

APPENDIX G. GAS PRICE SENSITIVITIES – S2 AND S3

Table of Contents

1	S2: Apply RGDS Natural Gas Prices to Alternative Gas Demand Scenarios	1
1.1	HGDS S2 Winter 2018.....	1
1.1.1	Columbia Gas Virginia / Maryland.....	5
1.1.2	Columbia Gas Western Pennsylvania / New York.....	5
1.1.3	Constitution Pipeline.....	6
1.1.4	Dominion Eastern New York.....	6
1.1.5	Dominion Western New York	6
1.1.6	Dominion Southeast.....	6
1.1.7	East Tennessee Mainline.....	6
1.1.8	Eastern Shore	7
1.1.9	Empire Mainline	7
1.1.10	Millennium.....	7
1.1.11	New Brunswick Supply / Nova Scotia Offshore Supply	7
1.1.12	Tennessee Zone 4 Pennsylvania	8
1.1.13	Tennessee Zone 5 New York.....	8
1.1.14	Texas Eastern M2 PA – Southern Branch	8
1.1.15	Texas Eastern M3 – Northern Line.....	8
1.1.16	TransCanada Ontario West.....	9
1.1.17	TransCanada Quebec	9
1.1.18	Transco Leidy Atlantic	9
1.1.19	Transco Zone 5	9
1.1.20	Transco Zone 6 Leidy Line to Station 210	10
1.1.21	Union Gas Dawn.....	10
1.2	HGDS S2 Summer 2018	11
1.2.1	Algonquin Connecticut.....	13
1.2.2	Columbia Gas Virginia / Maryland.....	14
1.2.3	Dominion Southeast.....	14
1.2.4	Eastern Shore	14
1.2.5	New Brunswick Supply / Nova Scotia Offshore Supply	14
1.2.6	PNGTS North of Westbrook.....	14
1.2.7	Texas Eastern Zone ETX	15
1.2.8	Transco Zone 5	15
1.3	HGDS S2 Winter 2023.....	16
1.3.1	Columbia Gas Virginia / Maryland.....	20
1.3.2	Columbia Gas Western Pennsylvania / New York.....	20

1.3.3	Constitution Pipeline.....	21
1.3.4	Dominion Eastern New York.....	21
1.3.5	Dominion Western New York	21
1.3.6	Dominion Southeast.....	21
1.3.7	East Tennessee Mainline.....	21
1.3.8	Eastern Shore	22
1.3.9	Empire Mainline	22
1.3.10	Millennium.....	22
1.3.11	New Brunswick Supply / Nova Scotia Offshore Supply	22
1.3.12	Tennessee Zone 4 Pennsylvania	23
1.3.13	Tennessee Zone 5 New York	23
1.3.14	Texas Eastern M2 PA – Southern Branch	23
1.3.15	Texas Eastern M3 – Northern Line.....	23
1.3.16	TransCanada Ontario West.....	24
1.3.17	TransCanada Quebec	24
1.3.18	Transco Leidy Atlantic	24
1.3.19	Transco Zone 5	24
1.3.20	Transco Zone 6 Leidy Line to Station 210	25
1.3.21	Union Gas Dawn.....	25
1.4	HGDS S2 Summer 2023	26
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	New Brunswick Supply / Nova Scotia Offshore Supply	29
1.4.6	PNGTS North of Westbrook.....	30
1.4.7	Tennessee Zone 5 New York.....	30
1.4.8	Texas Eastern Zone ETX	30
1.4.9	Transco Zone 5	30
1.5	LGDS S2 Winter 2018.....	31
1.5.1	Columbia Gas Virginia / Maryland.....	34
1.5.2	Constitution Pipeline.....	34
1.5.3	Dominion Eastern New York.....	35
1.5.4	Dominion Southeast.....	35
1.5.5	East Tennessee Mainline.....	35
1.5.6	Eastern Shore	35
1.5.7	Empire Mainline	35
1.5.8	Millennium.....	36

