILSON O. VELAZQUEZ
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107**

1 **Q. Please state your name, business address, and position with Virginia Electric and**
2 **Power Company (“Dominion Virginia Power” or the “Company”).**

3 A. My name is Wilson O. Velazquez, and I am an Engineer III in the Substation Engineering
4 section of the Electric Transmission group of the Company. My business address is 2400
5 Grayland Avenue, Richmond, Virginia 23220.

6 **Q. Have you previously submitted testimony in this proceeding?**

7 A. Yes. I submitted pre-filed direct testimony on behalf of Dominion Virginia Power to the
8 State Corporation Commission of Virginia (“Commission”) in this proceeding on
9 November 6, 2015.

10 **Q. What is the purpose of your rebuttal testimony?**

11 A. The purpose of my rebuttal testimony is to address testimony filed by respondent
12 Southview 66, LLC (“Southview”) Witness Arthur N. Fuccillo related to the transition
13 station required for the I-66 Hybrid Alternative Route.

1 **Q. Southview Witness Fuccillo states that current concept plans for their “Parcel Two”**
2 **site depict a hotel in the area of the “switching station” proposed for the I-66 Hybrid**
3 **Alternative Route. (Fuccillo at 3.) Does Mr. Fuccillo appear to be talking about one**
4 **of the transition stations that would be required for the I-66 Hybrid Alternative**
5 **Route?**

6 A. Yes, he appears to be referencing one of the required transition stations that would be
7 located at Parcel Two for the I-66 Hybrid Alternative Route in order to connect the
8 transmission underground cables to the transmission overhead conductors. The transition
9 station provides the necessary area to install circuit breakers, shunt reactors, and other
10 associated equipment necessary for the I-66 Hybrid Alternative Route.

11 **Q. Is the transition station at this site required for the Proposed I-66 Overhead**
12 **Alternative or any of the other routes under consideration in this proceeding?**

13 A. No transition station or any other type of substation facility at Parcel Two would be
14 required for the Proposed I-66 Overhead Alternative or any of the other overhead routes.

15 **Q. Regarding the transition station that Southview believes will impact Parcel Two, can**
16 **you please explain the conceptual design including the space required?**

17 A. Yes. The appearance of a transition station is similar to that of a small switching station.
18 If required for this Project, the configuration would be four 230 kV breakers in a ring bus
19 configuration, two 230 kV shunt reactors and associated equipment including a control
20 enclosure containing the protection relays, and communications equipment necessary for
21 the transition station. The fenced-in land area required for the transition station facility is
22 approximately two acres. In addition to the approximately two-acre fenced-in area where
23 the requisite transition station equipment will be located, additional space of

approximately three to five acres will be required for access roads, grading, storm water management facilities, landscaping, and property set-backs.

Q. How do these space requirements for the I-66 Hybrid Alternative Route transition station, including both the fenced-in area and the additional acreage, compare to the space available for development on Southview Parcel Two?

A. It is my understanding that the Southview Parcel Two is approximately 11 acres. Accordingly, the space required for the proposed transition station would comprise a substantial portion of Parcel Two's acreage and could perhaps take up the majority of the acreage. In addition, the Company may need to seek an easement from the landowner to access the transition station during construction and for maintaining the facility after construction is complete.

The rebuttal testimony of Company Witness Jon M. Berkin further discusses the impacts of the I-66 Hybrid Alternative Route's transition station on Southview's proposed development for its parcels.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

100620034

Koonce

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Donald E. Koonce

Title: Principal Consultant with Power Delivery Consultants, Inc.

Summary:

Power Delivery Consultants, Inc. Witness Donald E. Koonce testifying on behalf of the Company provides updated analysis regarding the viability of constructing the underground portion of the proposed I-66 Hybrid Alternative Route.

Mr. Koonce explains that the Company is obligated to provide reliable and adequate electric service at just and reasonable rates to the public. The Company helps meet this obligation by utilizing overhead transmission facilities to meet the load demands of customers in the most economical manner possible. Underground transmission lines have been installed in the very limited number of cases where either there were no viable overhead routes available to meet customer load demands or the Company submitted an underground option as a legislatively approved pilot or for the purpose of gaining further experience with underground construction.

Mr. Koonce details several items that could lead to increased costs for the I-66 Hybrid Alternative, including impediments caused by VDOT's recent construction of sound walls and drainage features in the area, bored crossings of major roadways, and the presence of rock in the much of the necessary excavation area.

Mr. Koonce next outlines the anticipated construction schedule associated with the I-66 Hybrid Alternative, including potential sources of delay. He explains the anticipated construction impacts associated with underground work such as increased traffic delays and significant noise disturbance, and compares these expectations to the Company's recent construction experience on the Garrisonville underground transmission project.

Mr. Koonce notes significant reliability and operation concerns associated with underground transmission lines, especially as compared to overhead facilities.

Finally, Company Witness Koonce testifies that if the Commission approves the I-66 Hybrid Alternative, there are certain adjustments needed to that route as presented in the Company's application and supporting materials.

**REBUTTAL TESTIMONY
OF
DONALD E. KOONCE
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107**

1 **Q. Please state your name, position of employment, and business address.**

2 A. My name is Donald E. Koonce, and I am a Principal Consultant with Power Delivery
3 Consultants, Inc. My business address is 2241 Parkers Hill Drive, Maidens, Virginia
4 23102. Prior to my current position, I was employed as a Principal Engineer in the
5 Electric Transmission Reliability Department of Virginia Electric and Power Company
6 ("Dominion Virginia Power" or the "Company"). A statement of my background and
7 qualifications is attached as Appendix A.

8 **Q. Have you previously submitted testimony in this proceeding?**

9 A. No, I have not.

10 **Q. What is the purpose of your rebuttal testimony?**

11 A. The purpose of my rebuttal testimony is to provide updated analysis regarding the
12 viability of constructing the underground portion of the I-66 Hybrid Alternative Route for
13 the proposed Haymarket Project. I will also respond to the testimony and reports filed by
14 the State Corporation Commission Staff ("Staff") on June 2, 2016.

