Dominion Supplemental Projects

Transmission Expansion Advisory Committee
May 16, 2019
Needs

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process.
Need Number: DOM-2019-0020

Meeting Date: 05/16/2019
Process Stage: NEED
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request to add a 3rd, 84 MVA distribution transformer at Enterprise Substation in Loudoun County. The new transformer is being driven by continued datacenter load growth and alternate feed contract reservations. Requested in-service date is 07/15/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 82.4 MW</td>
<td>Summer: 96.5 MW</td>
</tr>
</tbody>
</table>

Note: Distribution’s Customer is also requesting 145 MVA of alternate capacity

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0022

Meeting Date: 05/16/2019
Process Stage: NEED
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request to add a 4th, 84 MVA distribution transformer at Poland Road Substation in Loudoun County. The new transformer is being driven by continued load growth in the area and contingency loading for loss of one of the existing transformers. Requested in-service date is 12/31/2021.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 225.0 MW</td>
<td>Summer: 293.0 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0023

Meeting Date: 05/16/2019
Process Stage: NEED
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Brickyard) to support a new datacenter campus in Prince William County with a total load in excess of 100 MW. Requested in-service date is 12/15/2021.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 8.0 MW</td>
<td>Summer: 52.0 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Solutions

Stakeholders must submit any comments within 10 days of this meeting in order to provide time necessary to consider these comments prior to the next phase of the M-3 process.
Need Number: DOM-2018-0011

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 09/13/2018
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Nimbus) to accommodate a new datacenter campus in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 11/15/2022.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 60.0 MW</td>
<td>Summer: 100.0 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Proposed Solution:
Interconnect the new substation by cutting and extending Line #2152 (Buttermilk-Beaumeade) to the proposed Nimbus Substation. Terminate both ends into a four-breaker ring arrangement to create a Buttermilk-Nimbus line and a Nimbus-Beaumeade line.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $20.0M
Projected In-service Date: 11/15/2022
Need Number: DOM-2018-0013

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 09/13/2018
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (DTC) to accommodate a new datacenter campus in Loudoun County with a total load in excess of 100 MW. The new substation will be configured to accommodate five 84 MVA transformers with two transformers installed initially. Requested in-service date is 11/15/2021.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 46.5 MW</td>
<td>Summer: 130.3 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2018-0013

Proposed Solution:
Interconnect the new substation by cutting and extending Line #2143 (Beaumeade-BECO) approximately 1.5 miles to the proposed DTC Substation. Terminate both ends into a six-breaker ring bus arrangement with four breakers installed to create a Beaumeade-DTC line and a BECO-DTC line. Install two 230kV circuit switchers and any necessary high side switches and bus work for the new transformers.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $25.0M
Projected In-service Date: 11/15/2021
Need Number: DOM-2019-0004

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS

Need Presented: 02/07/2019

Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request to add a 2nd, 84 MVA distribution transformer at Cumulus Substation in Loudoun County. The new transformer is being driven by projections that load on the initial Cumulus transformer will exceed mobile transformer capability in 2020. Requested in-service date is 10/15/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 36.0 MW</td>
<td>Summer: 155.7 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria
Need Number: DOM-2019-0004

Proposed Solution:
Install 1200 Amp, 50kAIC circuit switcher and associated equipment (bus, switches, relaying, etc.) to feed the new transformer at Cumulus.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $0.25M
Projected In-service Date: 10/15/2020
Need Number: DOM-2019-0006

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 02/07/2019
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request to add a 3rd, 84 MVA distribution transformer at Pacific Substation in Loudoun County. The new transformer is being driven by continued load growth in the area and contingency loading for loss of one of the existing two transformers. Requested in-service date is 04/01/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 146.8 MW</td>
<td>Summer: 193.5 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0006

Proposed Solution:
Install 1200 Amp, 40kAIC circuit switcher and associated equipment (bus, switches, relaying, etc.) to feed the new transformer at Pacific.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $ 0.25M
Projected In-service Date: 04/01/2020
Need Number: DOM-2019-0007

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 02/07/2019
Supplemental Project Driver: Customer Service

Problem Statement:
NOVEC has submitted a DP Request for a new substation (Perimeter) to support a new datacenter campus in Loudoun County with a total load in excess of 100 MW. Requested in-service date is 12/01/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 41.8 MW</td>
<td>Summer: 95.1 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0007

Proposed Solution:
Interconnect the new DP substation by cutting and extending Line #2095 (Yardley-Shellhorn) to new Cabin Run Switching Station. Terminate both ends into a four-breaker ring arrangement to create a Yardley-Cabin Run line and a Cabin Run-Shellhorn line. Provide two 230 kV feeds from the ring bus at Cabin Run to Perimeter DP.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $ 8.0M
Projected In-service Date: 12/01/2020
Need Number: DOM-2019-0008

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 02/07/2019
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Global Plaza – formerly Relocation Road) to support a new datacenter campus in Loudoun County with a total load in excess of 100 MW. The new station will also support existing data center load in the immediate area. Requested in-service date is 12/15/2021 (previously 11/15/2021).

