

IDYLWOOD TYSONS 230 kV RELIABILITY PROJECT

ENERGY INFRASTRUCTURE FOCUS GROUP

July 27, 2017 MEETING SUMMARY

DRAFT – FOR REVIEW ONLY

On Thursday, July 27, 2017, the first meeting of the Energy Infrastructure Focus Group (FG) for the proposed Idylwood Tysons 230 kV Reliability Project was held from 8:30 a.m. to 12:30 p.m. at the Hilton Garden Inn, Vienna (Tysons), Virginia. The FG series is sponsored by Dominion Energy Virginia (Dominion) and facilitated by Environmental Resources Management (ERM).

The focus group process is part of a broader Stakeholder Engagement Plan for the Project, which also includes community leader outreach, public open houses and various additional communications, including informational materials, notification mailings and a project website. The goal is to obtain input about the Project from stakeholders and the public through a variety of methods. Input and feedback received from stakeholders will aid Dominion in the identification of viable route options for assessment and inclusion in an application to the Virginia State Corporation Commission (SCC).

PARTICIPANTS

Dominion consulted with community leaders, environmental groups, business groups and others to identify participants who represent a cross section of public and private interests and who bring unique, diverse and technical perspectives to the process. Thirteen individuals represented the following organizations at the first meeting:

- Dunn Loring Citizens Association
- Fairfax County Department of Transportation
- Fairfax County Park Authority
- Fairfax County Park Authority Board
- Fairfax County Planning & Zoning
- Greater Tysons Green Civic Association
- Home Performance Coalition
- McLean Citizens Association Planning and Zoning Committee (former member)
- Northern Virginia Chamber of Commerce
- NOVA Parks
- Tysons Partnership, Inc.
- VDOT Route 6 Planning Task Force Virginia Department of Transportation - NOVA District

The following organizations expressed interest in participating but were unable to attend the first meeting:

- Fairfax County Office of Community Revitalization
- Dranesville District Representative

In addition to the organizations identified above, several other organizations were invited to participate but declined or could not attend.

PROJECT TEAM

Dominion Energy Virginia:

- Wes Keck, Project Manager
- Amanda Mayhew, Routing/Siting Manager
- Tiffany Taylor-Minor, Communications Consultant
- Mark Gill, Transmission Planning
- Matthew Rudd, Electric Transmission Engineer (Underground)
- Liz Gatlin, Electric Transmission Engineer (Overhead)
- Tim Sargeant, External Affairs Manager
- Scott Reamy, External Affairs Manager
- Steve Chafin, Director, Electric Transmission Planning & Strategic Initiatives

ERM:

- Patty Rusten, Environmental Resources Management (ERM), Facilitator
- Liz Valsamidis, ERM, Co-facilitator
- Jon Berkin, ERM, Routing Specialist
- Dave Potter, ERM, Routing Specialist

Others:

- Ken Wagner, Dewberry, Transportation Specialist
- Don Koonce, PDC Associates, Underground Routing Specialist

MEETING AGENDA

The following agenda was used at the FG meeting:

- Dominion Welcome
- Review of Focus Group Process and Group Introductions
- Project Communications and Outreach
- Project Need and Background
- Project Overview and Regulatory Process
- Overhead and Underground
- Routing/Siting Overview
- Interactive Routing Constraints Exercise
- Summary and Next Steps

WELCOME

Wes Keck opened the meeting and welcomed the group to the first meeting of the Energy Infrastructure Focus Group. He thanked the group for agreeing to participate to provide valuable community and technical feedback about the proposed project – The Idylwood to Tysons 230 kV Reliability Project.

REVIEW OF THE FG PROCESS AND PARTICIPANT INTRODUCTIONS

Patty Rusten began this segment of the meeting by reviewing the agenda and then asked for introductions from each participant of the FG, representatives from Dominion and others from the project team. She then reviewed the FG process.

- The **purpose** of the Energy Infrastructure Focus Group is for participants to provide community perspectives and technical input on opportunities, constraints and local issues related to the proposed Idylwood to Tysons 230kV Reliability Project to aid Dominion Energy Virginia in the development of feasible and defensible route options for inclusion in the application to the State Corporation Commission.
- The **process** includes three FG meetings and two open houses.
- The **roles** and **responsibilities** of the participants include active and consistent participation, identification of an alternate from their organization to ensure consistent participation and to consult with their respective organizations before and after the meetings.