1.5.9	New Brunswick Supply / Nova Scotia Offshore Supply	36
1.5.10	Tennessee Zone 4 Pennsylvania	36
1.5.11	Tennessee Zone 5 New York	36
1.5.12	Texas Eastern M2 PA – Southern Branch	37
1.5.13	Texas Eastern M3 – Northern Line.....	37
1.5.14	TransCanada Ontario West.....	37
1.5.15	TransCanada Quebec	37
1.5.16	Transco Zone 5	38
1.5.17	Transco Zone 6 Leidy Line to Station 210	38
1.5.18	Union Gas Dawn.....	38
1.6	LGDS S2 Summer 2018.....	39
1.6.1	Columbia Gas Virginia / Maryland.....	41
1.6.2	Dominion Southeast.....	42
1.6.3	Eastern Shore	42
1.6.4	Texas Eastern Zone ETX	42
1.6.5	Transco Zone 5	42
1.7	LGDS S2 Winter 2023	43
1.7.1	Columbia Gas Virginia / Maryland.....	47
1.7.2	Columbia Gas Western Pennsylvania / New York.....	47
1.7.3	Constitution Pipeline.....	48
1.7.4	Dominion Eastern New York.....	48
1.7.5	Dominion Western New York	48
1.7.6	Dominion Southeast.....	48
1.7.7	East Tennessee Mainline.....	48
1.7.8	Eastern Shore	49
1.7.9	Empire Mainline	49
1.7.10	Millennium.....	49
1.7.11	New Brunswick Supply / Nova Scotia Offshore Supply	49
1.7.12	Tennessee Zone 4 Pennsylvania	50
1.7.13	Tennessee Zone 5 New York.....	50
1.7.14	Texas Eastern M2 PA – Southern Branch	50
1.7.15	Texas Eastern M3 – Northern Line.....	50
1.7.16	TransCanada Ontario West.....	51
1.7.17	TransCanada Quebec	51
1.7.18	Transco Leidy Atlantic	51
1.7.19	Transco Zone 5	51
1.7.20	Transco Zone 6 Leidy Line to Station 210	52
1.7.21	Union Gas Dawn.....	52

1.8	LGDS S2 Summer 2023.....	53
1.8.1	Algonquin Connecticut.....	55
1.8.2	Columbia Gas Virginia / Maryland.....	56
1.8.3	Dominion Southeast.....	56
1.8.4	Eastern Shore	56
1.8.5	New Brunswick Supply / Nova Scotia Offshore Supply	56
1.8.6	PNGTS North of Westbrook.....	56
1.8.7	Texas Eastern Zone ETX	57
1.8.8	Transco Zone 5	57
2	S3: Significantly Lower Gas Prices	58
2.1	RGDS S3 Winter 2018.....	58
2.1.1	Columbia Gas Virginia / Maryland.....	62
2.1.2	Columbia Gas Western Pennsylvania / New York.....	62
2.1.3	Constitution Pipeline.....	63
2.1.4	Dominion Eastern New York.....	63
2.1.5	Dominion Western New York	63
2.1.6	Dominion Southeast.....	63
2.1.7	East Tennessee Mainline.....	63
2.1.8	Eastern Shore	64
2.1.9	Empire Mainline	64
2.1.10	Millennium.....	64
2.1.11	New Brunswick Supply / Nova Scotia Offshore Supply	64
2.1.12	Tennessee Zone 4 Pennsylvania	65
2.1.13	Tennessee Zone 5 New York.....	65
2.1.14	Texas Eastern M2 PA – Southern Branch	65
2.1.15	Texas Eastern M3 – Northern Line.....	65
2.1.16	TransCanada Ontario West.....	66
2.1.17	TransCanada Quebec	66
2.1.18	Transco Leidy Atlantic	66
2.1.19	Transco Zone 5	66
2.1.20	Transco Zone 6 Leidy Line to Station 210	67
2.1.21	Union Gas Dawn.....	67
2.2	RGDS S3 Summer 2018	68
2.2.1	Columbia Gas Virginia / Maryland.....	70
2.2.2	Dominion Southeast.....	71
2.2.3	Eastern Shore	71
2.2.4	Texas Eastern Zone ETX	71
2.2.5	Transco Zone 5	71

2.3	RGDS S3 Winter 2023	72
2.3.1	Columbia Gas Virginia / Maryland.....	76
2.3.2	Columbia Gas Western Pennsylvania / New York.....	76
2.3.3	Constitution Pipeline.....	77
2.3.4	Dominion Eastern New York.....	77
2.3.5	Dominion Western New York	77
2.3.6	Dominion Southeast.....	77
2.3.7	East Tennessee Mainline.....	77
2.3.8	Eastern Shore	78
2.3.9	Empire Mainline	78
2.3.10	Great Lakes East	78
2.3.11	Millennium.....	78
2.3.12	New Brunswick Supply / Nova Scotia Offshore Supply	78
2.3.13	Tennessee Zone 4 Pennsylvania	79
2.3.14	Tennessee Zone 5 New York.....	79
2.3.15	Texas Eastern M2 PA – Southern Branch	79
2.3.16	Texas Eastern M3 – Northern Line.....	80
2.3.17	TransCanada Ontario West.....	80
2.3.18	TransCanada Quebec	80
2.3.19	Transco Leidy Atlantic	80
2.3.20	Transco Zone 5	81
2.3.21	Transco Zone 6 Leidy Line to Station 210	81
2.3.22	Union Gas Dawn.....	81
2.4	RGDS S3 Summer 2023	82
2.4.1	Algonquin Connecticut.....	85
2.4.2	Columbia Gas Virginia / Maryland.....	85
2.4.3	Dominion Southeast.....	85
2.4.4	Eastern Shore	85
2.4.5	New Brunswick Supply / Nova Scotia Offshore Supply	85
2.4.6	PNGTS North of Westbrook.....	86
2.4.7	Tennessee Zone 5 New York.....	86
2.4.8	Texas Eastern Zone ETX.....	86
2.4.9	Transco Zone 5	86