15 **Q. Are you sponsoring any exhibits as part of your rebuttal testimony?**

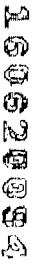
16 A. Yes. Company Exhibit No. __, DEK, consisting of Rebuttal Schedules 1-2, was prepared
17 under my direction and supervision, and is accurate and complete to the best of my
18 knowledge and belief.

Q. Respondents have asked the Hearing Examiner in this proceeding to recommend either disapproval of all routes (Fuccillo at 4; Mayer at 4; Amended Napoli at 1) or to approve only the I-66 Hybrid Alternative because they believe it has the least number of associated impacts (Amended Napoli at 2; Gestl at 8). Why is the Company not supporting the I-66 Hybrid Alternative as its Proposed Route?

A. The Environmental Routing Study, completed by Natural Resource Group, LLC (“NRG”), summarizes the Company’s conclusions and recommendations on page 89 stating, “the significantly higher cost and longer construction schedule associated with the construction of the I-66 Hybrid Alternative Route burden that route. For these reasons, the I-66 Overhead Alternative Route was identified as the Proposed Route, and the remaining Alternative Routes were identified as Alternative Routes for the [“Commission’s] consideration.”

Q. What portion of the Company’s transmission system is currently underground, and how does that compare to the portion that is overhead?

A. Dominion Virginia Power’s transmission system is comprised of approximately 6,490 miles of lines operating at voltages of 69 kV and above. Of this total, there are 23.50 miles of 69 kV underground lines, 0.075 miles of 115 kV underground lines, and 59.51 miles of 230 kV underground lines. The underground facilities represent 1.28% of the Company’s total transmission system. Underground facilities are rare on most utility systems with service areas comparable to the Company’s area in Virginia and North Carolina.



1 **Q. What is the Company's position on the installation of underground transmission**
2 **lines?**

3 A. The Company is obligated to provide reliable and adequate electric service at just and
4 reasonable rates to the public. The Company helps meet this obligation by utilizing
5 overhead transmission facilities to meet the load demands of customers in the most
6 economical manner possible. Underground transmission lines have been installed in the
7 very limited number of cases where either there were no viable overhead routes available
8 to meet customer load demands or the Company submitted an underground option as a
9 legislatively approved pilot or for the purpose of gaining further experience with
10 underground construction.

11 **Q. Earlier you referenced the significantly higher cost and longer construction schedule**
12 **associated with the construction of the I-66 Hybrid Alternative Route. Since filing**
13 **the application in this proceeding, has the Company performed any further cost**
14 **analysis?**

15 A. Yes. I have reviewed the cost estimates prepared by the Company prior to filing the
16 Application. However, the area near the Project is growing rapidly, so I thought it would
17 be prudent to take a recent site visit with Company personnel. We discovered there have
18 been a number of significant items that have changed since the estimate was first
19 completed.

20 To begin, the work recently undertaken by the Virginia Department of Transportation
21 ("VDOT") along I-66 for the installation of sound walls included the installation of
22 drainage facilities, including several storm water management ponds. There are also
23 some fairly long runs of deep drainage ditches that parallel I-66 just outside the sound

1 wall location and inside the limits of the VDOT right-of-way. The presence of these new
2 drainage features makes the installation of underground transmission more difficult.
3 Please refer to Photos 1 through 3 in my Rebuttal Schedule 1 that show the VDOT
4 drainage facilities. Much of the recently completed work by VDOT would be
5 significantly disturbed if installation of two parallel duct banks were to take place in the
6 areas shown in the preliminary routing information regarding the I-66 Hybrid Alternative.

7 The presence of the new drainage features will also have a significant impact on the
8 construction duration required to install duct banks. After the detailed site review with
9 Company personnel, I estimate trenching production rates could be slowed by as much as
10 50% in the very constricted areas that are occupied by ponds or steep-sloped drainage
11 ditches. This reduced production will add to the cost of installing the facilities that has
12 not been included in the current Company estimate.

13 Additionally, the Company's I-66 Hybrid Alternative cost estimate included costs for two
14 bored crossings of I-66 and one bored crossing of U.S. Route 15. Upon my review in the
15 field, I noted there would also be a bored crossing required at Catharpin Road on the
16 south side of I-66, and a bored crossing of John Marshall Highway (Route 55) just west
17 of the intersection with U.S. Route 15. There is also the potential for an additional third
18 bored crossing of Old Carolina Road just north of I-66 as this appears to be a high
19 volume roadway that VDOT may not permit lane closures for an open cut crossing.
20 Again, this is additional work not anticipated in the original estimate, and would add to
21 the cost of the I-66 Hybrid Alternative.

22 Another observation from my field inspection of the I-66 Hybrid Alternative Route was

the amount of rock that is now visible throughout most of the route. With the sound wall installation work immediately in the area of the proposed underground duct bank location, it is apparent that VDOT encountered rock when excavating the foundations for the sound wall support columns. The Company's estimate for the underground construction cost included a small adder for trenching work needed when rock is encountered; however, the Company's estimate only accounted for rock on a little more than 600 feet of trench. This amounts to covering rock excavation for about 2% of the total trenching length.

Based on the exposed material from the sound wall installation, it is easy to see that much more rock would be encountered and costs would increase significantly. I believe we can now assume that rock will be found along the majority of the route and roughly half of the volume of excavated material would be rock. Please refer to Photo 4 in my Rebuttal Schedule 1 that shows rock encountered with VDOT's work along I-66. Additional time would also be required as rock excavation takes longer than normal soil excavation. It should also be noted that much of the excavated material will not likely be suitable, due to thermal characteristics, for backfilling the trench above the duct bank. This means the excavated material would have to be disposed of offsite and suitable material trucked in to backfill the trenches. Like the issues raised above, these additional costs have not been included in the Company's original estimate.

Q. Staff Witness Wayne McCoy acknowledges that the use of underground construction would be “disruptive” during the construction phase. (McCoy at A6.) In addition to the additional costs you have discussed, has the Company also evaluated the anticipated schedule, requirements, and disruptions that would be associated with construction of the I-66 Hybrid Alternative?

A. Yes. The Company has conferred with several contractors regarding the construction process and estimated schedule for conducting 230 kV line installations, and confirmed that the estimated schedule for such construction would be significantly longer than installing a comparable overhead route.

