

APPENDIX D. HGDS AND LGDS FREQUENCY AND DURATION ANALYSES

Table of Contents

1	HGDS S0 Analysis	1
1.1	HGDS S0 – Winter 2018.....	1
1.1.1	Alliance	1
1.1.2	ANR Northern Illinois.....	2
1.1.3	Columbia Gas Virginia / Maryland.....	3
1.1.4	Columbia Gas Western Pennsylvania / New York	3
1.1.5	Constitution Pipeline.....	3
1.1.6	Dominion Eastern New York.....	3
1.1.7	Dominion Western New York.....	3
1.1.8	Dominion Southeast.....	4
1.1.9	East Tennessee Mainline.....	4
1.1.10	Eastern Shore.....	4
1.1.11	Empire Mainline.....	4
1.1.12	Great Lakes East.....	4
1.1.13	Midwestern.....	5
1.1.14	Millennium	7
1.1.15	New Brunswick Supply / Nova Scotia Offshore Supply	7
1.1.16	NGPL Iowa/Illinois North.....	7
1.1.17	NGPL Iowa/Illinois South.....	8
1.1.18	Northern Border Chicago	10
1.1.19	Northern Natural Zone D	10
1.1.20	Tennessee Zone 4 Pennsylvania.....	11
1.1.21	Tennessee Zone 5 New York	12
1.1.22	Texas Eastern M2 Pennsylvania – Southern Branch	12
1.1.23	Texas Eastern M3 – Northern Line.....	12
1.1.24	TransCanada Ontario West	12
1.1.25	TransCanada Quebec.....	13
1.1.26	Transco Leidy Atlantic.....	13
1.1.27	Transco Zone 5.....	13
1.1.28	Transco Zone 6 Leidy Line to Station 210.....	13
1.1.29	Union Gas Dawn.....	14
1.1.30	Viking Zone 1.....	14
1.2	HGDS S0 – Summer 2018	15
1.2.1	Algonquin Connecticut	15
1.2.2	Columbia Gas Virginia / Maryland.....	16
1.2.3	Dominion Southeast.....	16
1.2.4	Eastern Shore.....	16
1.2.5	New Brunswick Supply / Nova Scotia Offshore Supply	16
1.2.6	PNGTS North of Westbrook.....	17

1.2.7	PNGTS South of Westbrook	17
1.2.8	Texas Eastern Zone ETX	17
1.2.9	Transco Zone 5	17
1.3	HGDS S0 – Winter 2023	18
1.3.1	Alliance	18
1.3.2	ANR Northern Illinois	18
1.3.3	Columbia Gas Virginia / Maryland	18
1.3.4	Columbia Gas Western Pennsylvania / New York	18
1.3.5	Constitution Pipeline	19
1.3.6	Dominion Eastern New York	19
1.3.7	Dominion Western New York	19
1.3.8	Dominion Southeast	19
1.3.9	East Tennessee Mainline	19
1.3.10	Eastern Shore	20
1.3.11	Empire Mainline	20
1.3.12	Great Lakes East	20
1.3.13	Iroquois Zone 1	20
1.3.14	Midwestern	21
1.3.15	Millennium	22
1.3.16	New Brunswick Supply / Nova Scotia Offshore Supply	22
1.3.17	NGPL Iowa/Illinois North	22
1.3.18	NGPL Iowa/Illinois South	22
1.3.19	Northern Border Mainline	23
1.3.20	Northern Natural Zone ABC	23
1.3.21	Tennessee Zone 4 Pennsylvania	24
1.3.22	Tennessee Zone 5 New York	25
1.3.23	Texas Eastern M2 Pennsylvania – Southern Branch	25
1.3.24	Texas Eastern M3 – Northern Line	25
1.3.25	TransCanada Ontario West	25
1.3.26	TransCanada Quebec to PNGTS	26
1.3.27	Transco Leidy Atlantic	26
1.3.28	Transco Zone 5	27
1.3.29	Transco Zone 6 Leidy Line to Station 210	27
1.3.30	Union Gas Dawn	27
1.3.31	Vector Zone 1	27
1.3.32	Viking Zone 1	28
1.4	HGDS S0 – Summer 2023	28
1.4.1	Algonquin Connecticut	28
1.4.2	Columbia Gas Virginia / Maryland	29
1.4.3	Dominion Southeast	29
1.4.4	Eastern Shore	29
1.4.5	Gulf South Zone 2 Henry Hub	29
1.4.6	Iroquois Zone 1 to Zone 2	30

1.4.7	New Brunswick Supply / Nova Scotia Offshore Supply	31
1.4.8	PNGTS North of Westbrook	32
1.4.9	PNGTS South of Westbrook	32
1.4.10	Tennessee Zone 5 New York	32
1.4.11	Texas Eastern Zone ETX	32
1.4.12	Transco Zone 5	33
2	LGDS S0 Analysis	33
2.1	LGDS S0 – Winter 2018	33
2.1.1	Columbia Gas Virginia / Maryland	33
2.1.2	Constitution Pipeline	33
2.1.3	Eastern Shore	33
2.1.4	Millennium	34
2.1.5	New Brunswick Supply / Nova Scotia Offshore Supply	34
2.1.6	Tennessee Zone 4 Pennsylvania	34
2.1.7	Tennessee Zone 5 New York	35
2.1.8	Texas Eastern M2 Pennsylvania – Southern Branch	35
2.1.9	Texas Eastern M3 – Northern Line	35
2.1.10	TransCanada Ontario West	35
2.1.11	TransCanada Quebec	36
2.1.12	Transco Zone 6 Leidy Line to Station 210	36
2.1.13	Union Gas Dawn	36
2.2	LGDS S0 Summer 2018	36
2.2.1	Columbia Gas Virginia / Maryland	36
2.2.2	Dominion Southeast	37
2.2.3	Eastern Shore	37
2.2.4	Texas Eastern Zone ETX	37
2.2.5	Transco Zone 5	37
2.3	LGDS S0 – Winter 2023	38
2.3.1	Algonquin Connecticut	38
2.3.2	Columbia Gas Virginia / Maryland	38
2.3.3	Constitution Pipeline	38
2.3.4	Dominion Eastern New York	38
2.3.5	Dominion Western New York	38
2.3.6	Dominion Southeast	39
2.3.7	East Tennessee Mainline	39
2.3.8	Eastern Shore	39
2.3.9	Millennium	39
2.3.10	New Brunswick Supply / Nova Scotia Offshore Supply	40
2.3.11	Tennessee Zone 4 Pennsylvania	40
2.3.12	Tennessee Zone 5 New York	40
2.3.13	Texas Eastern M2 Pennsylvania – Southern Branch	40
2.3.14	Texas Eastern M3 – Northern Line	41
2.3.15	TransCanada Ontario West	41

2.3.16	TransCanada Quebec.....	41
2.3.17	Transco Zone 5.....	41
2.3.18	Transco Zone 6 Leidy Line to Station 210.....	42
2.3.19	Union Gas Dawn.....	42
2.4	LGDS S0 Summer 2023.....	42
2.4.1	Algonquin Connecticut.....	42
2.4.2	Columbia Gas Virginia / Maryland.....	42
2.4.3	Dominion Southeast.....	43
2.4.4	Eastern Shore.....	43
2.4.5	New Brunswick Supply / Nova Scotia Offshore Supply.....	43
2.4.6	PNGTS South of Westbrook.....	43
2.4.7	Texas Eastern Zone ETX.....	44
2.4.8	Transco Zone 5.....	44

List of Figures

Figure D1. Generators Affected by Alliance Constraint	1
Figure D2. Generators Affected by ANR Northern IL Constraint	2
Figure D3. Generators Affected by Great Lakes East Constraint.....	5
Figure D4. Generators Affected by Midwestern Constraint.....	6
Figure D5. Generators Affected by NGPL IA/IL North Constraint	8
Figure D6. Generators Affected by NGPL IA/IL South Constraint	9
Figure D7. Generators Affected by Northern Border Chicago Constraint	10
Figure D8. Generators Affected by Northern Natural Zone D Constraint	11
Figure D9. Generators Affected by Viking Zone 1 Constraint.....	15
Figure D10. Generators Affected by Iroquois Zone 1 Constraint	21
Figure D11. Generators Affected by Northern Border Mainline Constraint	23
Figure D12. Generators Affected by Northern Natural Zone ABC Constraint	24
Figure D13. Generators Affected by TransCanada Quebec to PNGTS Constraint.....	26
Figure D14. Generators Affected by Vector Zone 1 Constraint.....	28
Figure D15. Generators Affected by Gulf South Z2 HH Constraint	30
Figure D16. Generators Affected by Iroquois Z1 → Z2 Constraint.....	31

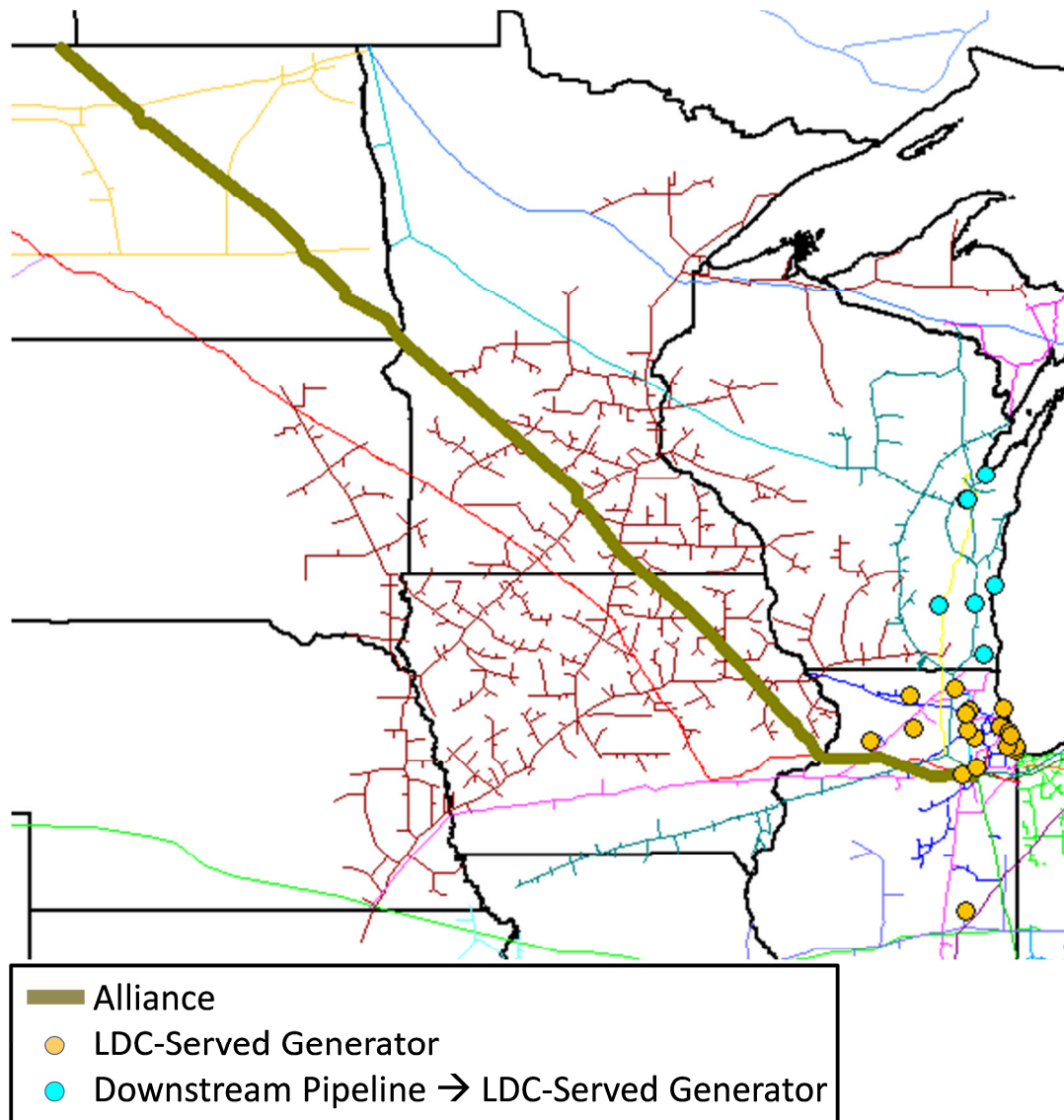
1 HGDS S0 ANALYSIS

1.1 HGDS S0 – WINTER 2018

1.1.1 Alliance

The 100% peak hour utilization on Alliance’s mainline, which is modeled with a capacity of 1,800 MDth/d, potentially affects generators behind LDCs served by Alliance and generators behind LDCs served by Guardian. The locations of these generators are shown in Figure D1.