List of Figures

Figure G1. HGDS S2 Winter 2018: Peak Hour Affected Generation	1
Figure G2. HGDS S2 Winter 2018: Locations with Peak Hour Affected Generation	2
Figure G3. HGDS S2 Winter 2018: Peak Hour Constraints.....	4
Figure G4. HGDS S2 Summer 2018: Peak Hour Affected Generation.....	11
Figure G5. HGDS S2 Summer 2018: Locations with Peak Hour Affected Generation.....	12
Figure G6. HGDS S2 Summer 2018: Peak Hour Constraints	13
Figure G7. HGDS S2 Winter 2023: Peak Hour Affected Generation	16
Figure G8. HGDS S2 Winter 2023: Locations with Peak Hour Affected Generation	17
Figure G9. HGDS S2 Winter 2023: Peak Hour Constraints.....	19
Figure G10. HGDS S2 Summer 2023: Peak Hour Affected Generation.....	26
Figure G11. HGDS S2 Summer 2023: Locations with Peak Hour Affected Generation.....	27
Figure G12. HGDS S2 Summer 2023: Peak Hour Constraints	28
Figure G13. LGDS S2 Winter 2018: Peak Hour Affected Generation.....	31
Figure G14. LGDS S2 Winter 2018: Locations with Peak Hour Affected Generation.....	32
Figure G15. LGDS S2 Winter 2018: Peak Hour Constraints	33
Figure G16. LGDS S2 Summer 2018: Peak Hour Affected Generation	39
Figure G17. LGDS S2 Summer 2018: Locations with Peak Hour Affected Generation	40
Figure G18. LGDS S2 Summer 2018: Peak Hour Constraints.....	41
Figure G19. LGDS S2 Winter 2023: Peak Hour Affected Generation.....	43
Figure G20. LGDS S2 Winter 2023: Locations with Peak Hour Affected Generation.....	44
Figure G21. LGDS S2 Winter 2023: Peak Hour Constraints	46
Figure G22. LGDS S2 Summer 2023: Peak Hour Affected Generation	53
Figure G23. LGDS S2 Summer 2023: Locations with Peak Hour Affected Generation	54
Figure G24. LGDS S2 Summer 2023: Peak Hour Constraints.....	55
Figure G25. RGDS S3 Winter 2018: Peak Hour Affected Generation	58
Figure G26. RGDS S3 Winter 2018: Locations with Peak Hour Affected Generation	59
Figure G27. RGDS S3 Winter 2018: Peak Hour Constraints.....	61
Figure G28. RGDS S3 Summer 2018: Peak Hour Affected Generation.....	68
Figure G29. RGDS S3 Summer 2018: Locations with Peak Hour Affected Generation.....	69
Figure G30. RGDS S3 Summer 2018: Peak Hour Constraints	70
Figure G31. RGDS S3 Winter 2023: Peak Hour Affected Generation	72
Figure G32. RGDS S3 Winter 2023: Locations with Peak Hour Affected Generation	73
Figure G33. RGDS S3 Winter 2023: Peak Hour Constraints.....	75
Figure G34. RGDS S3 Summer 2023: Peak Hour Affected Generation.....	82
Figure G35. RGDS S3 Summer 2023: Locations with Peak Hour Affected Generation.....	83
Figure G36. RGDS S3 Summer 2023: Peak Hour Constraints	84

List of Tables

Table G1. HGDS S2 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	3
Table G2. HGDS S2 Winter 2018: Frequency and Duration of Constraints.....	5
Table G3. HGDS S2 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	12
Table G4. HGDS S2 Summer 2018: Frequency and Duration of Constraints	13
Table G5. HGDS S2 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	18
Table G6. HGDS S2 Winter 2023: Frequency and Duration of Constraints.....	20
Table G7. HGDS S2 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	27
Table G8. HGDS S2 Summer 2023: Frequency and Duration of Constraints	28
Table G9. LGDS S2 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	33
Table G10. LGDS S2 Winter 2018: Frequency and Duration of Constraints	34
Table G11. LGDS S2 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	40
Table G12. LGDS S2 Summer 2018: Frequency and Duration of Constraints.....	41
Table G13. LGDS S2 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	45
Table G14. LGDS S2 Winter 2023: Frequency and Duration of Constraints	47
Table G15. LGDS S2 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	54
Table G16. LGDS S2 Summer 2023: Frequency and Duration of Constraints.....	55
Table G17. RGDS S3 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	60
Table G18. RGDS S3 Winter 2018: Frequency and Duration of Constraints.....	62
Table G19. RGDS S3 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation.....	69
Table G20. RGDS S3 Summer 2018: Frequency and Duration of Constraints.....	70
Table G21. RGDS S3 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	74
Table G22. RGDS S3 Winter 2023: Frequency and Duration of Constraints.....	76
Table G23. RGDS S3 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation.....	83
Table G24. RGDS S3 Summer 2023: Frequency and Duration of Constraints.....	84