Installation of underground transmission facilities generally consists of two stages: construction of the duct bank and installation of the transmission cable.

For the I-66 Hybrid Alternative, which consists of approximately 3.1 miles of underground duct work (plus 0.14 miles of overhead line), contractors estimate that duct work construction would take approximately 18 months. With the likelihood of slow production along the north side of I-66, additional time would be required to complete that section. This stretch of the route amounts to approximately 30% of the trench work. If production drops by 50% in this section, another 22 weeks would be required. This extends the total duration of the duct bank work to 24 months. This assumes a work schedule comprised of four (4) ten-hour days.

The duct bank construction stage could be complicated by several additional factors: (i) the crossing of I-66 at two locations; (ii) four horizontal borings under I-66 that will each be between 350 and 400 feet in length; (iii) congested areas on the western crossing of I-

66, making installation difficult; (iv) generally limited space for the positioning of boring equipment; and (v) exceptionally limited space for a laydown yard to stage all the steel casings and associated ducts that will line the underground borings. Each of these items could potentially add delay to the construction schedule and additional cost.

The second stage of construction would consist of power cable installation. The Company conferred with a cable installation contractor, who estimated that cable installation operations – cable pulling, splicing and terminating – would total over two hundred days. Assuming a work week comprised of four (4) ten-hour days, this phase of the construction would take approximately 12 months to complete.

If the cable installation phase begins immediately after the duct bank installation phase is completed, the total installation of the underground segment of the I-66 Hybrid Alternative will take almost thirty-six months to complete. Even if construction were phased in, with cable installation starting after a significant portion (at least 70%) of the duct bank is in the ground, the estimated total construction time would still take nearly 24 months to complete. If the trenching production rate drops along the north side of I-66 as now envisioned, this total construction period – even with phased in work – lengthens to approximately 30 months. And, if VDOT imposes further restrictions on the schedule for daily construction operations (affecting the assumption of four (4) ten-hour days) within the sound wall area, the total construction period could be even longer.

Q. Have you created an exhibit to assist in explaining these anticipated construction schedules?

A. Yes. My Rebuttal Schedule 2 is a graphical depiction of the construction durations and

activity overlaps for the I-66 Hybrid Alternative as well as the Proposed Route.

Q. Staff Witness McCoy appears to downplay the construction activities associated with the I-66 Hybrid Alternative characterizing them as, “at best, inconvenient.” (McCoy Staff Report at 6-7.) Are there any other additional construction impacts of underground transmission lines as compared to overhead transmission lines?

A. Yes. Public rights-of-way, such as roadways, are often utilized to route an underground line, and traffic on these roadways would be significantly impacted during the construction phase. For overhead lines, excavation activity is limited to a small-diameter drilled hole for each structure every 700 – 800 feet, whereas an underground installation requires a continuous open trench for several hundred to a thousand feet at a time. Dust and noise associated with the underground construction activities is significantly greater than for overhead line work. Many truckloads of material, approximately 924,000 cubic feet (34,222 cubic yards), must be excavated for the underground line, much of which needs to be hauled away and disposed of offsite. This is required to make room for the placement of the select thermal backfill materials to improve the performance of the underground cables. On the other hand, the spoils from construction of an overhead line are much less in volume and are often spread out at the location of each structure, requiring very limited or no remote disposal.

One additional issue that is complicated by the severely constricted area along the sides of I-66 is the ability to get the large pre-cast manholes to the locations where they would be installed. There is little or no access to much of the route, especially along the north side of I-66. An alternative approach would be to use poured-in-place manholes, which require concrete truck access to build. The very limited access also creates problems

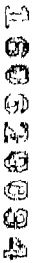
with the cable pulling operations. The reels of cable are very large and require “low-boy” trailers with minimal ground clearance to haul them on highways to meet overall height limitations imposed by VDOT. Such equipment needs solid roads with limited changes in grade to keep the trailer from getting stuck. These reels can weigh in excess of 60,000 pounds, so a robust access road to each manhole location is needed.

Q. You mentioned the potential for noise associated with the underground construction. Please explain.

A significant disturbance that the Company did not anticipate on its recent Garrisonville underground project was the substantial noise level occurring during directional boring. Because the cost of having boring equipment on-site is high, it is kept in operation around the clock to the greatest extent possible. The directional boring operation creates noise disturbance problems, especially in residential areas, and the Company received a substantial number of complaints, eventually leading to the Company erecting sound deadening barriers in the form of a 20 foot tall by 12 foot wide by approximately 200 feet long wall of hay bales, which contributed to increased cost. I would note, given the space concerns outlined above, it is unlikely a similar sound barrier could be utilized here. Additionally, more noise from construction equipment would be expected for continuous rock excavation for duct bank installation along the route than would be expected for drilling pier foundations every 700 - 800 feet for an overhead line installation.

Q. Did the Company learn anything else from its experience with underground construction of the Garrisonville transmission project?

A. Yes. The Company saw significant cost overruns with that project. According to the Company, adverse soil conditions, large amounts of rock in the right-of-way, unfavorable



1 topography, and interstate road crossings resulted in significant increases in the cost
2 estimates for the project – many of the same concerns I have shared with potential
3 construction of the I-66 Hybrid Alternative.

4 Further, the estimated schedule to complete the Garrisonville overhead project was 24
5 months, whereas the estimated underground schedule was 36 months. The actual
6 schedule required approximately 50 months, nearly a 40% overrun.

7 **Q. Staff Witness Neil Joshipura notes that while Staff agrees the I-66 Hybrid**
8 **Alternative is more expensive and may require more construction time, Staff deems**
9 **it a viable alternative because it is electrically feasible and similar to the proposed**
10 **Project. (Joshipura Staff Report at 12.) Are there reasons in addition to cost,**
11 **length of construction, and construction impacts that make the selection of an**
12 **underground route for the Project undesirable?**

13 **A.** Yes. As stated above, the Company's general policy regarding transmission lines is that
14 overhead lines are more reliable than underground transmission lines and should be
15 constructed whenever a viable overhead route exists. Specifically, overhead transmission
16 lines are more reliable because: (1) it is more difficult to locate a problem on
17 underground lines than on overhead lines; and (2) on average, it takes weeks to repair
18 problems on underground transmission lines versus hours for overhead lines.