Figure D1. Generators Affected by Alliance Constraint

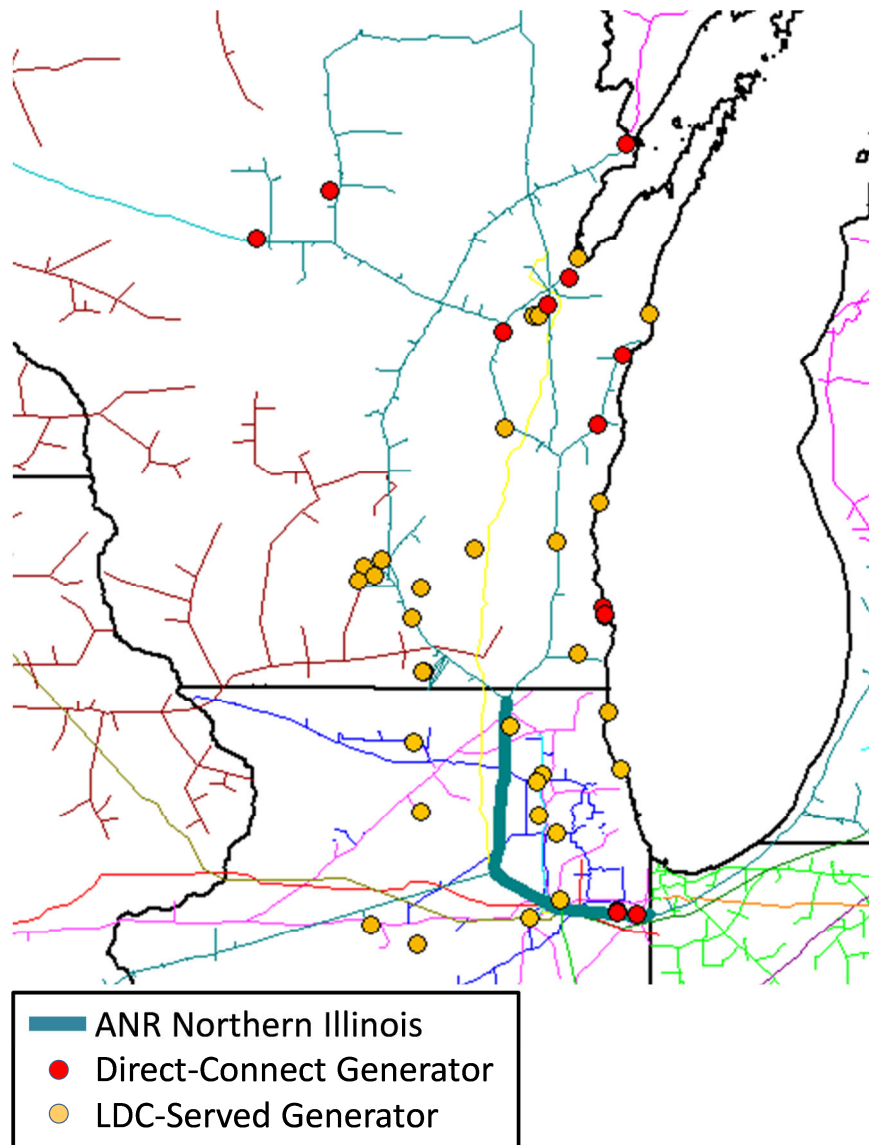


The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E1 and Figure E2 relative to the capacity of the segment.

1.1.2 ANR Northern Illinois

The 100% peak hour utilization on ANR’s Northern Illinois segment, which is modeled with a capacity of 1,337 MDth/d, potentially affects generators directly connected to ANR in Illinois and Wisconsin and generators behind LDCs served by ANR in Illinois and Wisconsin. The locations of these generators are shown in Figure D2.

Figure D2. Generators Affected by ANR Northern IL Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E3 and Figure E4 relative to the capacity of the segment.

1.1.3 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,679 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E5 and Figure E6 relative to the capacity of the segment.

1.1.4 Columbia Gas Western Pennsylvania / New York

The 100% peak hour utilization on Columbia Gas's Western Pennsylvania / New York segment, which is modeled with a capacity of 1,131 MDth/d, potentially affects generators directly connected to Columbia in Pennsylvania, New Jersey, Virginia and Maryland and generators behind LDCs served by Columbia Gas in Pennsylvania, New Jersey, Delaware, Maryland and Virginia. The locations of these generators are shown in Figure 81 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E7 and Figure E8 relative to the capacity of the segment.

1.1.5 Constitution Pipeline

Constitution's proposed delivery capacity is 650 MDth/d. The 100% peak hour utilization on Constitution potentially affects generators served by Iroquois both directly and behind LDCs. The locations of these generators are shown in Figure 82 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E9 and Figure E10 relative to the capacity of the segment.

1.1.6 Dominion Eastern New York

Dominion's Eastern New York segment is modeled with a capacity of 907 MDth/d. The 100% peak hour utilization on Dominion's Eastern New York segment potentially affects generators directly connected to Dominion and behind LDCs served by Dominion. The locations of these generators are shown in Figure 83 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E11 and Figure E12 relative to the capacity of the segment.

1.1.7 Dominion Western New York

Dominion Western New York is modeled with a capacity of 557 MDth/d. The 100% utilization on Dominion's Western New York segment potentially affects generators directly served by Dominion and behind LDCs served by Dominion. The locations of the plants in each category are shown in Figure 84 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E13 and Figure E14 relative to the capacity of the segment.

1.1.8 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 Mdt/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E15 and Figure E16 relative to the capacity of the segment.

1.1.9 East Tennessee Mainline

The East Tennessee mainline is modeled with a capacity of 800 MDth/d. The 100% peak hour utilization on East Tennessee's mainline potentially affects generators directly connected to East Tennessee and generators behind LDCs served by East Tennessee. The locations of these generators are shown in Figure 86 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E17 and Figure E18 relative to the capacity of the segment.

1.1.10 Eastern Shore

Eastern Shore is modeled with a capacity of 208 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E19 and Figure E20 relative to the capacity of the segments.

1.1.11 Empire Mainline

The Empire mainline is modeled with a capacity of 525 MDth/d. The 100% peak hour utilization on the Empire mainline across upstate New York potentially affects generators on the Niagara Mohawk LDC system. The locations of these generators are shown in Figure 88 of the report.

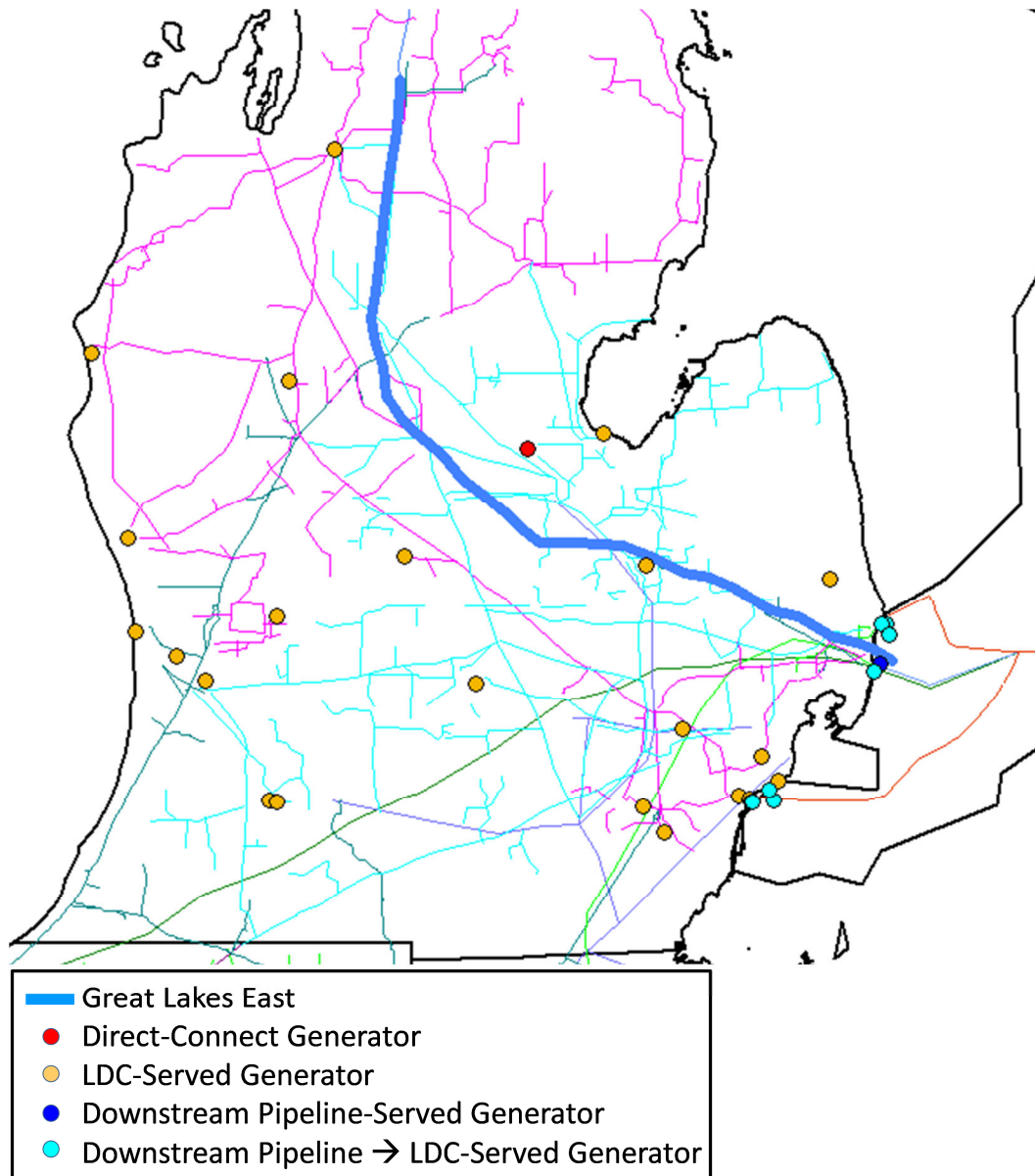
The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E21 and Figure E22 relative to the capacity of the segment.

1.1.12 Great Lakes East

The 100% peak hour utilization on Great Lakes Gas's East segment, which is modeled with a capacity of 1,164 MDth/d, potentially affects generators directly connected to Great Lakes in Michigan, generators behind LDCs served by Great Lakes in Michigan, generators directly

connected to Vector, and generators behind Union Gas. The locations of these generators are shown in Figure D3.

Figure D3. Generators Affected by Great Lakes East Constraint



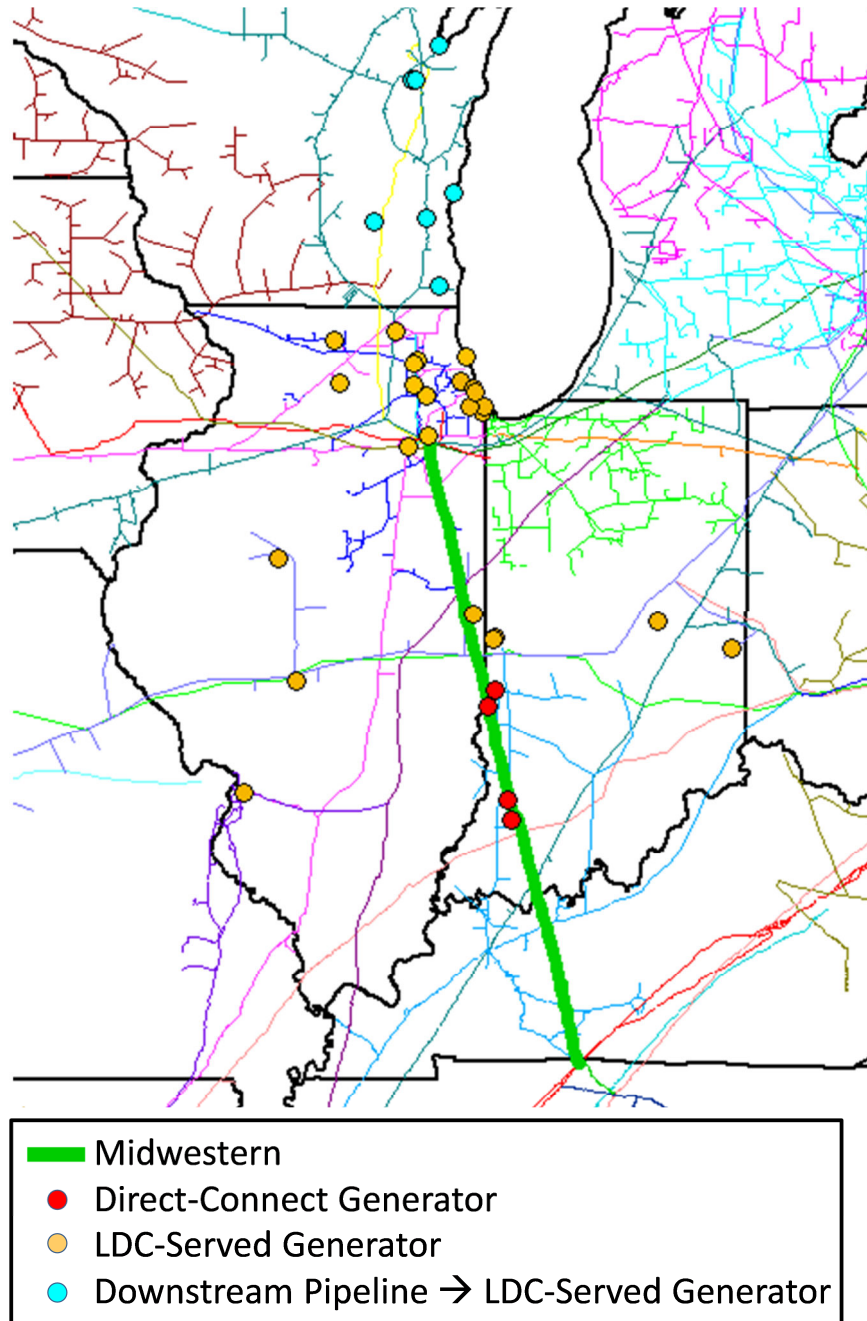
The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E23 and Figure E24 relative to the capacity of the segment.

1.1.13 Midwestern

The 100% peak hour utilization on Midwestern's mainline segment, which is modeled with a capacity of 635 MDth/d, potentially affects generators that are directly connected to Midwestern in Indiana and Illinois, generators behind LDCs served by Midwestern in Indiana and Illinois,

and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D4.