1 S2: APPLY RGDS NATURAL GAS PRICES TO ALTERNATIVE GAS DEMAND SCENARIOS

1.1 HGDS S2 WINTER 2018

Figure G1 summarizes the affected generation during the Winter 2018 peak hour by PPA.

Figure G1. HGDS S2 Winter 2018: Peak Hour Affected Generation

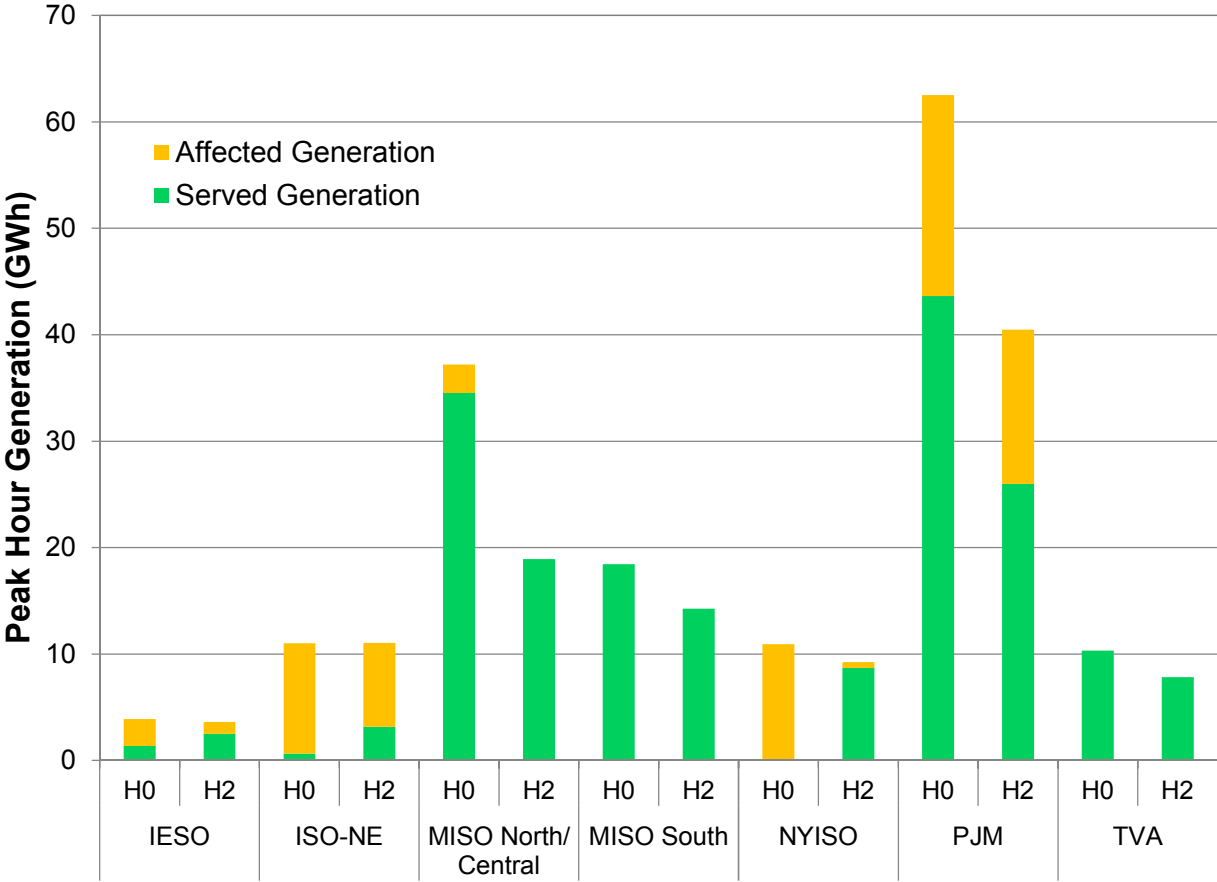


Figure G2 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G1.