19 For example, an outage of an overhead transmission line can usually be repaired within a
20 matter of hours because the location of the problem is easy to identify. The Company's
21 system operator will know that the outage is on a certain line between two substations,
22 and a visual inspection of the line via air or land will quickly disclose the location where

Q. Are there other reliability issues associated with underground transmission lines?

A. Yes. When an overhead line experiences a fault, circuit breakers open to protect the line but automatically and immediately “reclose” so that, if the line has not been damaged, the power flow in the line is interrupted only for a fraction of a second. By contrast, automatic “reclosing” is not permitted on underground transmission lines because the fault will likely result in damage to the cable and its insulation and immediate reclosing would cause more extensive damage.

By way of illustration of the reliability concerns I have been describing, the Company’s present unplanned outage rate for overhead transmission lines rated 230 kV is 0.66 outages per hundred miles per year for sustained outages. The present unplanned outage rate for underground transmission lines of all ratings is 1.30 outages per hundred miles per year for sustained outages. In addition to these reliability concerns with underground transmission lines, there are also operability issues.

Q. Please explain.

A. Overhead lines are preferable because underground lines add operating restrictions to the electric system. Underground lines can raise the voltage on the grid to unacceptable levels when power usage is low, which is usually in the fall and spring.

Specifically, underground cable has a significantly higher capacitance relative to overhead conductors. As the capacitance increases during periods of light electrical load, the area voltage increases. Voltage rise on an electrical grid has an inverse relationship to loading. With other factors held constant, as load increases, system voltage decreases. As load decreases, system voltage increases. When the voltage rises to an unacceptable

level, a line may need to be switched out of service, which is not always possible and never desirable.

Q. Setting aside the issues you have discussed, if the Commission approves the I-66 Hybrid Alternative, are there any adjustments needed to that route?

A. Yes, I would recommend two adjustments to the I-66 Hybrid Alternative based on my detailed site review. First, the route alignment on the south side of I-66 just west of Old Carolina now appears to be unbuildable based on the available space between the new VDOT sound wall and the limits of the VDOT right-of-way. I estimate there to be only 10-12 feet available, and this is not enough room to install two parallel duct banks with the required separation. Please refer to Photo 5 in my Rebuttal Schedule 1, which shows this situation.

I believe that changing the 90 degree bored crossing of I-66 to a diagonal horizontal directional drilling crossing that includes both Old Carolina and I-66 would be required to get around this issue, though VDOT would need to approve such a crossing and most highway departments permit only perpendicular crossings.

Second, based on the multiple 90 degree angles for the I-66 Hybrid Alternative as presented in the Company's application, I would recommend using the route known as the "Walmart Variation." Using the Walmart Variation for the I-66 Hybrid Alternative would alleviate some of the heavy angles present in the area near the Haymarket substation where these multiple 90 degree angles will make cable pulling more difficult and reduce pulling lengths, requiring more manholes and splices. This recommendation is based solely on my field review with Company personnel and does not take into

1 consideration any subsurface facilities that may impact the ability to install underground
2 transmission facilities.

3 **Q. Do you have any final remarks?**

4 A. Yes. In sum, the Company considers five factors when determining whether to construct
5 overhead or underground transmission lines: (1) viability of an overhead option; (2)
6 reliability; (3) time to construct; (4) operability; and (5) cost. Based on these factors and
7 how they pertain to the potential undergrounding of the Haymarket Loop, the Company
8 continues to support the I-66 Overhead Route, rather than the I-66 Hybrid Alternative, for
9 constructing the Project. However, if the I-66 Hybrid Alternative is chosen, the
10 Company asks that the Commission approve the adjustments as discussed herein.

11 **Q. Does this conclude your rebuttal testimony?**

12 A. Yes, it does.



Photo 1 - North side of I-66 at Catharpin Road
looking west showing drainage ditch