PROJECT COMMUNICATIONS AND OUTREACH

Tiffany Taylor-Minor provided an overview of the Outreach and Engagement plan developed for this project and stated Dominion is committed to consulting with stakeholders and the public during the planning and route development process for the proposed Project. The plan includes outreach with elected officials, homeowner associations and other stakeholder groups, the Energy Infrastructure Focus Group process, public open houses and communications materials including a project website. Tiffany also explained the SCC process and how and when public input is included. Tiffany also noted that if stakeholder or Homeowner groups were interested in inviting Dominion to a meeting or to make a presentation to their organization, they should contact her directly using the information on the website.

PROJECT NEED AND BACKGROUND

Mark Gill began the segment about the need for and background of the project by giving an overview and description of the key regulatory bodies that have oversight over various aspects of electric transmission planning. These include: the Federal Energy Regulatory Agency (determine and regulate the reliability of the grid), the North American Electric Reliability Corporation (develop and enforce mandatory reliability standards), the PJM – Regional Transmission Organization (coordinates the movement of wholesale electricity in all or parts of 13 states and the District of Columbia), and the SCC (regulates Virginia public utility facilities, retail rates and services include transmission line need and routing) which issues certificates of public convenience and necessity.

The 2003 blackout incident resulted in heightened regulations and a renewed focus on our nation’s energy infrastructure, including the development of new mandatory, enforceable reliability standards. Those standards are used for the transmission planning proposed by Dominion and helped identify the need for this project. By 2021, load on existing transmission lines serving the Tysons and McLean areas of Fairfax County (the “Tysons Load Loop”) are projected to exceed 300 mega-watts (MW). This could result in a violation of the mandatory federal North American Electric Reliability Corporation (NERC) Reliability standards and impact the Company’s ability to maintain reliable service in the area.

PROJECT OVERVIEW AND REGULATORY PROCESS

Amanda Mayhew began the segment by explaining that all proposed project solutions must satisfy the NERC planning criteria and follow siting and permitting considerations. She then provided an overview of the SCC permitting process (graphic/process chart is on the project website) and noted that local governments regulate land use for substations and have oversight of electric transmission lines that are less than 139kV.

One of the first steps in developing the project is to determine the start and end points (substations). The start point was identified as the existing Idylwood Substation and seven other substations were evaluated as potential end points. The end point facility criteria included property size, ability to connect to local distribution circuits, permitting requirements and environmental constraints. The existing Tysons Substation was selected as the best option for an end point because it is a site owned by Dominion, current zoning permits the intended use, no physical constraints were noted that could prevent expansions within the existing boundaries, the site supports the project timeline and it is the least complicated connecting to existing transmission line.

The process for this phase of project planning and development includes: determining a study area, identifying potential routes – including overhead and underground options; inviting the public to review and comment, determining the preferred route(s) and submitting the application for a Certificate of Public Convenience and Necessity to the SCC. Note that the potential solutions include both overhead and underground potential routes.

OVERHEAD AND UNDERGROUND

Liz Gatlin provided a general overview of overhead transmission lines. Liz explained that there are horizontal and vertical structures and the placement, location and other criteria determine which type of structure to use. The horizontal structures are more commonly known as “H” structures and the vertical structures are called monopoles. The area for this project would most likely require monopole structures.

Matt Rudd provided a general overview of underground transmission lines. He noted that currently just over 1 percent of Dominion’s approximately 6,600 miles of transmission lines are underground. The underground option is primarily used where overhead routes may not be practical, no feasible and/or cost effective overhead routes are available. In addition, underground routes are generally built for direct delivery to a customer than incurs the cost. The benefits of underground lines are reduced visual impact and typically less clearing for the right of way. Underground lines are significantly more expensive than overhead lines, they have more environmental impacts, need a longer time for construction, create exposure to longer outages and have half the life expectancy than an overhead line. Constructing an underground line requires either open trenching or trenchless technology in areas where open trending is not feasible.

TRANSMISSION LINE ROUTING CONSIDERATIONS

Jon Berkin provided an overview of transmission line routing considerations and began with a discussion about the need to balance impacts of the project goals, statutory requirements and community concerns and input. Routing a transmission line requires identifying routing opportunities and constraints, identifying engineering and construction needs, identifying potential routes and finally, evaluating and selecting a preferred route(s).

Examples of routing opportunities include collocating in existing rights of way such as existing utility, railroad or road corridors, or in industrial areas. Examples of routing constraints include residences, protected habitat, historic properties, visually sensitive or scenic areas and specially managed lands. Engineering and construction considerations can include tower height, construction access, route angles and underground utilities.

In order to begin the process of identifying potential routes, the first step is to define a study area which is based on the start and end points of the project and then defining an area around those points.