Figure D4. Generators Affected by Midwestern Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E25 and Figure E26 relative to the capacity of the segment.

1.1.14 Millennium

Millennium is modeled with a capacity of 784 MDth/d. The 100% peak hour utilization on Millennium's mainline potentially affects generators directly connected to Millennium, generators behind LDCs served by Millennium, and generators served by Algonquin, in particular, in southern New England. The locations of these generators are shown in Figure 89 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E27 and Figure E28 relative to the capacity of the segment.

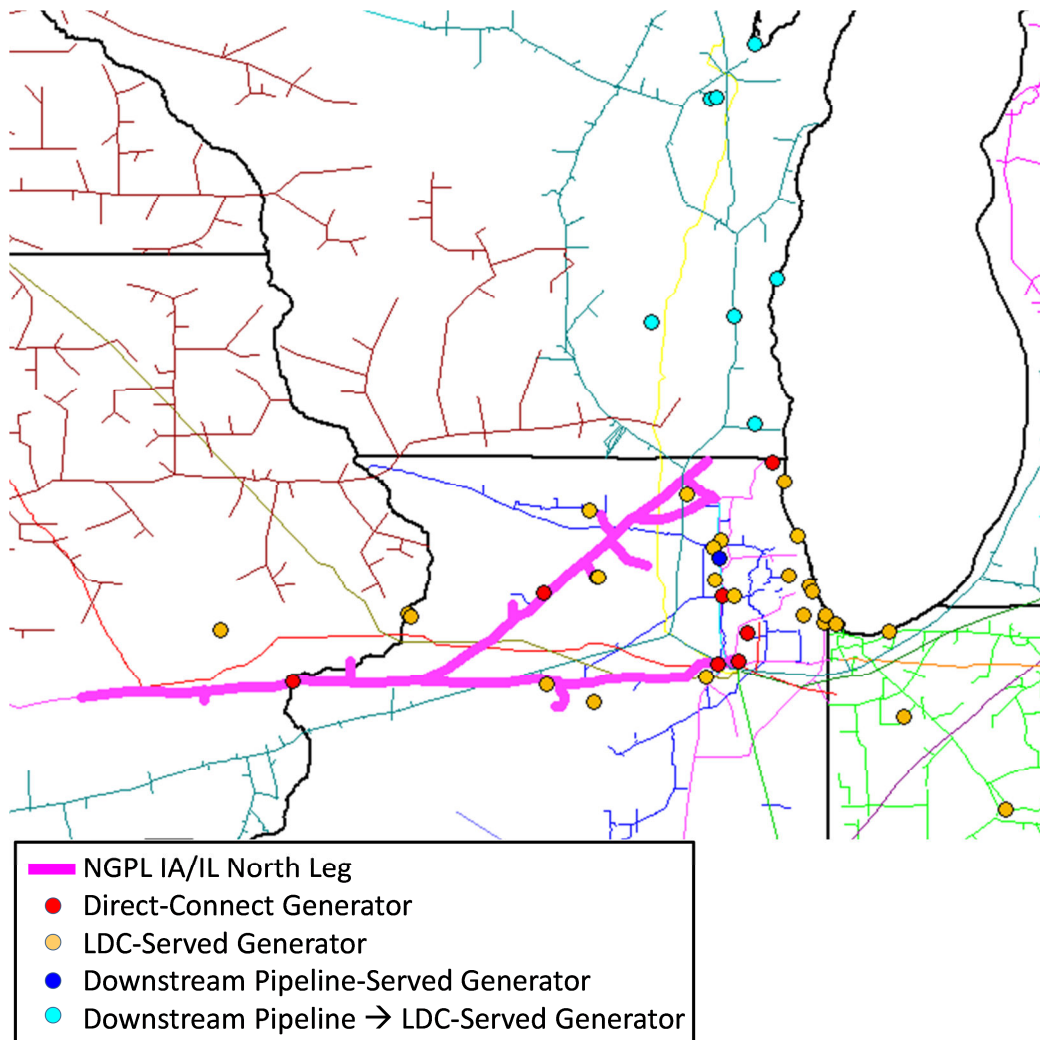
1.1.15 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 623 MDth/d in 2018. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E29 and Figure E30 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

1.1.16 NGPL Iowa/Illinois North

The 100% peak hour utilization on NGPL's Iowa/Illinois North segment, which is modeled with a capacity of 1,677 MDth/d, potentially affects generators directly connected to NGPL in Illinois, generators behind LDCs served by NGPL in Iowa, Illinois and Indiana, generators directly connected to Horizon in Illinois, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D5.

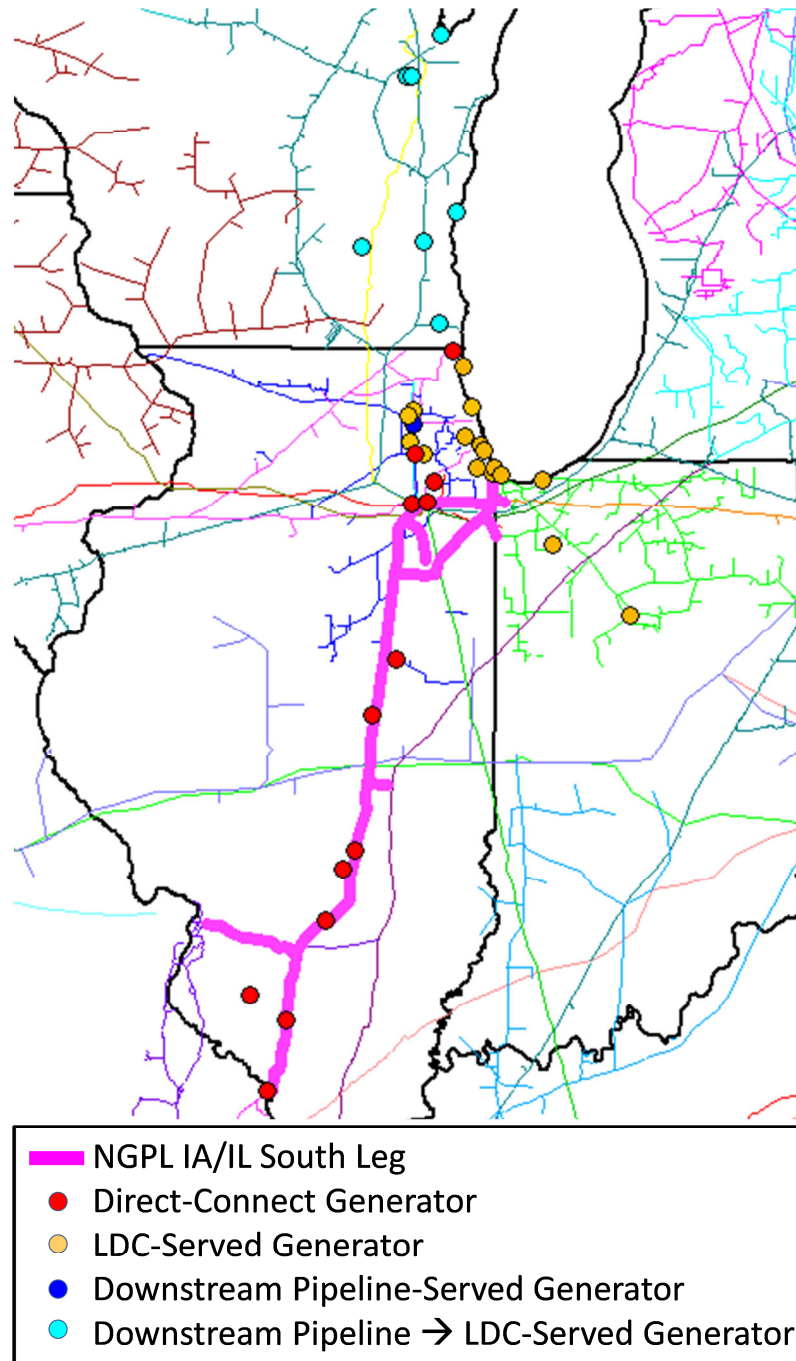
Figure D5. Generators Affected by NGPL IA/IL North Constraint

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E31 and Figure E32 relative to the capacity of the segment.

1.1.17 NGPL Iowa/Illinois South

The 100% peak hour utilization on NGPL's Iowa/Illinois South segment, which is modeled with a capacity of 1,624 MDth/d, potentially affects generators directly connected to NGPL in Illinois, generators behind LDCs served by NGPL in Illinois and Indiana, generators directly connected to Horizon in Illinois, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D6.

Figure D6. Generators Affected by NGPL IA/IL South Constraint

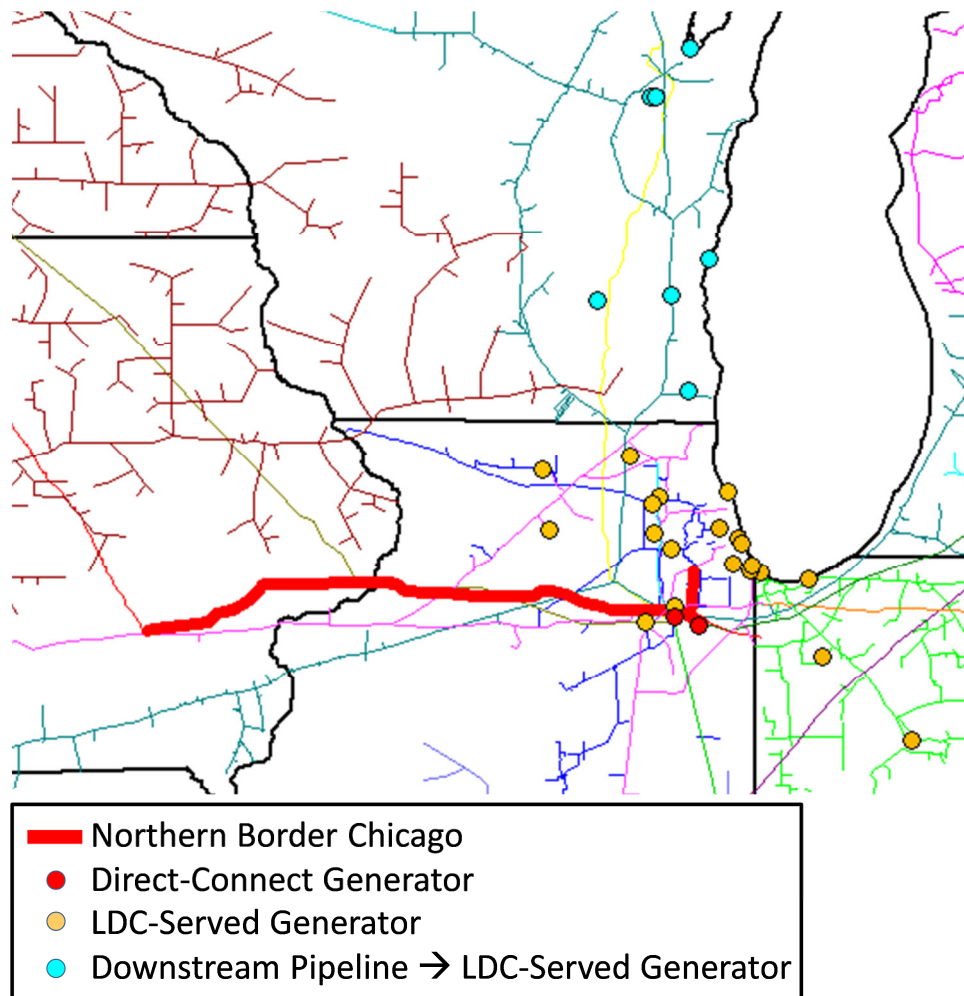


The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E33 and Figure E34 relative to the capacity of the segment.

1.1.18 Northern Border Chicago

The 100% peak hour utilization on Northern Border's Chicago segment, which is modeled with a capacity of 987 MDth/d, potentially affects generators directly connected to Northern Border in Illinois, generators behind LDCs served by Northern Border in Illinois and Indiana, and generators behind LDCs served by Guardian. The locations of these generators are shown in Figure D7.