Figure G2. HGDS S2 Winter 2018: Locations with Peak Hour Affected Generation

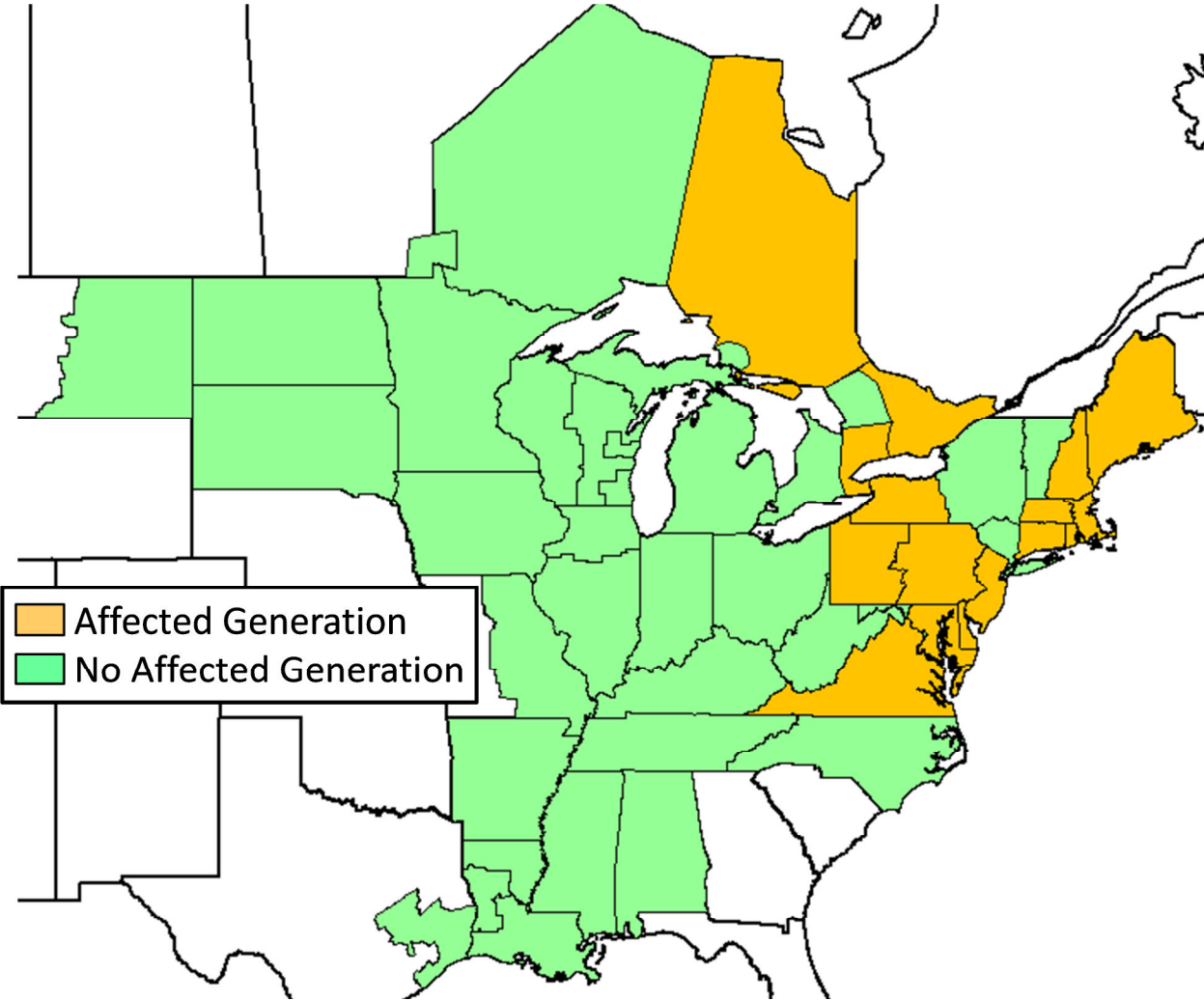


Table G1. HGDS S2 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	20.7	2,726
Delaware	1.5	194
Maine	9.5	1,292
Maryland Eastern	5.0	539
Massachusetts Eastern	7.2	1,020
Massachusetts Western	2.7	361
New Hampshire	9.0	1,237
New Jersey	15.2	1,871
New York Western	3.6	520
Ontario (CDA)	0.5	56
Ontario (EDA)	7.7	944
Ontario (NDA)	0.8	114
Pennsylvania Eastern	48.7	6,575
Pennsylvania Western	6.7	961
Rhode Island	9.6	1,243
Virginia	32.7	4,351

Figure G3 shows the constrained pipeline segments, in red, that result in the affected generation shown in Table G1 during the Winter 2018 peak hour.