The project team then identifies constraints and opportunities within the study area and begins identifying potential routes – both overhead and underground. Public input is solicited to identify community issues that could influence the refinement of the potential routes. Finally, the project team conducts a comparative analysis and selects the proposed and alternative route(s) that will be included in the application to the SCC.

CONSTRAINTS EXERCISE

Focus group participants worked in small groups with project team members to conduct a review of potential overhead routes. The purpose was the identify constraints and opportunities for each of the potential routes After focus group participants completed identification of routing opportunities and constraints in the study area, they participated in an exercise in which they were asked to assign priority levels to the constraints. The purpose of the exercise was to help Dominion understand community values and priorities as they relate to routing constraints. Constraints and associated tallied numbers are as follows:

Constraints – ABOVEGROUND	Votes
Stream/park environmental impacts	4
Widened ROW	3
Residential impacts	2
Tree clearing near residential and greenfield areas	2
Park authority over ROW	2
Tower height (related to residential and VDOT)	2
Visual of road crossing and related employment impacts (corporate branding based on large commercial district)	1
Potomac School/Potomac School Road – aboveground line height	
Rail and road clearance	
Tree clearing along highways and limited access roads; related waivers	
Multiple beltway crossings/visual impact and maintenance issues	
Proposed pedestrian and bicycle bridge; new bridge connector	
Conceptual plans near Cloverleaf	
Crossings not perpendicular to highway	
Noise	
Future road expansion	
Commercial impacts	

While the group did not go through all underground routes in detail during the first focus group meeting and did not perform the prioritization exercise, several initial constraints were discussed:

- Trail closures (temporary relocation during construction) and how to keep it open;
- Real estate impacts from constructing in a roadway or constructing in a greenfield ROW;
- Cost (balance of 6-10 times more for underground shorter route with longer overhead route);
- Traffic impacts (what is transportation plan and which one has fewer impacts);
- Streetscape impacts (road and sidewalks); and
- Underground utilities and related clearances.

QUESTIONS

The following questions were asked by the focus group participants during the meeting. The questions and their answers are organized by topic, below.

Project Need and Background:

Q: Was the Reddfield Substation recently constructed?

A: The Reddfield Substation is tapped off the 230kV transmission line between The Dominion Idylwood and CIA Substations. The Reddfield Substation was placed in service in July 2012.

Q: What would cause an outage event driven by this increased demand in the region – a storm, a 115 degree day?

A: Yes, those factors can come into play. It is not a likely event, but probability is not part of FERC standards – if it could happen, there needs to be a solution. The need for the project is driven by the potential loss of load that could occur (>300MW) since it is a criteria violation.

Project Overview and Regulatory Process:

Q: How long does it take between definition of the study area and construction of the project?

A: The study area for the Idylwood-Tysons Project was defined in late 2016 and Dominion plans to submit the application for the Project in Q4 2017. Dominion has been looking in the area since 2013 for the substation end point and it was determined what the Tysons Substation could be expanded. Provided that the Application is filed at the end of 2017, construction could possibly begin in 18 months or by mid-2019.

Overhead/Underground Routing & Siting:

Q: Are outages more frequent on underground lines?

A: No. Outages are less frequent but it takes more time to locate, access and repair the underground facilities when they are damaged, so outages will last longer. However, it is unlikely that any one customer would experience the outage for any significant length of time.

Q: How are outages and associated maintenance paid for?

A: These costs are included in customer rates.

Q: What is the life expectancy of aboveground and underground transmission lines?

A: The typical life expectancy for an overhead line is 60 years and an underground line is about 35 years.

Q: As a resident or someone employed in the region, will I notice a dramatic reliability issue at my home or business?

A: No. Electric service to homes and businesses is provided through the Dominion distribution system which is operated in a radial (single source) configuration and at a much lower voltage (34.5kV) than the transmission system. The transmission system is a networked (multiple source) system operating at 230kV in this area. This project will strengthen the transmission network which is the source for the local substations that feed the local distribution system.

Q: What is minimum cover if going under our roads?

A: Generally, lines must be a minimum of 3 feet, 6 inches deep. However, trenches are typically 8-12 inches deeper under roadways.

Q: What size ROW is needed?

A: For single circuit, overhead lines using monopole structures, an 80 foot right-of-way is needed. For a double-circuit overhead line, a 100 foot right-of-way is required.

Q: Is there a rule about distance from schools?

A: There is no specific rule pertaining to transmission line distance from schools. However, Dominion takes schools and other prominent community structures into account when evaluating routes.

Q: There seems to be a pinch point by the metro and a stream nearby – already rebuilt with Reddfield – how much more could they do?