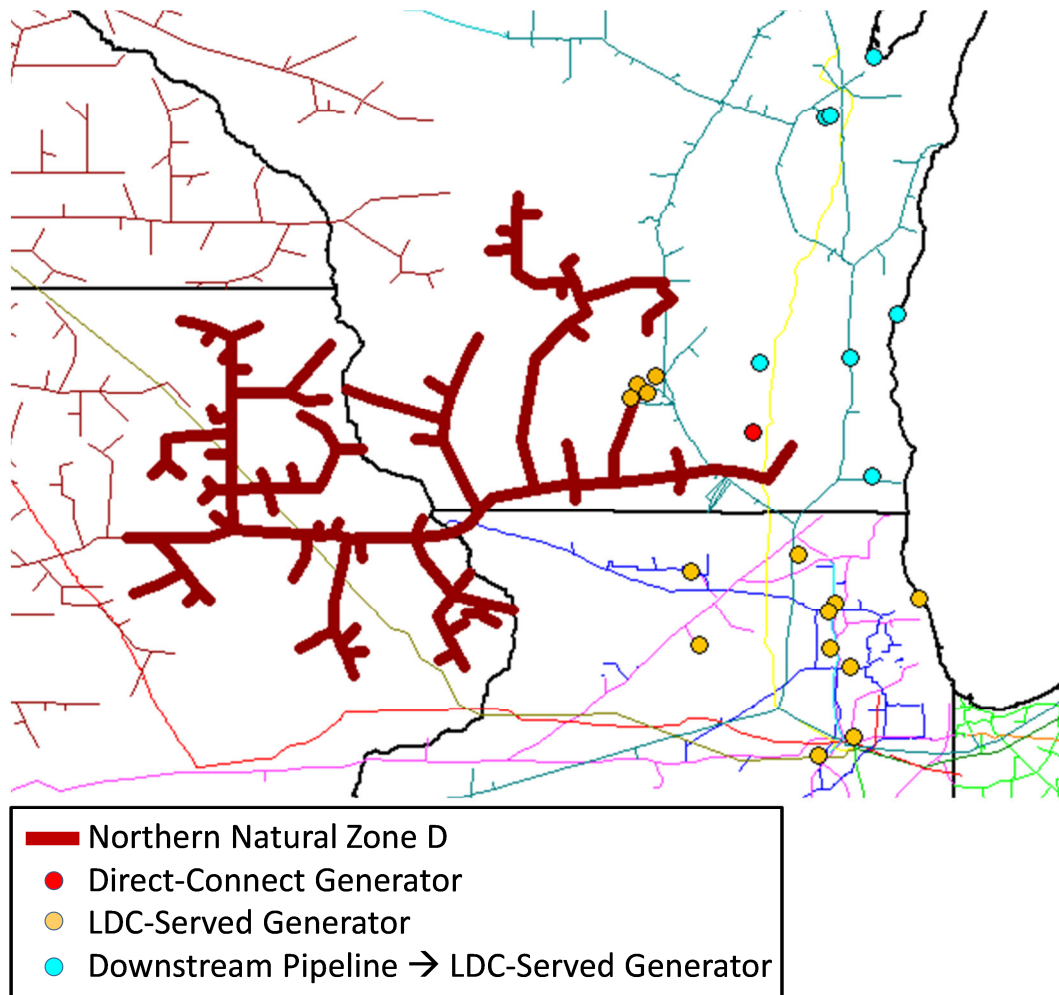
Figure D7. Generators Affected by Northern Border Chicago Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E35 and Figure E36 relative to the capacity of the segment.

1.1.19 Northern Natural Zone D

The 100% peak hour utilization on Northern Natural's Zone D segment, which is modeled with a capacity of 800 MDth/d, potentially affects generators directly connected to Northern Natural in Wisconsin, generators behind LDCs served by Northern Natural in Illinois and Wisconsin, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D8.

Figure D8. Generators Affected by Northern Natural Zone D Constraint

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E37 and Figure E38 relative to the capacity of the segment.

1.1.20 Tennessee Zone 4 Pennsylvania

Tennessee Zone 4 Pennsylvania is modeled with a capacity of 1,887 MDth/d. The 100% peak hour utilization on Tennessee's Zone 4 segment in Pennsylvania potentially affects generators directly connected to Tennessee in Pennsylvania and New Jersey; generators behind LDCs served by Tennessee in Pennsylvania, New Jersey, downstate New York and Connecticut; and generators served by Algonquin either directly or via LDC. The locations of these generators are shown in Figure 91 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E39 and Figure E40 relative to the capacity of the segment.

1.1.21 Tennessee Zone 5 New York

Tennessee Zone 5 New York is modeled with a capacity of 1,189 MDth/d. The 100% peak hour utilization on Tennessee's Z5 New York segment potentially affects generators directly connected to Tennessee in upstate New York, Massachusetts, Rhode Island and New Hampshire; generators behind LDCs served by Tennessee in upstate New York, Massachusetts, Connecticut and Rhode Island; and generators served by Iroquois, Granite State and PNGTS either directly or behind an LDC. The locations of these generators are shown in Figure 92 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E41 and Figure E42 relative to the capacity of the segment.

1.1.22 Texas Eastern M2 Pennsylvania – Southern Branch

The Texas Eastern M2 Pennsylvania – Southern Branch is modeled with a capacity of 2,068 MDth/d. The 100% peak hour utilization on the southern branch of Texas Eastern's Zone M2 segment through Pennsylvania potentially affects generators directly connected to Texas Eastern in Pennsylvania, generators behind LDCs in Pennsylvania, Delaware and downstate New York that are served by Texas Eastern, and generators that are served by Algonquin and Eastern Shore, either directly or behind an LDC. The locations of these generators are shown in Figure 93 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E43 and Figure E44 relative to the capacity of the segment.

1.1.23 Texas Eastern M3 – Northern Line

The Texas Eastern M3 Northern Line is modeled with a capacity of 2,987 MDth/d. The 100% peak hour utilization on Texas Eastern's Zone M3 northern line through Pennsylvania potentially affects generators directly connected to Texas Eastern in New Jersey and Pennsylvania, generators behind LDCs served by Texas Eastern in New Jersey, Pennsylvania and downstate New York, and generators served by Algonquin both directly and behind LDCs. The locations of these generators are shown in Figure 94 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E45 and Figure E46 relative to the capacity of the segment.

1.1.24 TransCanada Ontario West

TransCanada's Western Ontario segment is modeled with a capacity of 3,148 MDth/d. The 100% peak hour utilization on TransCanada's Western Ontario segment potentially affects generators directly connected to TransCanada and generators behind the Enbridge and Union local distribution systems. The locations of these generators are shown in Figure 95 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E47 and Figure E48 relative to the capacity of the segment.

1.1.25 TransCanada Quebec

TransCanada Quebec is modeled with a capacity of 1,320 MDth/d. The 100% peak hour utilization on TransCanada's Quebec segment potentially affects generators served by PNGTS, North Country and Vermont Gas. The locations of these generators are shown in Figure 96 of the report. Generators in Quebec could also be affected by this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E49 and Figure E50 relative to the capacity of the segment.

1.1.26 Transco Leidy Atlantic

The Transco Leidy Atlantic segment is modeled with a capacity of 1,700 MDth/d. The 100% peak hour utilization on Transco's Leidy Atlantic segment potentially affects generators directly connected to Transco in New Jersey, Maryland, Pennsylvania and Virginia and generators behind LDCs served by Transco in Delaware, New Jersey, Pennsylvania, Maryland, Virginia and North Carolina. The locations of these generators are shown in Figure 97 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E51 and Figure E52 relative to the capacity of the segment.

1.1.27 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E53 and Figure E54 relative to the capacity of the segment. The electric demand data set in these figures includes only gas demand at generators in the Study Region.

1.1.28 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station segment is modeled with a capacity of 3,430 MDth/d. The 100% peak hour utilization on Transco's Leidy Line to Station 210 segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania and both New York City and Long Island. Locations of these generators are shown in Figure 99 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E55 and Figure E56 relative to the capacity of the segment.

1.1.29 Union Gas Dawn

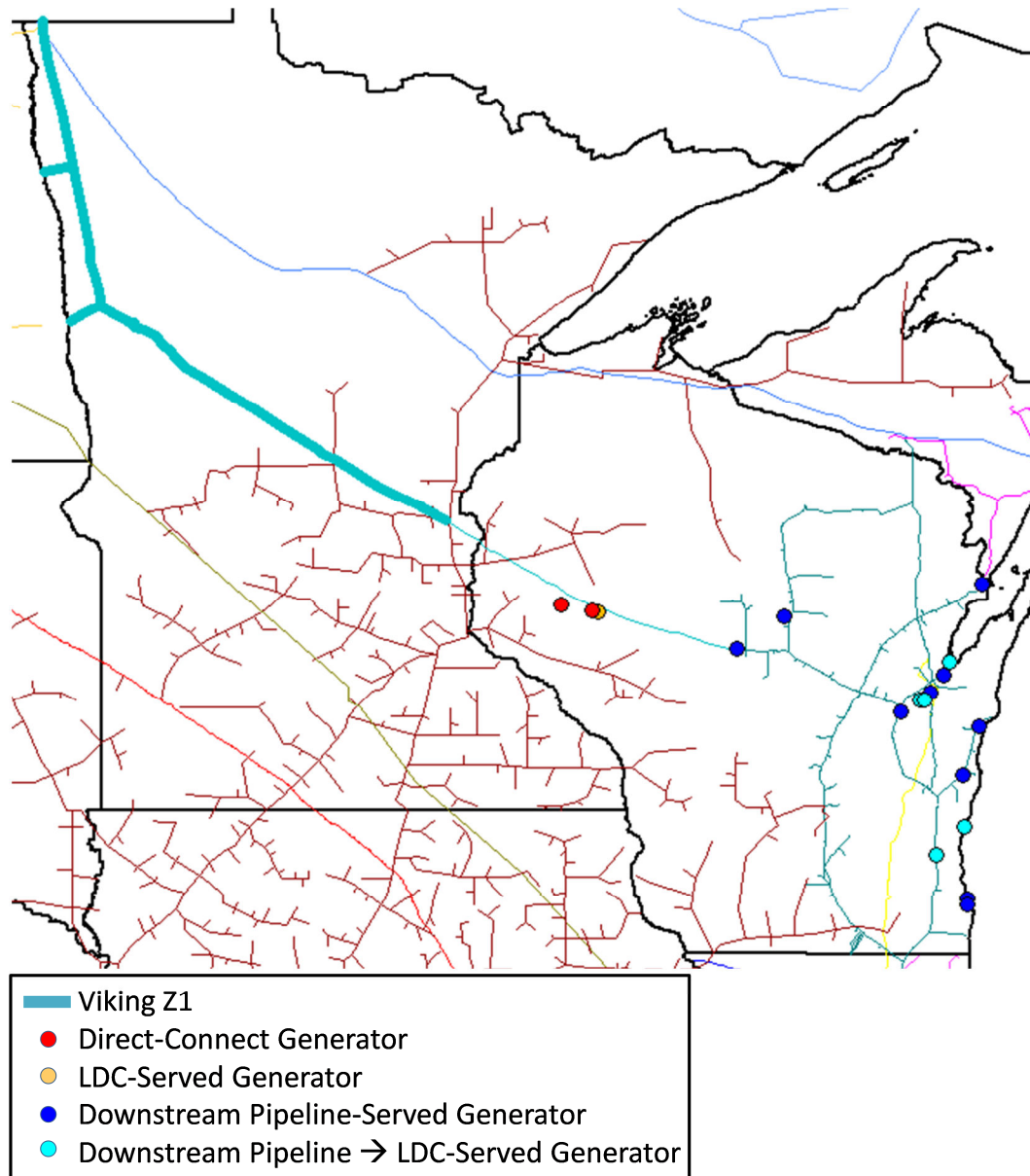
The 100% peak hour utilization on Union Gas's Dawn segment, which is modeled with a capacity of 5,000 MDth/d, potentially affects generators directly connected to Union, generators directly connected to TransCanada, and generators served by the Union Gas and Enbridge distribution systems. The locations of these generators are shown in Figure 100 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E57 and Figure E58 relative to the capacity of the segment.

1.1.30 Viking Zone 1

The 100% peak hour utilization on Viking's Zone 1 segment, which is modeled with a capacity of 543 MDth/d, potentially affects generators directly connected to Viking, generators behind LDCs served by Viking, generators directly connected to ANR, and generators behind LDCs served by ANR. The locations of these generators are shown in Figure D9.

Figure D9. Generators Affected by Viking Zone 1 Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E59 and Figure E60 relative to the capacity of the segment.

1.2 HGDS S0 – SUMMER 2018

1.2.1 Algonquin Connecticut

The 100% peak hour utilization on Algonquin’s Connecticut segment, which is modeled with a capacity of 1,827 MDth/d, potentially affects generators directly connected to Algonquin in Connecticut, Massachusetts and Rhode Island, generators directly connected to M&N in Maine and New Hampshire, and generators served by LDCs connected to Algonquin and M&N. The locations of these generators are shown in Figure 111 of the report..

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E61 and Figure E62 relative to the capacity of the segment.

1.2.2 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,477 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E63 and Figure E64 relative to the capacity of the segment.

1.2.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 540 Mdt/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E65 and Figure E66 relative to the capacity of the segment.

1.2.4 Eastern Shore

Eastern Shore is modeled with a capacity of 208 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E67 and Figure E68 relative to the capacity of the segments.

1.2.5 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 623 MDth/d in 2018. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E69 and Figure E70 relative to the total production capacity. The

electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

1.2.6 PNGTS North of Westbrook

The 100% peak hour utilization on PNGTS's North of Westbrook segment, which is modeled with a capacity of 223 MDth/d, potentially affects generators directly connected to PNGTS in New Hampshire in Maine, generators served by LDCs connected to PNGTS, and generators served by M&N either directly or via LDC. The locations of these generators are shown in Figure 112 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E71 and Figure E72 relative to the capacity of the segment.

1.2.7 PNGTS South of Westbrook

The 100% peak hour utilization on PNGTS's South of Westbrook segment, which is modeled with a capacity of 300 MDth/d, potentially affects generators directly connected to PNGTS in New Hampshire, generators served by Maine LDCs connected to PNGTS, and generators served by M&N either directly or via LDC. The locations of these generators are shown in Figure 113 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E73 and Figure E74 relative to the capacity of the segment.

1.2.8 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment, which is modeled with a capacity of 623 MDth/d, potentially affects generators directly connected to Texas Eastern in Texas, Arkansas and Illinois. The locations of these generators are shown in Figure 104 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E75 and Figure E76 relative to the capacity of the segment.

1.2.9 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E77 and Figure E78 relative to the capacity of the segment.

1.3 HGDS S0 – WINTER 2023

1.3.1 Alliance

The 100% peak hour utilization on Alliance’s mainline, which is modeled with a capacity of 1,800 MDth/d, potentially affects generators behind LDCs served by Alliance and generators behind LDCs served by Guardian. The locations of these generators are shown in Figure D1 on page D-1.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E79 and Figure E80 relative to the capacity of the segment.