Figure G3. HGDS S2 Winter 2018: Peak Hour Constraints

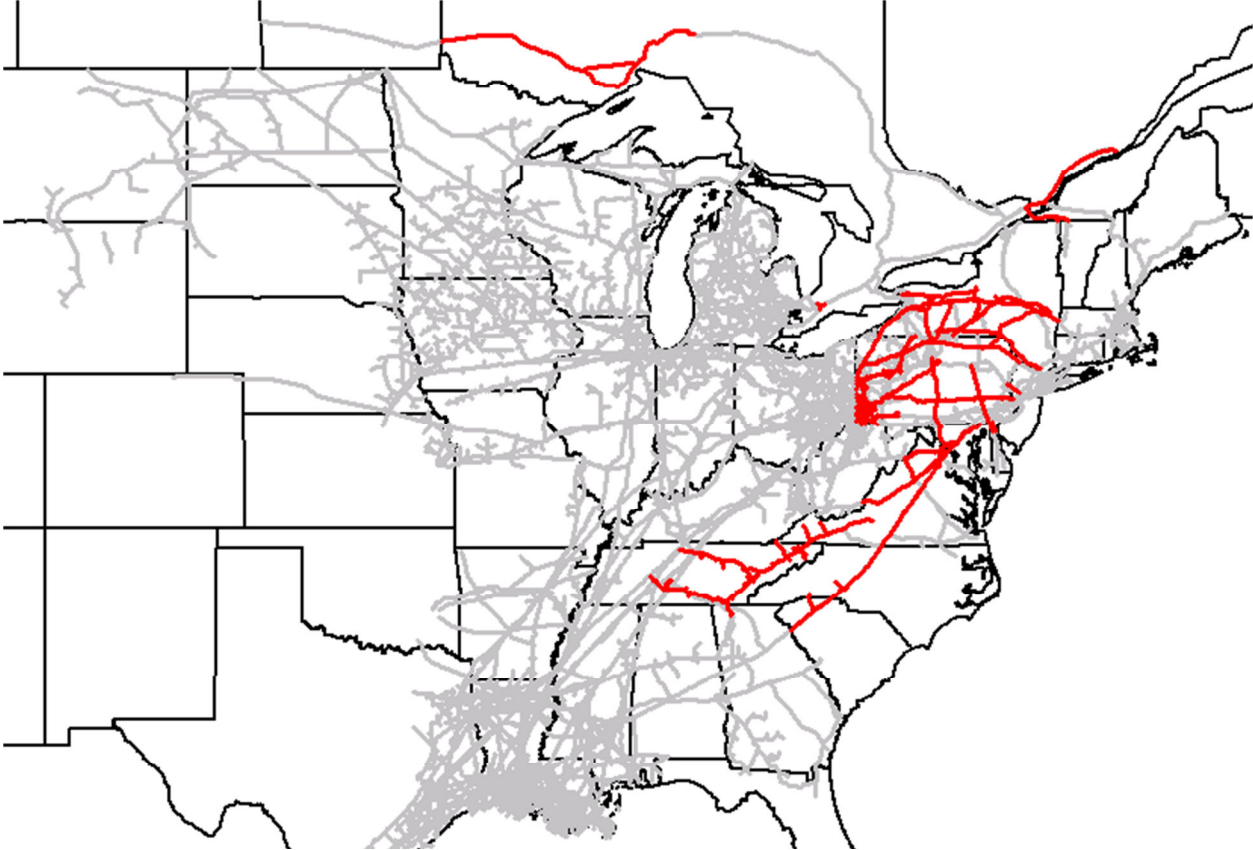


Table G2 summarizes the results of the frequency and duration analysis.

Table G2. HGDS S2 Winter 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	11	1	6	27
Columbia Gas W PA/NY	15	1	5	29
Constitution	2	31	59	90
Dominion Eastern NY	1	4	4	4
Dominion Western NY	6	12	15	34
Dominion Southeast	7	1	16	29
East Tennessee Mainline	9	1	3	14
Eastern Shore	14	1	9	56
Empire Mainline	1	3	3	3
Millennium	8	1	32	65
NB/NS Supply	13	1	20	52
Tennessee Z4 PA	8	1	14	32
Tennessee Z5 NY	3	1	59	89
Texas Eastern M2 PA South	5	1	53	85
Texas Eastern M3 North	12	1	15	61
TransCanada Ontario West	3	1	5	7
TransCanada Quebec	7	1	14	30
Transco Leidy Atlantic	10	1	23	66
Transco Z5	4	1	2	5
Transco Z6 Leidy to 210	5	2	47	80
Union Gas Dawn	2	1	3	4

1.1.1 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 H1 and Figure H2 relative to the capacity of the segment.

1.1.2 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 H3 and Figure H4 relative to the capacity of the segment

1.1.3 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 in New York and Connecticut. 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 H5 and Figure H6 relative to the capacity of the segment.

1.1.4 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 H7 and Figure H8 relative to the capacity of the segment.