A: Dominion’s understanding is that the stream was restored after discussions with Dominion and Washington Metropolitan Area Transit Authority (WMATA). Dominion has an existing right-of-way across the stream for Line 2035. Any replacement structures would be located outside of the streambed and span the stream as is currently the case. Dominion would avoid disturbing the stream to the extent possible and in the event that disturbance was required then Dominion would obtain necessary permits and repair the disturbance.

Q: There is a tree line behind a neighborhood south of the existing toll road.

a) Would you have to cut down those trees and expose the sound wall to construct this line?

b) One side of the toll road looks like it has more tree cover than the other – is this the case?

A: Many aboveground route options would require right-of-way expansion and associated loss of trees. This is a constraint the team is evaluating closely, as we work to minimize environmental and community impacts. Both sides of the toll road have similar tree lines and associated space. Following the existing corridor offers trade-offs of sound vs. visuals and space.

Q: Would you need to attach to current structures or new – referring to Cloverleaf?

A: We typically work to avoid attachment of new infrastructure to existing structures and have no plans for such work at this time. All overhead options would involve the installation of new structures.

Q: Are we looking at how roads are going to change over time too given the lifetime of electric infrastructure (limited access roadways being the biggest concern)?

A: We are working with information that is available including the Tysons Comprehensive Plans.

Q: If there is a significant grade difference on either side (of the road), would it need to be offset or would you elevate one side to keep ground clearance equal?

A: The engineering team takes ground elevation into account for the project design. The overhead line would be designed to provide the required NESC clearance and the structure height would be adjusted accordingly along the centerline of the route.

Q: Don’t the angles crossing the road give VDOT a problem?

A: Cutting across a highway along various angles can be challenging. However, the routing team is also considering obstructions on either side of the road and aiming to avoid those via various angles.

Q: What is the need for this project long term? Are you considering how demand will change due to changes in how we consume energy, etc.?

A: By approximately 2021, direct-connected load on existing transmission lines serving the Tysons and McLean areas of the county (the “Tysons Loop”) is projected to exceed 300 megawatts (MW). This could result in a violation of mandatory North American Electric Reliability Corporation (NERC) reliability standards and impact Dominion Energy’s ability to maintain reliable service in the area.

Q: How will an underground route impact the W&OD Trail due to potential trail work-arounds and closures?

A: Dominion will need to work closely with NOVA Parks on any and all options that would impact the trail to determine the best solution for trail work-arounds and potential closures.

Q: If the line is routed outside of a travel lane and a lot of utilities run alongside the street, what happens if you run parallel with those utilities?

A: We are looking at both perpendicular and parallel routing options....

*Participant noted that 230kV lines may be routed in the travel lane.

“PARKING LOT” TASKS/REQUESTS

The group reviewed the list of items on the parking lot and they are noted below:

- Request for study area and/or route maps
- Request for more detail on underground siting and routing options
- Request for more information around optimal routes (pros and cons of each route from Dominion perspective)

MEETING EVALUATION

At the conclusion of the focus group meeting, participants were asked to complete a meeting evaluation form in which they were asked the following questions (responses in italics):

- What do you feel worked well for this meeting?
 - *Open dialogue and discussion.*
 - *Everyone had a chance to give input.*
 - *Appreciated the discussion on constraints and opportunities and having a chance to provide input.*
 - *This being my first exposure to Dominion Energy and the general subject of the reliability of commercial electrical energy distribution and the reasons therefore, I learned quite a bit about the subject. The initial presentations were very informative and the presenters both knew their subjects and were well prepared. It is obvious that Dominion conducted extensive study of the needs of the project, which is probably routine. The first meeting provided a good grounding for the attendees.*
- What would you do differently?
 - *Stick to the timeline – especially for planned breaks.*
 - *Some advanced preparation for the group members would be most helpful. I understand the reluctance to reveal routes being considered, but there is nothing sensitive about the basics. Advance copies of the presentation material covering Project Need and Background; Project Overview & Regulatory Process; and Overhead and Underground would have been very useful information and provided an understanding of the need and general approach to the project. In addition, it would be good for the group members to be provided a description of how Dominion Energy is organized and how the project fit into that organization.*
- Do you have suggestions on discussion items for the next meeting?
 - *More details on underground vs. overhead lines and impacts on outage lengths.*
- Other feedback?

- *Tell hotel staff to keep food through the break – breakfast was being cleared when we came out for a break.*
- *Please provide hotel Wi-Fi info, especially if meeting is going to run late – need to get in touch with office.*

NEXT STEPS

- Dominion will send the meeting summary to all focus group meeting participants.
- Dominion will schedule the next focus group meeting for Thursday, August 24, 2017 from 8 a.m. to 1 p.m.