1.3.2 ANR Northern Illinois

The 100% peak hour utilization on ANR’s Northern Illinois segment, which is modeled with a capacity of 1,337 MDth/d, potentially affects generators directly connected to ANR, generators behind LDCs served by ANR. The locations of these generators are shown in Figure D2 on page D-2.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E81 and Figure E82 relative to the capacity of the segment.

1.3.3 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas’s Virginia/Maryland segment, which is modeled with a capacity of 2,867 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E83 and Figure E84 relative to the capacity of the segment.

1.3.4 Columbia Gas Western Pennsylvania / New York

The 100% peak hour utilization on Columbia Gas’s Western Pennsylvania / New York segment, which is modeled with a capacity of 1,131 MDth/d, potentially affects generators directly connected to Columbia in Pennsylvania, New Jersey, Virginia and Maryland and generators behind LDCs served by Columbia Gas in Pennsylvania, New Jersey, Delaware, Maryland and Virginia. The locations of these generators are shown in Figure 81 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E85 and Figure E86 relative to the capacity of the segment.

1.3.5 Constitution Pipeline

Constitution's proposed delivery capacity is 650 MDth/d. The 100% peak hour utilization on Constitution potentially affects generators served by Iroquois both directly and behind LDCs. The locations of these generators are shown in Figure 82 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E87 and Figure E88 relative to the capacity of the segment.

1.3.6 Dominion Eastern New York

Dominion's Eastern New York segment is modeled with a capacity of 907 MDth/d. The 100% peak hour utilization on Dominion's Eastern New York segment potentially affects generators directly connected to Dominion and behind LDCs served by Dominion. The locations of these generators are shown in Figure 83 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E89 and Figure E90 relative to the capacity of the segment.

1.3.7 Dominion Western New York

Dominion Western New York is modeled with a capacity of 557 MDth/d. The 100% utilization on Dominion's Western New York segment potentially affects generators directly served by Dominion and behind LDCs served by Dominion. The locations of the plants in each category are shown in Figure 84 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E91 and Figure E92 relative to the capacity of the segment.

1.3.8 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 Mdth/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E93 and Figure E94 relative to the capacity of the segment.

1.3.9 East Tennessee Mainline

The East Tennessee mainline is modeled with a capacity of 800 MDth/d. The 100% peak hour utilization on East Tennessee's mainline potentially affects generators directly connected to East Tennessee and generators behind LDCs served by East Tennessee. The locations of these generators are shown in Figure 86 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E95 and Figure E96 relative to the capacity of the segment.

1.3.10 Eastern Shore

Eastern Shore is modeled with a capacity of 208 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E97 and Figure E98 relative to the capacity of the segments.

1.3.11 Empire Mainline

The Empire mainline is modeled with a capacity of 525 MDth/d. The 100% peak hour utilization on the Empire mainline across upstate New York potentially affects generators on the Niagara Mohawk LDC system. The locations of these generators are shown in Figure 88 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E99 and Figure E100 relative to the capacity of the segment.

1.3.12 Great Lakes East

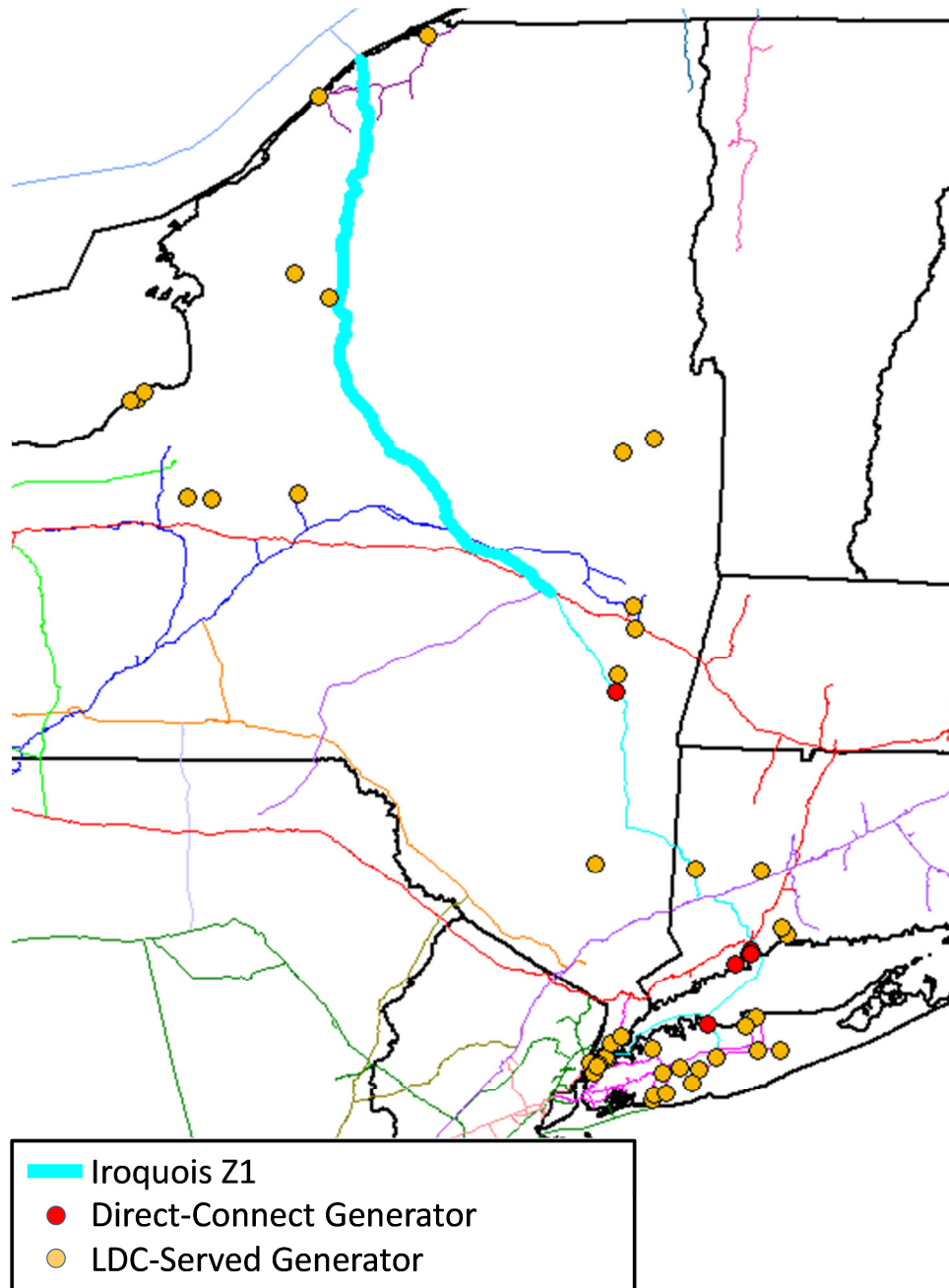
The 100% peak hour utilization on Great Lakes Gas's East segment, which is modeled with a capacity of 1,164 MDth/d, potentially affects generators directly connected to Great Lakes in Michigan, generators behind LDCs served by Great Lakes in Michigan, generators directly connected to Vector, and generators behind Union Gas. The locations of these generators are shown in Figure D3 on page D-5.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E101 and Figure E102 relative to the capacity of the segment.

1.3.13 Iroquois Zone 1

The 100% peak hour utilization on Iroquois's Zone 1, which is modeled with a capacity of 1,195 MDth/d, potentially affects generators directly connected to Iroquois and generators behind LDCs served by Iroquois. The locations of these generators are shown in Figure D10.

Figure D10. Generators Affected by Iroquois Zone 1 Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E103 and Figure E104 relative to the capacity of the segment.

1.3.14 Midwestern

The 100% peak hour utilization on Midwestern's mainline segment, which is modeled with a capacity of 635 MDth/d, potentially affects generators behind LDCs served by Midwestern and behind LDCs served by Guardian downstream of the Joliet Hub. The locations of these generators are shown in Figure D4 on page D-6.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E105 and Figure E106 relative to the capacity of the segment

1.3.15 Millennium

Millennium is modeled with a capacity of 784 MDth/d. The 100% peak hour utilization on Millennium's mainline potentially affects generators directly connected to Millennium, generators behind LDCs served by Millennium, and generators served by Algonquin, in particular, in southern New England. The locations of these generators are shown in Figure 89 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E107 and Figure E108 relative to the capacity of the segment.

1.3.16 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 283 MDth/d in 2023. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E109 and Figure E110 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

1.3.17 NGPL Iowa/Illinois North

The 100% peak hour utilization on NGPL's Iowa/Illinois North segment, which is modeled with a capacity of 1,677 MDth/d, potentially affects generators directly connected to NGPL in Illinois, generators behind LDCs served by NGPL in Iowa, Illinois and Indiana, generators directly connected to Horizon in Illinois, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D5 on page D-8.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E111 and Figure E112 relative to the capacity of the segment.

1.3.18 NGPL Iowa/Illinois South

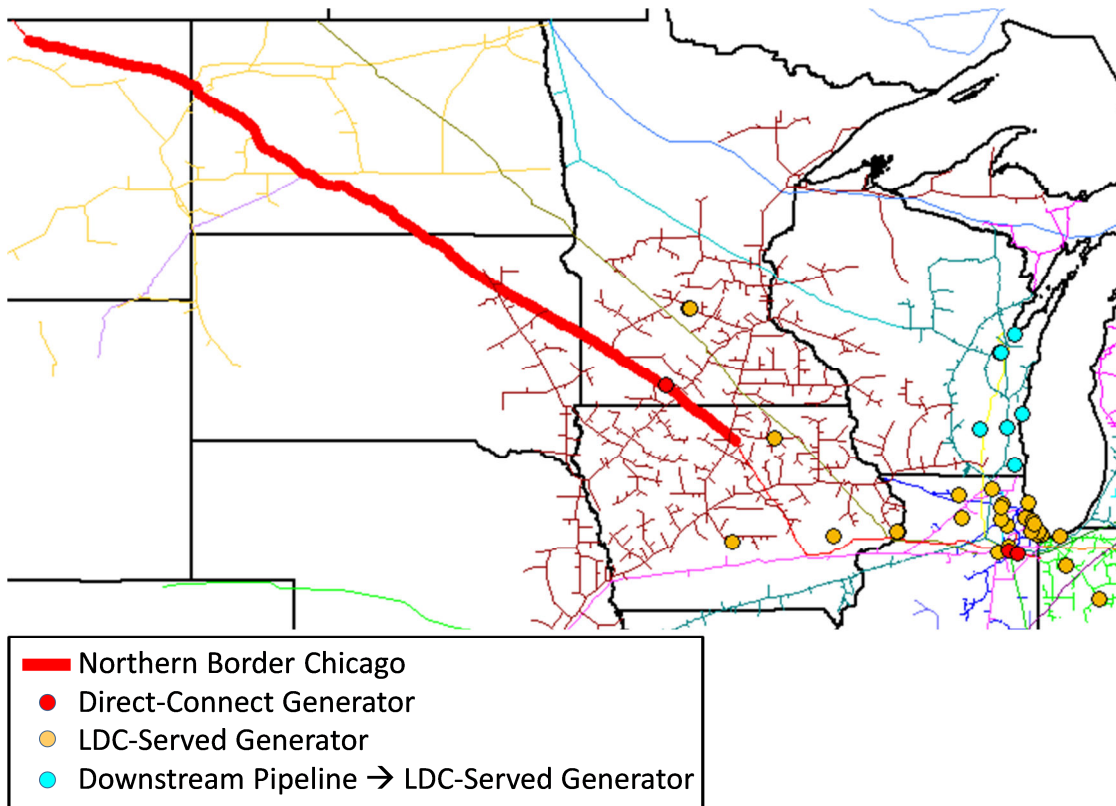
The 100% peak hour utilization on NGPL's Iowa/Illinois South segment, which is modeled with a capacity of 1,624 MDth/d, potentially affects generators directly connected to NGPL in Illinois, generators behind LDCs served by NGPL in Illinois and Indiana, generators directly connected to Horizon in Illinois, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D6 on page D-9.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E113 and Figure E114 relative to the capacity of the segment.

1.3.19 Northern Border Mainline

The 100% peak hour utilization on Northern Border’s mainline, which is modeled with a capacity of 2,311 MDth/d, potentially affects generators directly connected to Northern Border in Minnesota and Illinois, generators behind LDCs served by Northern Border in Minnesota, Iowa, Illinois and Indiana, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D11.