1.1.5 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 H9 and Figure H10 relative to the capacity of the segment.

1.1.6 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 H11 and Figure H12 relative to the capacity of the segment.

1.1.7 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 H13 and Figure H14 relative to the capacity of the segment.

1.1.8 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 H15 and Figure H16 relative to the capacity of the segments.

1.1.9 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 H17 and Figure H18 relative to the capacity of the segment.

1.1.10 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, particularly 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 H19 and Figure H20 relative to the capacity of the segment.

1.1.11 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 24 MDth/d in New Brunswick and approximately 599 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H21 and Figure H22 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

1.1.12 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H23 and Figure H24 relative to the capacity of the segment.

1.1.13 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 H25 and Figure H26 relative to the capacity of the segment.

1.1.14 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H27 and Figure H28 relative to the capacity of the segment.

1.1.15 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 the 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, as well as 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 peak hour gas demand downstream of the constrained segment are shown in Figure H29 and Figure H30 relative to the capacity of the segment.

1.1.16 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 H31 and Figure H32 relative to the capacity of the segment.

1.1.17 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H33 and Figure H34 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

1.1.18 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 H35 and Figure H36 relative to the capacity of the segment.

1.1.19 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 H37 and Figure H38 relative to the capacity of the segment.

1.1.20 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H39 and Figure H40 relative to the capacity of the segment.

1.1.21 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 peak hour gas demand downstream of the constrained segment are shown in Figure H41 and Figure H42 relative to the capacity of the segment.

1.2 HGDS S2 SUMMER 2018

Figure G4 summarizes the affected generation during the Summer 2018 peak hour by PPA.

Figure G4. HGDS S2 Summer 2018: Peak Hour Affected Generation

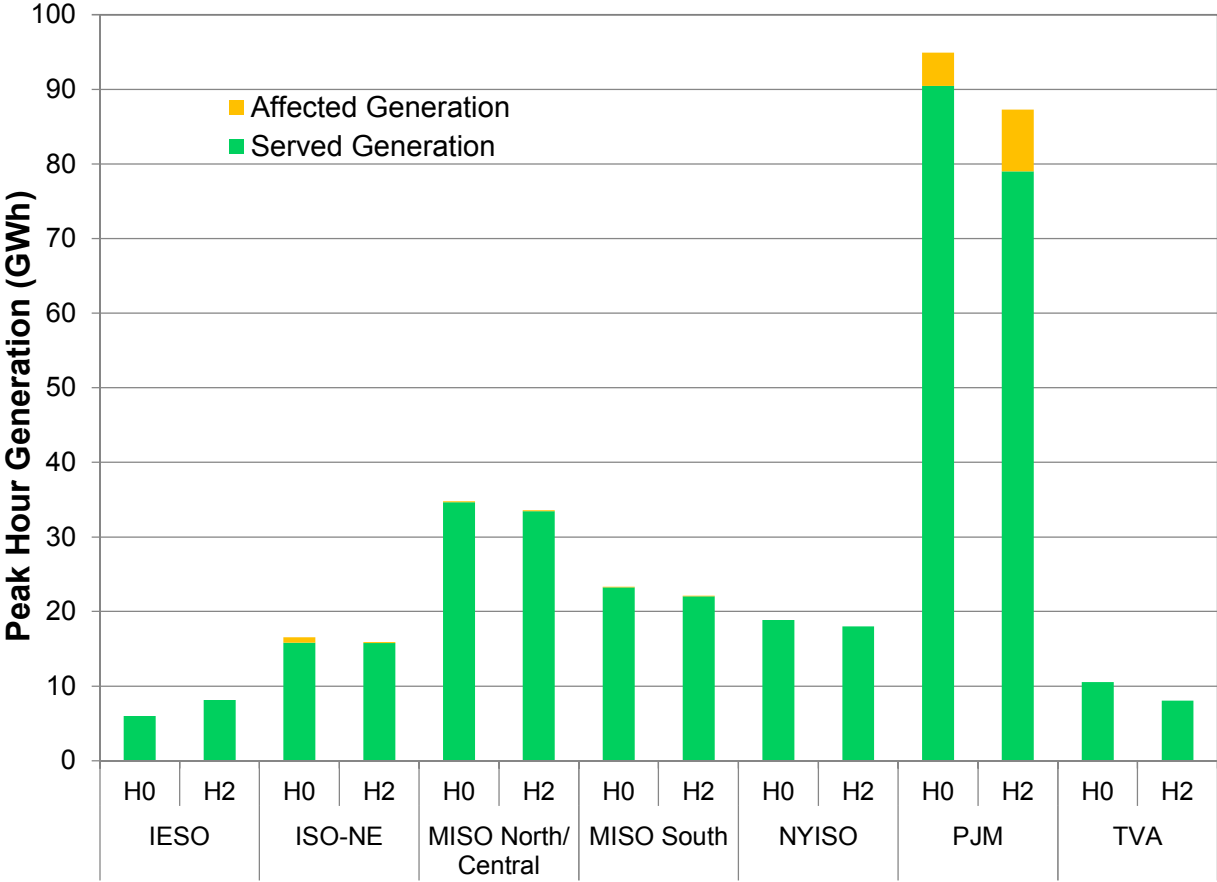


Figure G5 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G3.