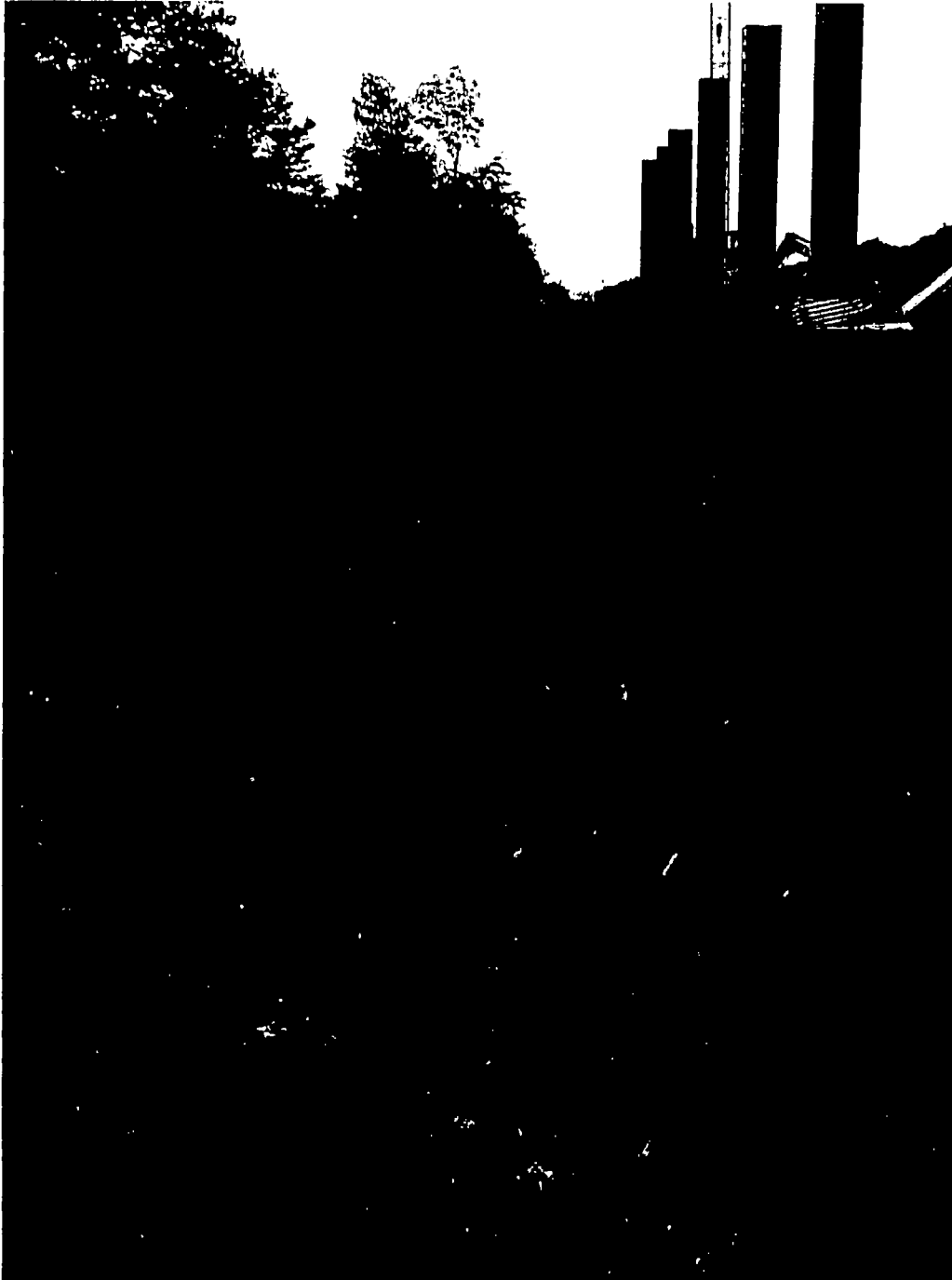


Photo 2 - North side of I-66 looking east
showing steep -sloped drainage ditch

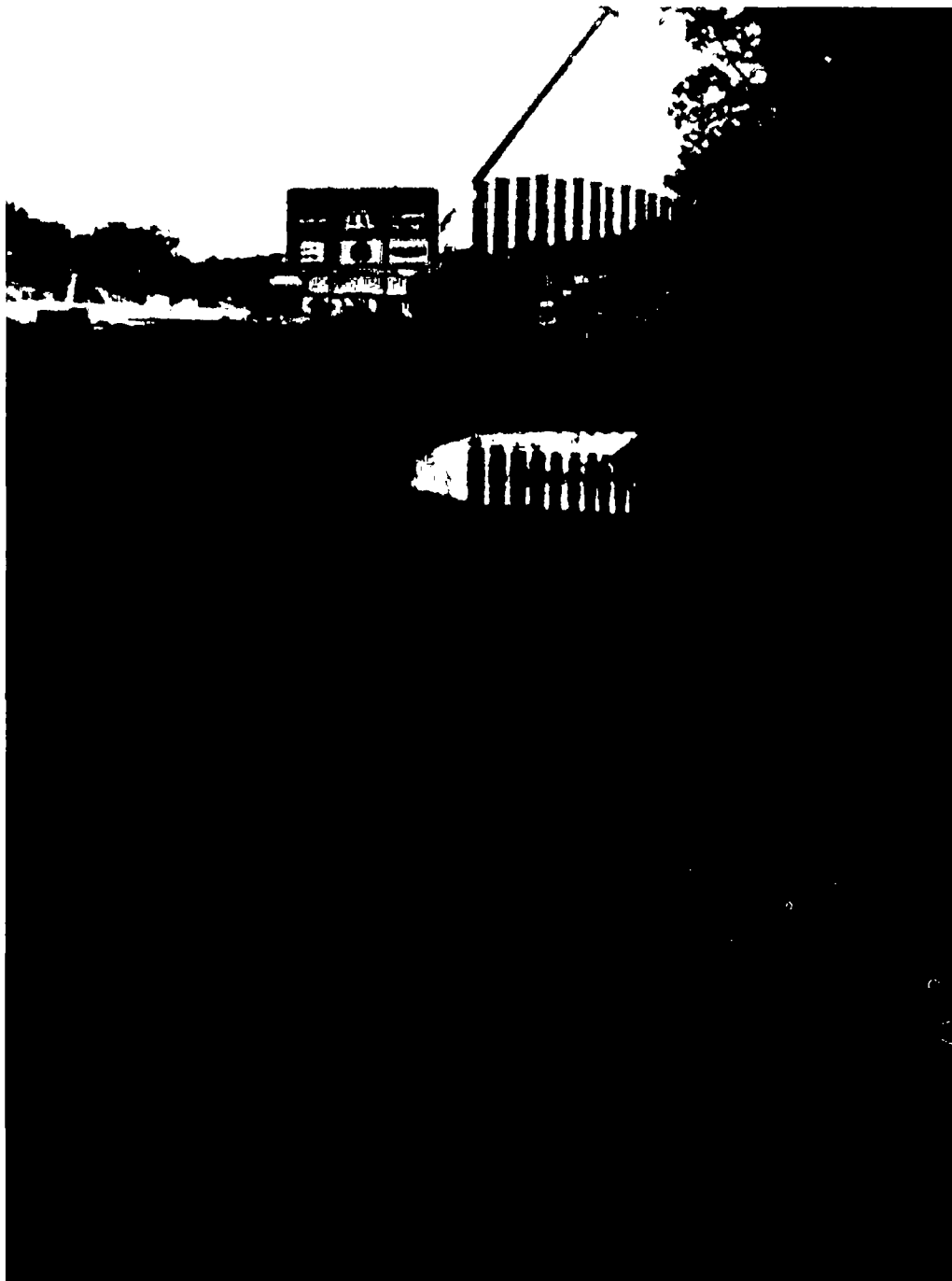


Photo 3 - North side of I-66 looking west