Figure D11. Generators Affected by Northern Border Mainline Constraint

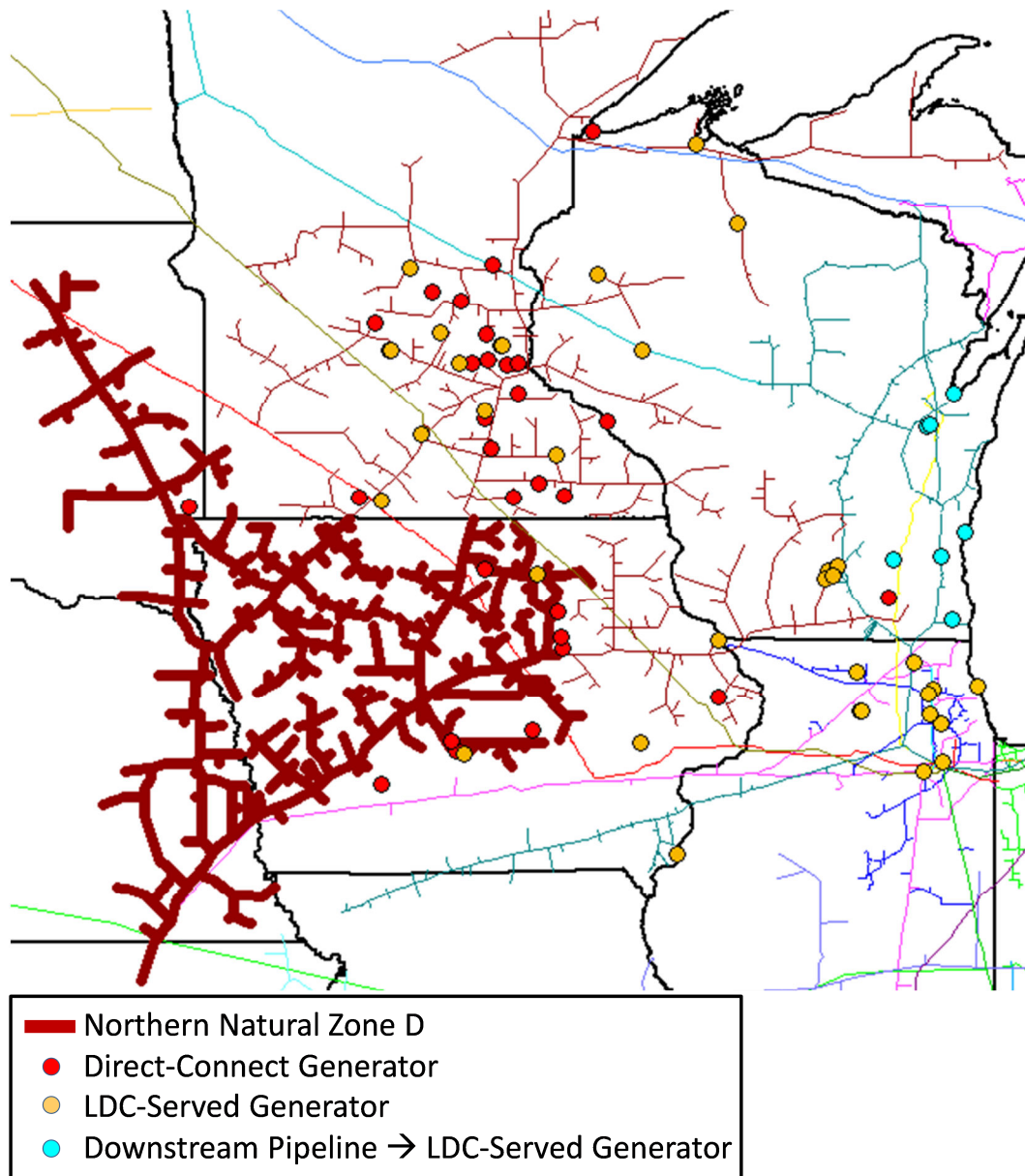


The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E115 and Figure E116 relative to the capacity of the segment.

1.3.20 Northern Natural Zone ABC

The 100% peak hour utilization on Northern Natural’s Zone ABC segment, which is modeled with a capacity of 2,138 MDth/d, potentially affects generators directly connected to Northern Natural in Iowa, South Dakota, Wisconsin and Minnesota, generators behind LDCs served by Northern Natural in Iowa, Wisconsin and Minnesota, and generators behind LDCs served by Guardian in Wisconsin. The locations of these generators are shown in Figure D12.

Figure D12. Generators Affected by Northern Natural Zone ABC Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E117 and Figure E118 relative to the capacity of the segment.

1.3.21 Tennessee Zone 4 Pennsylvania

Tennessee Zone 4 Pennsylvania is modeled with a capacity of 1,887 MDth/d. The 100% peak hour utilization on Tennessee's Zone 4 segment in Pennsylvania potentially affects generators directly connected to Tennessee in Pennsylvania and New Jersey; generators behind LDCs served by Tennessee in Pennsylvania, New Jersey, downstate New York and Connecticut; and generators served by Algonquin either directly or via LDC. The locations of these generators are shown in Figure 91 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E119 and Figure E120 relative to the capacity of the segment.

1.3.22 Tennessee Zone 5 New York

Tennessee Zone 5 New York is modeled with a capacity of 1,404 MDth/d. The 100% peak hour utilization on Tennessee's Z5 New York segment potentially affects generators directly connected to Tennessee in upstate New York, Massachusetts, Rhode Island and New Hampshire; generators behind LDCs served by Tennessee in upstate New York, Massachusetts, Connecticut and Rhode Island; and generators served by Iroquois, Granite State and PNGTS either directly or behind an LDC. The locations of these generators are shown in Figure 92 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E121 and Figure E122 relative to the capacity of the segment.

1.3.23 Texas Eastern M2 Pennsylvania – Southern Branch

The Texas Eastern M2 Pennsylvania – Southern Branch is modeled with a capacity of 2,068 MDth/d. The 100% peak hour utilization on the southern branch of Texas Eastern's Zone M2 segment through Pennsylvania potentially affects generators directly connected to Texas Eastern in Pennsylvania, generators behind LDCs in Pennsylvania, Delaware and downstate New York that are served by Texas Eastern, and generators that are served by Algonquin and Eastern Shore, either directly or behind an LDC. The locations of these generators are shown in Figure 93 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E123 and Figure E124 relative to the capacity of the segment.

1.3.24 Texas Eastern M3 – Northern Line

The Texas Eastern M3 Northern Line is modeled with a capacity of 3,357 MDth/d. The 100% peak hour utilization on Texas Eastern's Zone M3 northern line through Pennsylvania potentially affects generators directly connected to Texas Eastern in New Jersey and Pennsylvania, generators behind LDCs served by Texas Eastern in New Jersey, Pennsylvania and downstate New York, and generators served by Algonquin both directly and behind LDCs. The locations of these generators are shown in Figure 94 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E125 and Figure E126 relative to the capacity of the segment.

1.3.25 TransCanada Ontario West

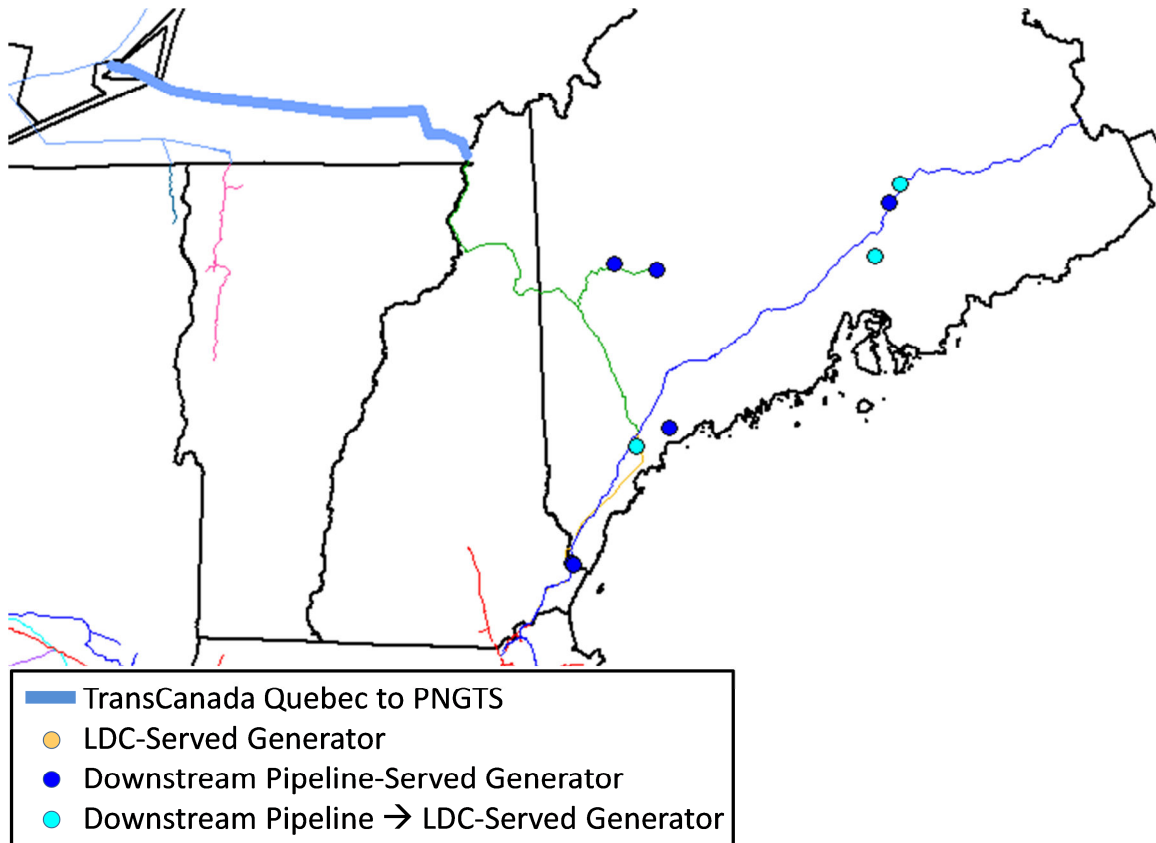
TransCanada's Western Ontario segment is modeled with a capacity of 3,508 MDth/d. The 100% peak hour utilization on TransCanada's Western Ontario segment potentially affects generators directly connected to TransCanada and generators behind the Enbridge and Union local distribution systems. The locations of these generators are shown in Figure 95 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E127 and Figure E128 relative to the capacity of the segment.

1.3.26 TransCanada Quebec to PNGTS

TransCanada’s Quebec to PNGTS segment is modeled with a capacity of 270 MDth/d. The 100% peak hour utilization on this segment potentially affects generators served by PNGTS, North Country and Vermont Gas. The locations of these generators are shown in Figure D13.

Figure D13. Generators Affected by TransCanada Quebec to PNGTS Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E129 and Figure E130 relative to the capacity of the segment.

1.3.27 Transco Leidy Atlantic

The Transco Leidy Atlantic segment is modeled with a capacity of 1,700 MDth/d. The 100% peak hour utilization on Transco’s Leidy Atlantic segment potentially affects generators directly connected to Transco in New Jersey, Maryland, Pennsylvania and Virginia and generators behind LDCs served by Transco in Delaware, New Jersey, Pennsylvania, Maryland, Virginia and North Carolina. The locations of these generators are shown in Figure 97 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E131 and Figure E132 relative to the capacity of the segment.

1.3.28 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 4,117 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E133 and Figure E134 relative to the capacity of the segment. The electric demand data set in these figures includes only gas demand at generators in the Study Region.

1.3.29 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station segment is modeled with a capacity of 3,430 MDth/d. The 100% peak hour utilization on Transco's Leidy Line to Station 210 segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania and both New York City and Long Island. Locations of these generators are shown in Figure 99 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E135 and Figure E136 relative to the capacity of the segment.

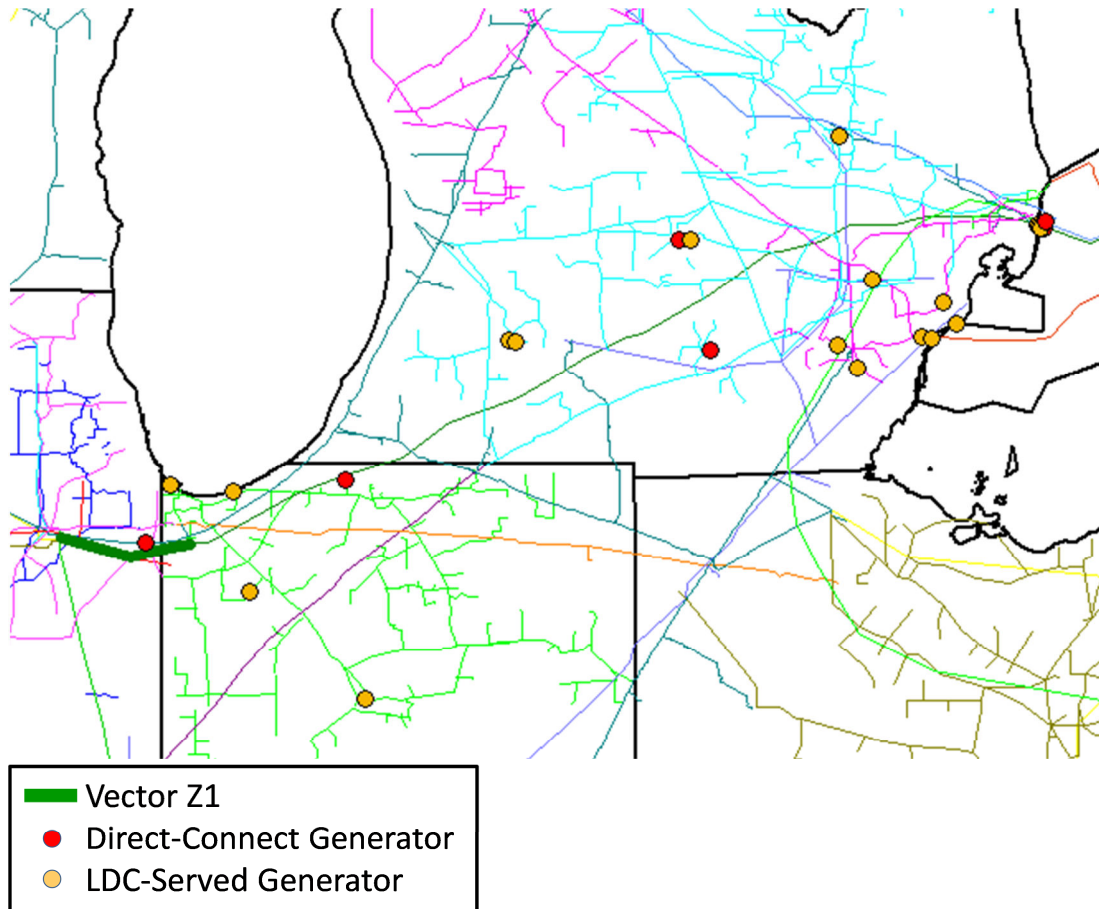
1.3.30 Union Gas Dawn

The 100% peak hour utilization on Union Gas's Dawn segment, which is modeled with a capacity of 5,000 MDth/d, potentially affects generators directly connected to Union, generators directly connected to TransCanada, and generators served by the Union Gas and Enbridge distribution systems. The locations of these generators are shown in Figure 100 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E137 and Figure E138 relative to the capacity of the segment.