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 77.0 MW (revised)</td>
<td>Summer: 157.9 MW (revised)</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
**Need Number:** DOM-2019-0008

**Proposed Solution:**
Interconnect the new substation by constructing two 230kV lines approximately 1.0 mile from Pacific Substation to Global Plaza Substation.

At Pacific, install two 230kV breakers (completing the 6-breaker ring) to terminate the two lines.

At Global Plaza, install four 230kV breakers (station arranged as breaker-and-a-half) to terminate the two lines. Install two 230kV circuit switchers and any necessary high side switches and bus work for two initial transformers (five ultimate).

**TO Alternatives Considered:**
No feasible alternatives

**Estimated cost:** $ 40.0M

**Projected In-service Date:** 12/15/2021
Need Number: DOM-2019-0011

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 03/07/2019
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request for a new substation (Paragon Park) to support a new datacenter campus in Loudoun County with a total load in excess of 100 MW. The new station will also support existing data center load in the immediate area. Requested in-service date is 07/15/2021 (changed from 04/01/2021).

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<tr>
<th>Initial In-Service Load</th>
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<tbody>
<tr>
<td>Summer: 41.0 MW</td>
<td>Summer: 130.8 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0011

Proposed Solution:
Interconnect Paragon Park Substation by cutting and terminating both Line #2081 (BECO-Sterling Park) and Line #2150 (Beaumeade-Sterling Park) into a six-breaker 230kV ring bus. Install two 230kV circuit switchers and any necessary high side switches and bus work for the new transformers.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $10.0M
Projected In-service Date: 07/15/2021
Need Number: DOM-2019-0012

Meeting Date: 05/16/2019

Process Stage: SOLUTIONS
Need Presented: 03/07/2019
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP Request to add a 3rd, 84 MVA distribution transformer at Poland Road Substation in Loudoun County. The new transformer is being driven by continued load growth in the area and contingency loading for loss of one of the existing two transformers. Requested in-service date is 10/15/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 120.5 MW</td>
<td>Summer: 244.9 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnection Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0012

Proposed Solution:
Install 1200 Amp, 50kAIC circuit switcher and associated equipment (bus, switches, relaying, etc.) to feed the new transformer at Poland Road.

TO Alternatives Considered:
No feasible alternatives

Estimated cost: $0.25M
Projected In-service Date: 10/15/2020
Need Number: DOM-2019-0017

Meeting Date: 4/11/2019
Process Stage: Solution
Supplemental Project Driver: Customer Service

Problem Statement:
DEV Distribution has submitted a DP request to add a second distribution transformer at Northampton Substation in Northampton County, NC. This transformer will support commercial load growth and contingency loading for the loss of the existing transformer. Requested in-service date is 09/01/2020.

<table>
<thead>
<tr>
<th>Initial In-Service Load</th>
<th>Projected 2024 Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer: 26.2 MW</td>
<td>Summer: 27.8 MW</td>
</tr>
</tbody>
</table>

Specific Assumption References:
Customer load request will be evaluated per Dominion’s Facility Interconnections Requirements Document and Dominion’s Transmission Planning Criteria.
Need Number: DOM-2019-0017

Proposed Solution:
Install a 230kV circuit switcher, high side switch and perform necessary transmission work for the new transformer.

TO Alternatives Considered:
No feasible alternatives

Estimated Project Cost: $500K
Projected In-service Date: 09/01/2020
Appendix
## High level M-3 Meeting Schedule

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Activity</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Posting of TO Assumptions Meeting information</td>
<td>20 days before Assumptions Meeting</td>
</tr>
<tr>
<td></td>
<td>Stakeholder comments</td>
<td>10 days after Assumptions Meeting</td>
</tr>
<tr>
<td>Needs</td>
<td>Activity</td>
<td>Timing</td>
</tr>
<tr>
<td></td>
<td>TOs and Stakeholders Post Needs Meeting slides</td>
<td>10 days before Needs Meeting</td>
</tr>
<tr>
<td></td>
<td>Stakeholder comments</td>
<td>10 days after Needs Meeting</td>
</tr>
<tr>
<td>Solutions</td>
<td>Activity</td>
<td>Timing</td>
</tr>
<tr>
<td></td>
<td>TOs and Stakeholders Post Solutions Meeting slides</td>
<td>10 days before Solutions Meeting</td>
</tr>
<tr>
<td></td>
<td>Stakeholder comments</td>
<td>10 days after Solutions Meeting</td>
</tr>
<tr>
<td>Submission of Supplemental Projects &amp; Local Plan</td>
<td>Activity</td>
<td>Timing</td>
</tr>
<tr>
<td></td>
<td>Do No Harm (DNH) analysis for selected solution</td>
<td>Prior to posting selected solution</td>
</tr>
<tr>
<td></td>
<td>Post selected solution(s)</td>
<td>Following completion of DNH analysis</td>
</tr>
<tr>
<td></td>
<td>Stakeholder comments</td>
<td>10 days prior to Local Plan Submission for integration into RTEP</td>
</tr>
<tr>
<td></td>
<td>Local Plan submitted to PJM for integration into RTEP</td>
<td>Following review and consideration of comments received after posting of selected solutions</td>
</tr>
</tbody>
</table>
V1 – 05/06/2019 – Original Slides Posted