showing storm water pond

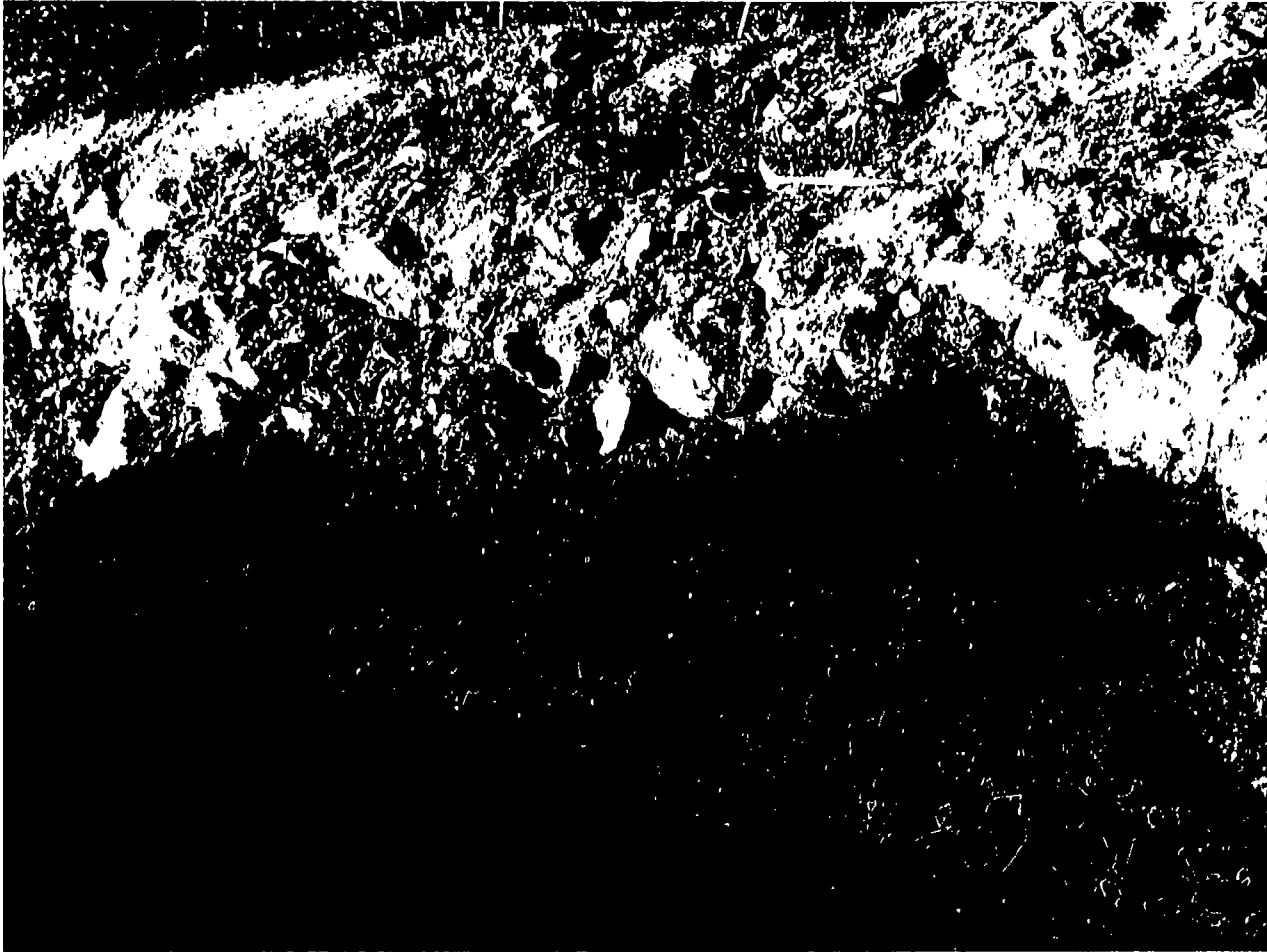


Photo 4 – View of the extensive rock encountered in
VDOT's work along the south side of I-66 near Route 15