1.3.31 Vector Zone 1

The 100% peak hour utilization on Vector's Zone 1 segment, which is modeled with a capacity of 1,600 MDth/d, potentially affects generators directly connected to Vector in Illinois, Indiana, Michigan and Ontario and generators behind LDCs served by Vector in Indiana and Michigan. The locations of these generators are shown in Figure D14.

Figure D14. Generators Affected by Vector Zone 1 Constraint

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E139 and Figure E140 relative to the capacity of the segment.

1.3.32 Viking Zone 1

The 100% peak hour utilization on Viking's Zone 1 segment, which is modeled with a capacity of 543 MDth/d, potentially affects generators directly connected to Viking, generators behind LDCs served by Viking, generators directly connected to ANR, and generators behind LDCs served by ANR. The locations of these generators are shown in Figure D9 on page D-15.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E141 and Figure E142 relative to the capacity of the segment.

1.4 HGDS S0 – SUMMER 2023

1.4.1 Algonquin Connecticut

The 100% peak hour utilization on Algonquin's Connecticut segment, which is modeled with a capacity of 1,827 MDth/d, potentially affects generators directly connected to Algonquin in Connecticut, Massachusetts and Rhode Island, generators directly connected to M&N in Maine

and New Hampshire, and generators served by LDCs connected to Algonquin and M&N. The locations of these generators are shown in Figure 111 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E143 and Figure E144 relative to the capacity of the segment.

1.4.2 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,867 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E145 and Figure E146 relative to the capacity of the segment.

1.4.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 540 Mth/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E147 and Figure E148 relative to the capacity of the segment.

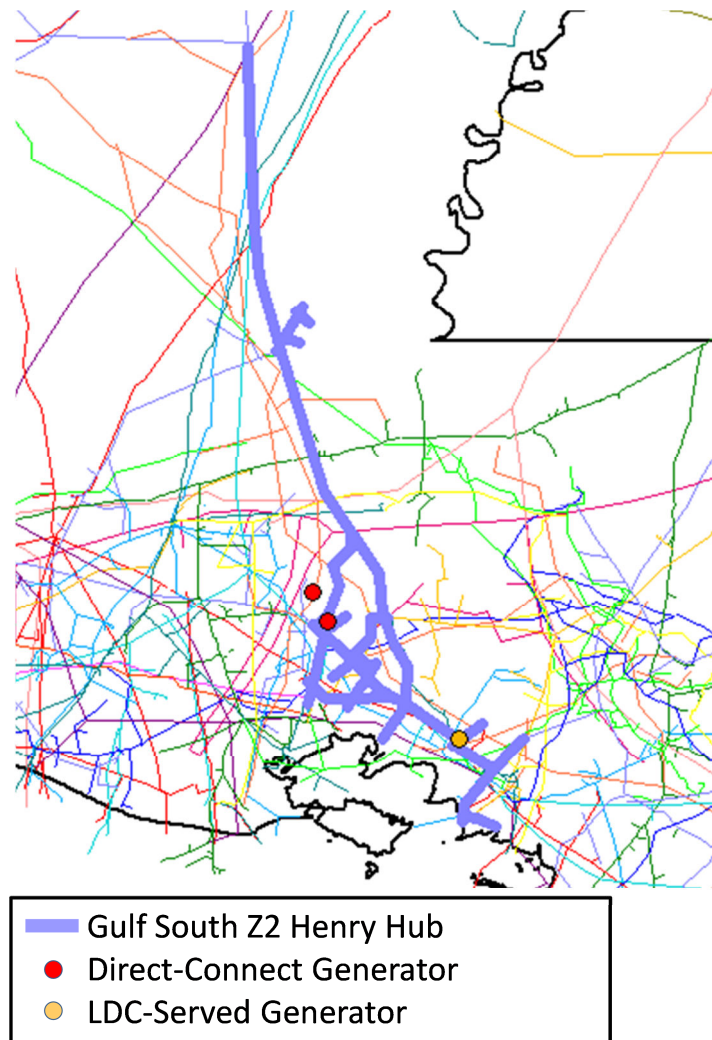
1.4.4 Eastern Shore

Eastern Shore is modeled with a capacity of 208 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E149 and Figure E150 relative to the capacity of the segments.

1.4.5 Gulf South Zone 2 Henry Hub

The 100% peak hour utilization on the Henry Hub segment of Gulf South Zone 2, which is modeled with a capacity of 700 MDth/d, potentially affects generators directly connected to Gulf South in Louisiana, and generators behind LDCs served by Gulf South in Louisiana. The locations of these generators are shown in Figure D15.

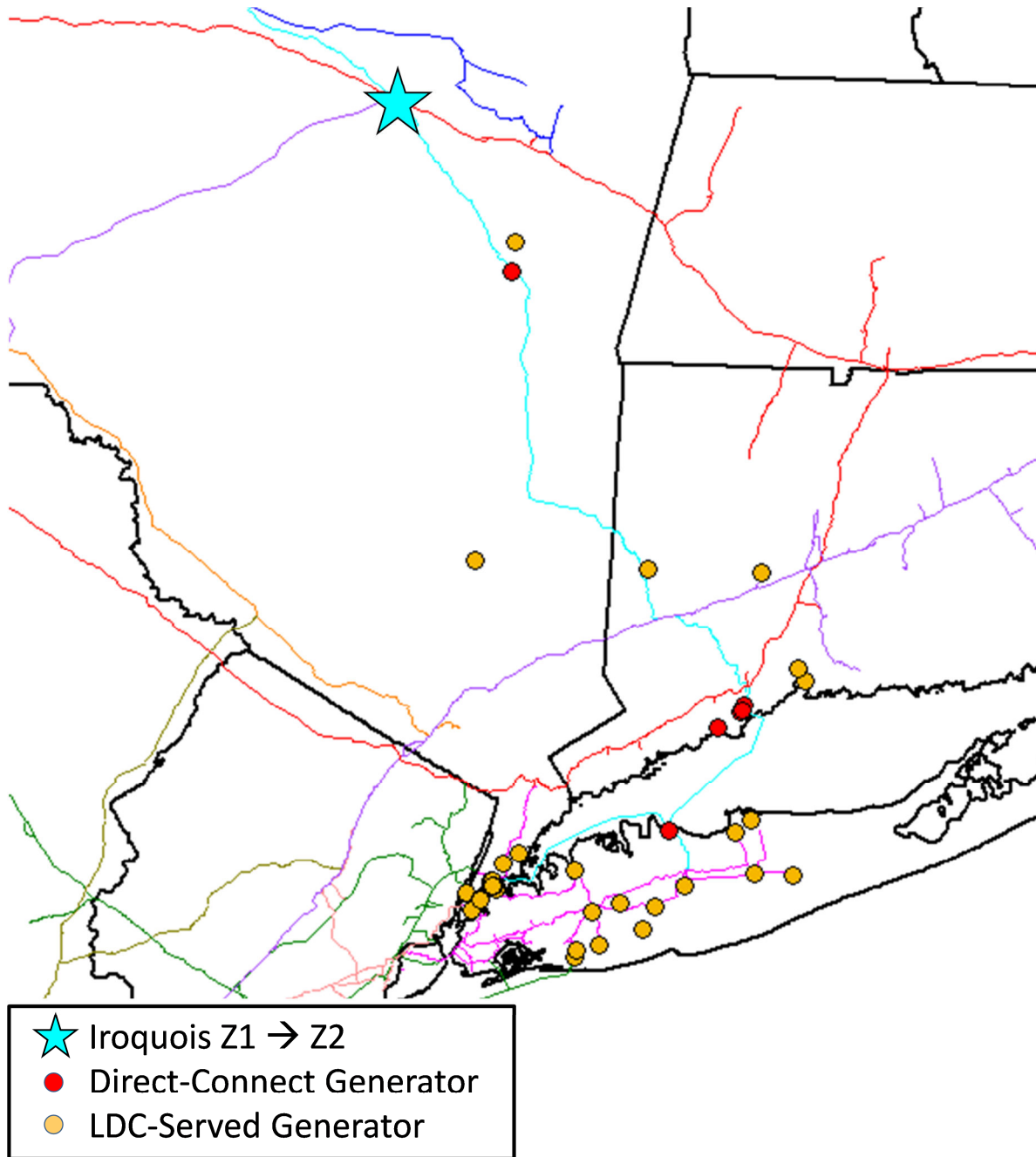
Figure D15. Generators Affected by Gulf South Z2 HH Constraint

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E151 and Figure E152 relative to the capacity of the segment.

1.4.6 Iroquois Zone 1 to Zone 2

The 100% peak hour utilization of the link between Iroquois Zone 1 and Iroquois Zone 1, which is modeled with a capacity of 855 MDth/d, potentially affects generators directly connected to Iroquois in New York and Connecticut, and generators behind LDCs served by Iroquois in New York and Connecticut. The locations of these generators are shown in Figure D16.

Figure D16. Generators Affected by Iroquois Z1 → Z2 Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E153 and Figure E154 relative to the capacity of the segment.

1.4.7 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 283 MDth/d in 2023. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in

Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E155 and Figure E156 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

1.4.8 PNGTS North of Westbrook

The 100% peak hour utilization on PNGTS's North of Westbrook segment, which is modeled with a capacity of 223 MDth/d, potentially affects generators directly connected to PNGTS in New Hampshire in Maine, generators served by LDCs connected to PNGTS, and generators served by M&N either directly or via LDC. The locations of these generators are shown in Figure 112 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E157 and Figure E158 relative to the capacity of the segment.

1.4.9 PNGTS South of Westbrook

The 100% peak hour utilization on PNGTS's South of Westbrook segment, which is modeled with a capacity of 300 MDth/d, potentially affects generators directly connected to PNGTS in New Hampshire, generators served by Maine LDCs connected to PNGTS, and generators served by M&N either directly or via LDC. The locations of these generators are shown in Figure 113 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E159 and Figure E160 relative to the capacity of the segment.

1.4.10 Tennessee Zone 5 New York

Tennessee Zone 5 New York is modeled with a capacity of 1,189 MDth/d. The 100% peak hour utilization on Tennessee's Z5 New York segment potentially affects generators directly connected to Tennessee in upstate New York, Massachusetts, Rhode Island and New Hampshire; generators behind LDCs served by Tennessee in upstate New York, Massachusetts, Connecticut and Rhode Island; and generators served by Iroquois, Granite State and PNGTS either directly or behind an LDC. The locations of these generators are shown in Figure 92 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E161 and Figure E162 relative to the capacity of the segment.

1.4.11 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment, which is modeled with a capacity of 623 MDth/d, potentially affects generators directly connected to Texas Eastern in

Texas, Arkansas and Illinois. The locations of these generators are shown in Figure 104 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E163 and Figure E164 relative to the capacity of the segment.

1.4.12 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E165 and Figure E166 relative to the capacity of the segment.

2 LGDS S0 ANALYSIS

2.1 LGDS S0 – WINTER 2018

2.1.1 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,477 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E167 and Figure E168 relative to the capacity of the segment.

2.1.2 Constitution Pipeline

Constitution's proposed delivery capacity is 650 MDth/d. The 100% peak hour utilization on Constitution potentially affects generators served by Iroquois both directly and behind LDCs. The locations of these generators are shown in Figure 82 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E169 and Figure E170 relative to the capacity of the segment.

2.1.3 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the

Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E171 and Figure E172 relative to the capacity of the segments.

2.1.4 Millennium

Millennium is modeled with a capacity of 784 MDth/d. The 100% peak hour utilization on Millennium's mainline potentially affects generators directly connected to Millennium, generators behind LDCs served by Millennium, and generators served by Algonquin, in particular, in southern New England. The locations of these generators are shown in Figure 89 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E173 and Figure E174 relative to the capacity of the segment. Because it links Marcellus supply to markets in New York, New England and Ontario, Millennium's capacity factor is expected to be high.

2.1.5 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 623 MDth/d in 2018. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E175 and Figure E176 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

2.1.6 Tennessee Zone 4 Pennsylvania

Tennessee Zone 4 Pennsylvania is modeled with a capacity of 1,887 MDth/d. The 100% peak hour utilization on Tennessee's Zone 4 segment in Pennsylvania potentially affects generators directly connected to Tennessee in Pennsylvania and New Jersey; generators behind LDCs served by Tennessee in Pennsylvania, New Jersey, downstate New York and Connecticut; and generators served by Algonquin either directly or via LDC. The locations of these generators are shown in Figure 91 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E177 and Figure E178 relative to the capacity of the segment. As a supply segment connected to Marcellus, additional interconnection flows to downstream pipelines would likely utilize the remaining available capacity on days shown here as unconstrained.

2.1.7 Tennessee Zone 5 New York

Tennessee Zone 5 New York is modeled with a capacity of 1,189 MDth/d. The 100% peak hour utilization on Tennessee's Z5 New York segment potentially affects generators directly connected to Tennessee in upstate New York, Massachusetts, Rhode Island and New Hampshire; generators behind LDCs served by Tennessee in upstate New York, Massachusetts, Connecticut and Rhode Island; and generators served by Iroquois, Granite State and PNGTS either directly or behind an LDC. The locations of these generators are shown in Figure 92 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E179 and Figure E180 relative to the capacity of the segment.

2.1.8 Texas Eastern M2 Pennsylvania – Southern Branch

The Texas Eastern M2 Pennsylvania – Southern Branch is modeled with a capacity of 2,068 MDth/d. The 100% peak hour utilization on the southern branch of Texas Eastern's Zone M2 segment through Pennsylvania potentially affects generators directly connected to Texas Eastern in Pennsylvania, generators behind LDCs in Pennsylvania, Delaware and downstate New York that are served by Texas Eastern, and generators that are served by Algonquin and Eastern Shore, either directly or behind an LDC. The locations of these generators are shown in Figure 93 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E181 and Figure E182 relative to the capacity of the segment.

2.1.9 Texas Eastern M3 – Northern Line

The Texas Eastern M3 Northern Line is modeled with a capacity of 2,987 MDth/d. The 100% peak hour utilization on Texas Eastern's Zone M3 northern line through Pennsylvania potentially affects generators directly connected to Texas Eastern in New Jersey and Pennsylvania, generators behind LDCs served by Texas Eastern in New Jersey, Pennsylvania and downstate New York, and generators served by Algonquin both directly and behind LDCs. The locations of these generators are shown in Figure 94 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E183 and Figure E184 relative to the capacity of the segment.

2.1.10 TransCanada Ontario West

TransCanada's Western Ontario segment is modeled with a capacity of 3,148 MDth/d. The 100% peak hour utilization on TransCanada's Western Ontario segment potentially affects generators directly connected to TransCanada and generators behind the Enbridge and Union local distribution systems. The locations of these generators are shown in Figure 95 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E185 and Figure E186 relative to the capacity of the segment.

2.1.11 TransCanada Quebec

TransCanada Quebec is modeled with a capacity of 1,320 MDth/d. The 100% peak hour utilization on TransCanada's Quebec segment potentially affects generators served by PNGTS, North Country and Vermont Gas. The locations of these generators are shown in Figure 96 of the report. Generators in Quebec could also be affected by this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E187 and Figure E188 relative to the capacity of the segment.

2.1.12 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on Transco's Leidy Line to Station 210 segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania and both New York City and Long Island. Locations of these generators are shown in Figure 99 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E189 and Figure E190 relative to the capacity of the segment.

2.1.13 Union Gas Dawn

The 100% peak hour utilization on Union Gas's Dawn segment, which is modeled with a capacity of 5,000 MDth/d, potentially affects generators directly connected to Union, generators directly connected to TransCanada, and generators served by the Union Gas and Enbridge distribution systems. The locations of these generators are shown in Figure 100 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E191 and Figure E192 relative to the capacity of the segment.

2.2 LGDS S0 SUMMER 2018

2.2.1 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,477 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E193 and Figure E194 relative to the capacity of the segment.

2.2.2 Dominion Southeast

Dominion Southeast is modeled with a capacity of 540 Mdth/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E195 and Figure E196 relative to the capacity of the segment.

2.2.3 Eastern Shore

Eastern Shore is modeled with a capacity of 200 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E197 and Figure E198 relative to the capacity of the segments.

2.2.4 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment, which is modeled with a capacity of 623 MDth/d, potentially affects generators directly connected to Texas Eastern in Texas, Arkansas and Illinois. The locations of these generators are shown in Figure 104 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E199 and Figure E200 relative to the capacity of the segment.

2.2.5 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E201 and Figure E202 relative to the capacity of the segment.

2.3 LGDS S0 – WINTER 2023

2.3.1 Algonquin Connecticut

The 100% peak hour utilization on Algonquin’s Connecticut segment, which is modeled with a capacity of 1,827 MDth/d, potentially affects generators directly connected to Algonquin in Connecticut, Massachusetts and Rhode Island, generators directly connected to M&N in Maine and New Hampshire, and generators served by LDCs connected to Algonquin and M&N. The locations of these generators are shown in Figure 111 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E203 and Figure E204 relative to the capacity of the segment.

2.3.2 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas’s Virginia/Maryland segment, which is modeled with a capacity of 2,477 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E205 and Figure E206 relative to the capacity of the segment.

2.3.3 Constitution Pipeline

Constitution’s proposed delivery capacity is 650 MDth/d. The 100% peak hour utilization on Constitution potentially affects generators served by Iroquois both directly and behind LDCs. The locations of these generators are shown in Figure 82 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E207 and Figure E208 relative to the capacity of the segment.

2.3.4 Dominion Eastern New York

Dominion’s Eastern New York segment is modeled with a capacity of 907 MDth/d. The 100% peak hour utilization on Dominion’s Eastern New York segment potentially affects generators directly connected to Dominion and behind LDCs served by Dominion. The locations of these generators are shown in Figure 83 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E209 and Figure E210 relative to the capacity of the segment.

2.3.5 Dominion Western New York

Dominion Western New York is modeled with a capacity of 557 MDth/d. The 100% utilization on Dominion’s Western New York segment potentially affects generators directly served by

Dominion and behind LDCs served by Dominion. The locations of the plants in each category are shown in Figure 84 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E211 and Figure E212 relative to the capacity of the segment.

2.3.6 Dominion Southeast

Dominion Southeast is modeled with a capacity of 540 MDth/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E213 and Figure E214 relative to the capacity of the segment.

2.3.7 East Tennessee Mainline

The East Tennessee mainline is modeled with a capacity of 800 MDth/d. The 100% peak hour utilization on East Tennessee's mainline potentially affects generators directly connected to East Tennessee and generators behind LDCs served by East Tennessee. The locations of these generators are shown in Figure 86 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E215 and Figure E216 relative to the capacity of the segment.

2.3.8 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E217 and Figure E218 relative to the capacity of the segments.

2.3.9 Millennium

Millennium is modeled with a capacity of 784 MDth/d. The 100% peak hour utilization on Millennium's mainline potentially affects generators directly connected to Millennium, generators behind LDCs served by Millennium, and generators served by Algonquin, in particular, in southern New England. The locations of these generators are shown in Figure 89 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E219 and Figure E220 relative to the capacity of the segment.

2.3.10 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 283 MDth/d in 2023. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E221 and Figure E222 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

2.3.11 Tennessee Zone 4 Pennsylvania

Tennessee Zone 4 Pennsylvania is modeled with a capacity of 1,887 MDth/d. The 100% peak hour utilization on Tennessee's Zone 4 segment in Pennsylvania potentially affects generators directly connected to Tennessee in Pennsylvania and New Jersey; generators behind LDCs served by Tennessee in Pennsylvania, New Jersey, downstate New York and Connecticut; and generators served by Algonquin either directly or via LDC. The locations of these generators are shown in Figure 91 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E223 and Figure E224 relative to the capacity of the segment.

2.3.12 Tennessee Zone 5 New York

Tennessee Zone 5 New York is modeled with a capacity of 1,189 MDth/d. The 100% peak hour utilization on Tennessee's Z5 New York segment potentially affects generators directly connected to Tennessee in upstate New York, Massachusetts, Rhode Island and New Hampshire; generators behind LDCs served by Tennessee in upstate New York, Massachusetts, Connecticut and Rhode Island; and generators served by Iroquois, Granite State and PNGTS either directly or behind an LDC. The locations of these generators are shown in Figure 92 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E225 and Figure E226 relative to the capacity of the segment.

2.3.13 Texas Eastern M2 Pennsylvania – Southern Branch

The Texas Eastern M2 Pennsylvania – Southern Branch is modeled with a capacity of 2,068 MDth/d. The 100% peak hour utilization on the southern branch of Texas Eastern's Zone M2 segment through Pennsylvania potentially affects generators directly connected to Texas Eastern in Pennsylvania, generators behind LDCs in Pennsylvania, Delaware and downstate New York that are served by Texas Eastern, and generators that are served by Algonquin and Eastern Shore, either directly or behind an LDC. The locations of these generators are shown in Figure 93 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E227 and Figure E228 relative to the capacity of the segment.

2.3.14 Texas Eastern M3 – Northern Line

The Texas Eastern M3 Northern Line is modeled with a capacity of 2,987 MDth/d. The 100% peak hour utilization on Texas Eastern's Zone M3 northern line through Pennsylvania potentially affects generators directly connected to Texas Eastern in New Jersey and Pennsylvania, generators behind LDCs served by Texas Eastern in New Jersey, Pennsylvania and downstate New York, and generators served by Algonquin both directly and behind LDCs. The locations of these generators are shown in Figure 94 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E229 and Figure E230 relative to the capacity of the segment.

2.3.15 TransCanada Ontario West

TransCanada's Western Ontario segment is modeled with a capacity of 3,148 MDth/d. The 100% peak hour utilization on TransCanada's Western Ontario segment potentially affects generators directly connected to TransCanada and generators behind the Enbridge and Union local distribution systems. The locations of these generators are shown in Figure 95 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E231 and Figure E232 relative to the capacity of the segment.

2.3.16 TransCanada Quebec

TransCanada Quebec is modeled with a capacity of 1,320 MDth/d. The 100% peak hour utilization on TransCanada's Quebec segment potentially affects generators served by PNGTS, North Country and Vermont Gas. The locations of these generators are shown in Figure 96 of the report. Generators in Quebec could also be affected by this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E233 and Figure E234 relative to the capacity of the segment.

2.3.17 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E235 and Figure E236 relative to the capacity of the segment. The

electric demand data set in these figures includes only gas demand at generators in the Study Region.

2.3.18 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on Transco's Leidy Line to Station 210 segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania and both New York City and Long Island. Locations of these generators are shown in Figure 99 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E237 and Figure E238 relative to the capacity of the segment.

2.3.19 Union Gas Dawn

The 100% peak hour utilization on Union Gas's Dawn segment, which is modeled with a capacity of 5,000 MDth/d, potentially affects generators directly connected to Union, generators directly connected to TransCanada, and generators served by the Union Gas and Enbridge distribution systems. The locations of these generators are shown in Figure 100 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E239 and Figure E240 relative to the capacity of the segment.

2.4 LGDS S0 SUMMER 2023

2.4.1 Algonquin Connecticut

The 100% peak hour utilization on Algonquin's Connecticut segment, which is modeled with a capacity of 1,827 MDth/d, potentially affects generators directly connected to Algonquin in Connecticut, Massachusetts and Rhode Island, generators directly connected to M&N in Maine and New Hampshire, and generators served by LDCs connected to Algonquin and M&N. The locations of these generators are shown in Figure 111 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E241 and Figure E242 relative to the capacity of the segment.

2.4.2 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment, which is modeled with a capacity of 2,477 MDth/d, potentially affects generators directly connected to Columbia in Maryland and Virginia; generators behind LDCs served by Columbia Gas in Maryland and Virginia; and generators served by Dominion Cove Point and PPL Interstate downstream of interconnections with Columbia Gas. The locations of these generators are shown in Figure 80 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E243 and Figure E244 relative to the capacity of the segment.

2.4.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 540 Mdt/d. The 100% peak hour utilization on Dominion's Southeast segment serving Virginia and Maryland potentially affects generators directly served by Dominion, generators behind LDCs served by Dominion, and generators served by Dominion Cove Point via interconnect. The locations of these generators are shown in Figure 85 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E245 and Figure E246 relative to the capacity of the segment.

2.4.4 Eastern Shore

Eastern Shore is modeled with a capacity of 200 MDth/d. The 100% peak hour utilization rate on Eastern Shore's Receipt Zone 1 and Delivery Zone 2 potentially affects generators on the Delmarva Peninsula that are served by Eastern Shore. The locations of these generators are shown in Figure 87 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segments are shown in Figure E247 and Figure E248 relative to the capacity of the segments.

2.4.5 New Brunswick Supply / Nova Scotia Offshore Supply

Total supplies from New Brunswick and Nova Scotia Offshore are capped at approximately 283 MDth/d in 2023. This limitation potentially affects generators directly connected to M&N in Maine and New Hampshire as well as generators located behind LDCs served by M&N in Maine. The locations of these generators are shown in Figure 90 of the report. Generators located in the Canadian Maritimes would also be affected by this supply constraint, but have not been included in the summary results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the supply limitation are shown in Figure E249 and Figure E250 relative to the total production capacity. The electric demand data set in these figures includes only gas demand at generators in the Study Region, demand from non-Study Region generators is not accounted for.

2.4.6 PNGTS South of Westbrook

The 100% peak hour utilization on PNGTS's South of Westbrook segment, which is modeled with a capacity of 300 MDth/d, potentially affects generators directly connected to PNGTS in New Hampshire, generators served by Maine LDCs connected to PNGTS, and generators served by M&N either directly or via LDC. The locations of these generators are shown in Figure 113 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E251 and Figure E252 relative to the capacity of the segment.

2.4.7 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment, which is modeled with a capacity of 623 MDth/d, potentially affects generators directly connected to Texas Eastern in Texas, Arkansas and Illinois. The locations of these generators are shown in Figure 104 of the report.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E253 and Figure E254 relative to the capacity of the segment.

2.4.8 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d. The 100% peak hour utilization on Transco's Zone 5 segment potentially affects Study Region generators directly connected to Transco in Virginia and generators behind LDCs served by Transco in North Carolina and Virginia. The locations of these generators are shown in Figure 98 of the report. Non-Study Region generators in North Carolina and South Carolina could also be affected, but are not included in the results shown below.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure E255 and Figure E256 relative to the capacity of the segment.