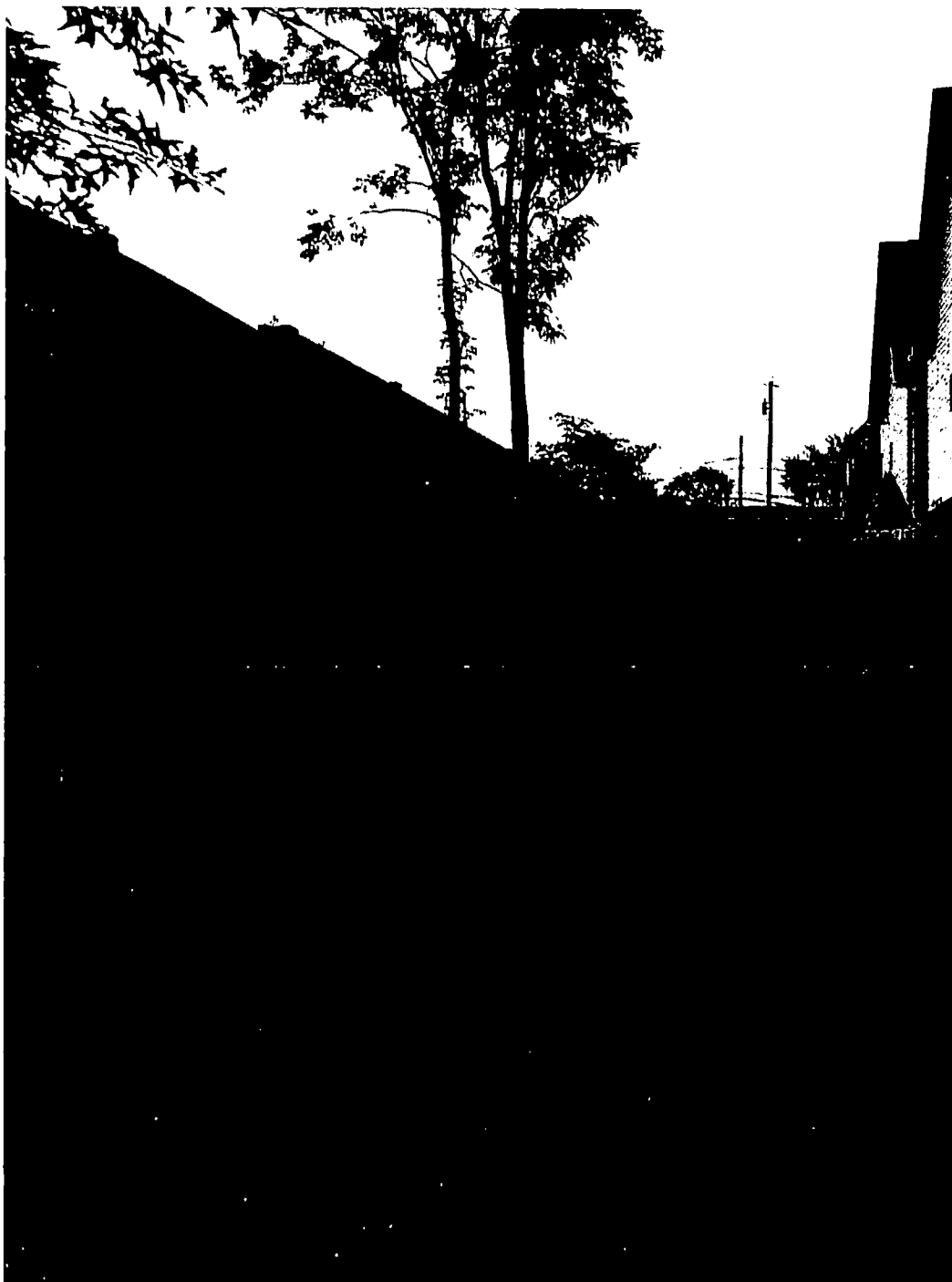


Photo 5 - South side of I-66 looking east showing proximity of sound wall and edge of VDOT right-of-way

Haymarket 230kV Line and Substation

I-66 Overhead Preliminary Schedule

	Time in Years		Time in Months	
	1	12	18	24
SCC Ruling				
Total I-66 Overhead Project Duration				
Construct Overhead I-66 Lines				
Real Estate Acquisition				
Clear R/W				
Construct Double Circuit 230 kV Lines				
Construct Haymarket Substation				
Permitting				
Procure Material				
Construct Substation				
Loudoun Substation				
Update and Convert Line 124 to 230kV				
Gainesville Substation				

160028691

I-66 Hybrid Overhead/UG Preliminary Schedule

Company Exhibit No. _____
Witness: DEK
Rebuttal Schedule 2
Page 2 of 2

160620094
Payne

WITNESS REBUTTAL TESTIMONY SUMMARY

Witness: Harold Payne

Title: Manager – Regulation

Summary:

Company Witness Harold Payne addresses the Company's process of recovering transmission costs as a member of PJM Interconnection, LLC ("PJM") via approval by the Federal Energy Regulatory Commission ("FERC").

Mr. Payne explains how, effective May 1, 2005, the Company integrated into PJM, a regional transmission entity that has been approved as a regional transmission organization by FERC, at which time PJM assumed operational control of the Company's electric transmission facilities, and the Company gained direct access to the PJM capacity and energy markets. As an integrated electric utility member of PJM, the Company obtains transmission service from PJM and pays PJM charges for such service at the rates contained in PJM's Open Access Transmission Tariff approved by FERC.

Mr. Payne notes the Company's costs for transmission service are determined by the FERC-approved rates and terms and conditions of such service provided by PJM, and it is those costs which that statute declares to be reasonable and prudent for which it permits dollar-for-dollar recovery by the Company, and that costs of individual transmission projects are reflected once that project is in service in the PJM network.

With respect to the Haymarket Project, Mr. Payne explains that it will be constructed as a Supplemental Project within PJM, designated as Project S0918, and will be integrated into PJM's transmission system. Accordingly, if the Haymarket Transmission Facilities are constructed overhead – consistent with the Company's proposal – then the Company will handle the facilities consistent with other routine Supplemental Projects that are integrated into PJM's transmission system. In other words, the cost of the Haymarket Transmission Facilities will be "rolled-in" to the Annual Transmission Revenue Requirement, determined according to the Dominion Virginia Power formula rate in Attachment H-16 of the PJM Tariff and recovered through the NITS charges levied to all load serving entities in Dominion Zone. If the Commission approves the I-66 Hybrid Alternative Route, then, absent any order or ruling to the contrary by FERC, the Company will use the same cost recovery method under the PJM Tariff.

**REBUTTAL TESTIMONY
OF
HAROLD PAYNE
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107**

Q. Please state your name, position of employment, and business address.

A. My name is Harold Payne, and I am Manager – Regulation for Virginia Electric and Power Company (“Dominion Virginia Power” or the “Company”). A statement of my background and qualifications is attached as Appendix A.

Q. Have you previously submitted testimony in this proceeding?

A. No, I have not.

Q. What is the purpose of your rebuttal testimony?

A. The purpose of my rebuttal testimony is to respond to the pre-filed testimony and reports filed by the State Corporation Commission Staff (“Staff”) on June 2, 2016. Specifically, I will address the Company’s process of recovering transmission costs as a member of PJM Interconnection, LLC (“PJM”) via approval by the Federal Energy Regulatory Commission (“FERC”).

Q. Mr. Payne, before responding to Staff, can you please briefly explain how cost recovery for the Company’s transmission facilities are handled?

A. Yes. Effective May 1, 2005, the Company integrated into PJM, a regional transmission entity that has been approved as a regional transmission organization (“RTO”) by FERC, at which time PJM assumed operational control of the Company’s electric transmission facilities, and the Company gained direct access to the PJM capacity and energy markets.

As an integrated electric utility member of PJM, the Company obtains Network Integration Transmission Service (“NITS”) from PJM and pays PJM charges for such service at the rates contained in PJM’s Open Access Transmission Tariff (“PJM OATT”) approved by FERC. Of particular interest in this proceeding is the Company’s recovery of the Haymarket Project’s transmission facilities (“Haymarket Transmission Facilities”) under Attachment H-16, Annual Transmission Charges – Virginia Electric and Power Company (“Attachment H-16”). This is the Company’s FERC-jurisdictional electric transmission formula rate, which produces an Annual Transmission Revenue Requirement (“ATRR”) associated with the Company’s electric transmission facilities. The ATRR revenue is collected by PJM from the appropriate NITS customers, and the ATRR revenue collected by PJM is credited to the Company.

Because the Haymarket Transmission Facilities have been designated as a Supplemental Project by PJM – specifically Project No. S0918 – the associated project cost is not eligible for regional cost allocation under the PJM OATT. Rather, the costs of the Haymarket Transmission Facilities are to be recovered from NITS customers in the Dominion Zone of PJM (“Dom Zone”) on a load ratio share basis. The Company is the largest NITS customer in Dom Zone, with a load ratio share of about 85% applicable to billing during 2016. About 84% of the Company’s 2016 share is attributable to Virginia jurisdictional load.

Each annual population of the Attachment H-16 formula includes a projected cost component. It also includes a true-up component associated with the second year prior to the projection year to reconcile any differences between that year’s projected amounts and actual amounts, plus interest. For example, the 2016 billing includes a projection for

the PJM OATT. Because the cost of the Haymarket Transmission Facilities are not allocated to customers outside of Dom Zone, the currently effective load ratio share results in the Company paying about 85% of the NITS amount. The remaining approximately 15% would be charged by PJM to other NITS customers in the Dom Zone, and all NITS revenues would be credited to the Company. Examples of the other NITS customers with loads in the Dom Zone include Old Dominion Electric Cooperative, Northern Virginia Electric Cooperative, and North Carolina Electric Membership Corporation.

Looking specifically at the NITS amount charged to Dom LSE, about 84% of that charge is currently attributed to Virginia jurisdictional customers. The Code of Virginia permits dollar-for-dollar recovery of that amount by the Company from its Virginia jurisdictional customers through a combination of base rates and the Subsection A 4 RAC. The remaining approximately 16% is attributed to other loads for which the Company is the LSE and transmission cost recovery by the Company occurs under the tariffs or contracts governing the Company's relationship with the relevant customers.

Q. How would recovery occur if the Haymarket Transmission Facilities are constructed underground?

A. Absent an order from FERC directing otherwise, the cost of the Haymarket Transmission Facilities, in their underground configuration, would become a cost included in the Attachment H-16 ATRR, and recovery would occur just as I described for the overhead configuration.



1 **Q. Staff has stated the Commission could approve the Haymarket Transmission**
2 **Facilities and determine that the Company’s state jurisdictional retail tariff applies**
3 **for cost allocation purposes, and order the Customer to pay the transitional cost of**
4 **the underground facilities. (Joshiपुरa Staff Report at 20-21.) Could such a finding**
5 **by the Commission result in disparate treatment compared to a scenario where the**
6 **new point of delivery is being constructed for a transmission dependent utility**
7 **(“TDU”) such as a wholesale electric cooperative?**

8 **A. Yes. If the Haymarket Transmission Facilities were being constructed to provide a new**
9 **PJM point of delivery to a TDU, the Company would still be before the Commission**
10 **seeking a Certificate of Public Convenience and Necessity for the transmission facilities.**
11 **The Company’s retail service provisions would not enter into consideration because there**
12 **would be no retail customer of the Company. This means that the TDU for which the**
13 **facility was constructed would pay only its load ratio share of the undergrounding cost**
14 **and all other NITS customers in the Dom Zone would pay the balance of the**
15 **undergrounding cost. Dom LSE would pay about 85% of the undergrounding cost under**
16 **the current load ratio share allocation.**

17 **However, if the actual circumstances at hand – which is the Company serves retail load**
18 **from the new PJM point of delivery – include collecting a capital contribution from the**
19 **retail customer, then: (1) the Company’s retail customer would incur a charge for the full**
20 **incremental undergrounding capital cost that would not be present for a retail customer of**
21 **the TDU, and (2) the cost recovered from all NITS customers in the Dom Zone would be**
22 **lower than otherwise because it would not include recovery for the full incremental**
23 **undergrounding capital cost paid by the Company’s retail customer. Accordingly, if a**

capital cost is charged in this proceeding or others like it, there will be disparate treatment compared to a parallel case where the difference is only the identity of the wholesale customer taking NITS from the new point of delivery. This could result in incenting customers with large loads to locate outside the Company's retail service territory.

Q. I believe you stated earlier that costs associated with the Haymarket Transmission Facilities will be included in the ATRR beginning with the calendar year that the first element of the Haymarket Transmission Facilities are projected to go into service. Do you believe that once constructed the Haymarket Transmission Facilities will be integrated?

A. Yes. As a practical matter, I believe that the Company's transmission facilities except step-up transformers and generation interconnection facilities are integrated. Moreover, Company Witness Mark R. Gill's rebuttal testimony regarding the system benefits of this Project finds that the facilities will be networked and needed to reliably provide for future load growth, including loads of multiple LSEs. His testimony further describes interest by a TDU in establishing a delivery point from the Haymarket Transmission Facilities. These attributes indicate the Haymarket Transmission Facilities will be integrated.

Q. Does this conclude your rebuttal testimony?

A. Yes, it does.

APPENDIX A**BACKGROUND AND QUALIFICATIONS
OF
HAROLD PAYNE**

I received a Bachelor of Business Administration degree from James Madison University in 1978, and a Master of Business Administration degree from The George Washington University in 1983.

I joined Dominion Virginia Power in 1978 as a Service Representative. In 1982, I was promoted to the Rate Department as a Rate Analyst and progressed to the position of Staff Regulatory Analyst.

In 1997, I organized and was named manager of a new group to consolidate the Company's administration of retail electric service contracts, retail terms and conditions, and joint-use contracts. In 2001, I accepted the position to focus on research and special projects. In 2002, I joined the Transmission Policy Department and worked on Dominion's RTO initiative.

In 2003, I was named Manager – Pricing and Regulatory. My responsibilities included oversight of the pricing of unbundled electric transmission service, oversight of Dominion's generator interconnection queue, and negotiation and administration of electric transmission service contracts.

Since 2004, I have worked extensively with other PJM transmission owners especially through the PJM Transmission Owners – Administrative Committee. In 2010 generator interconnection queue responsibilities were reassigned to other Company areas. I remain responsible for oversight of the pricing of unbundled electric transmission service and modifications to transmission service contracts. My title is now Manager, Regulation.

I have previously testified before the State Corporation Commission of Virginia and the North Carolina Utilities Commission.