Figure G5. HGDS S2 Summer 2018: Locations with Peak Hour Affected Generation

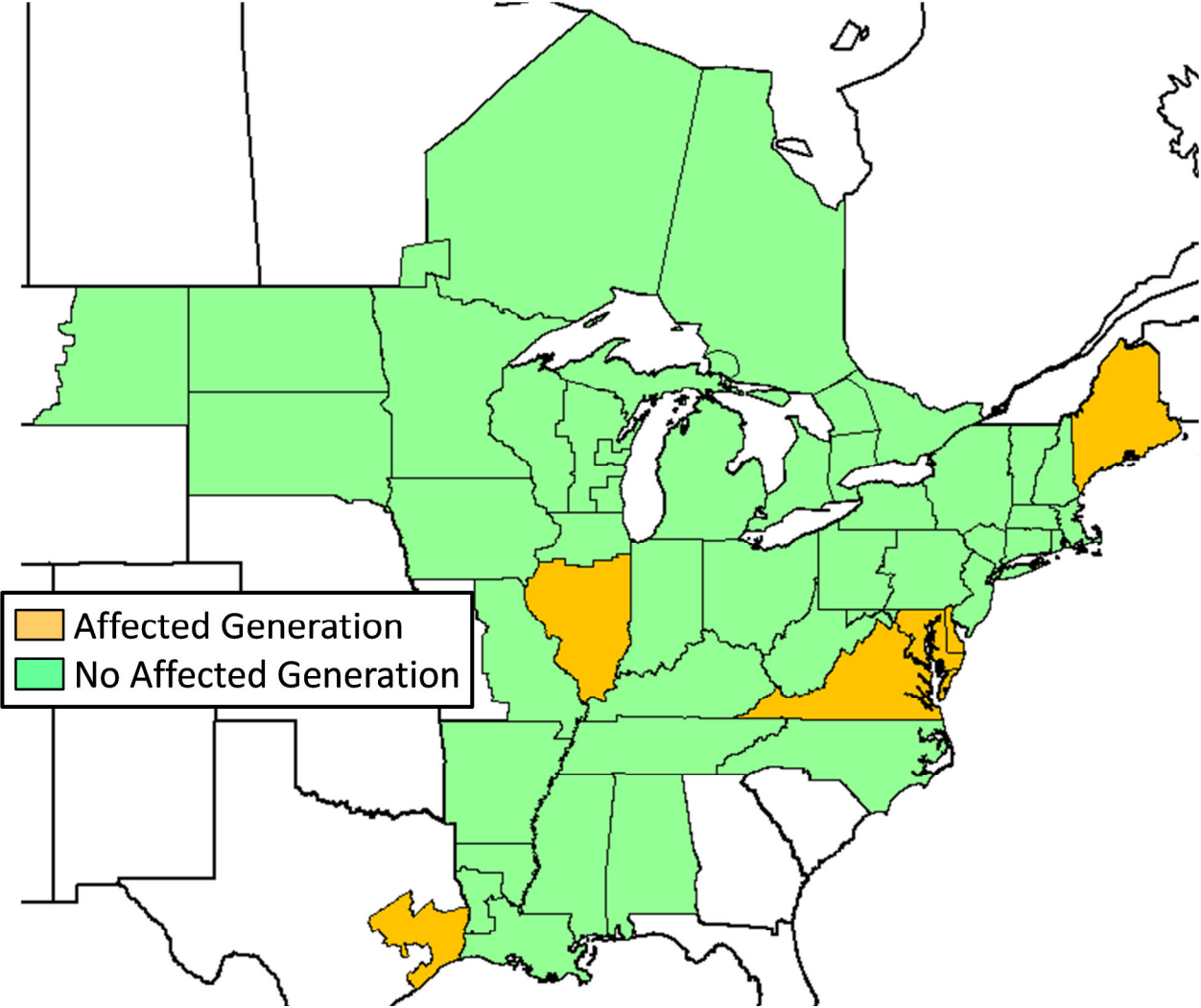


Table G3. HGDS S2 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.4	1,162
Illinois Southern	1.0	112
Maine	0.6	67
Maryland Eastern	19.5	2,634
Texas East (SERC)	0.5	70
Virginia	33.7	4,453

Figure G6 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G4 during the Summer 2018 peak hour.

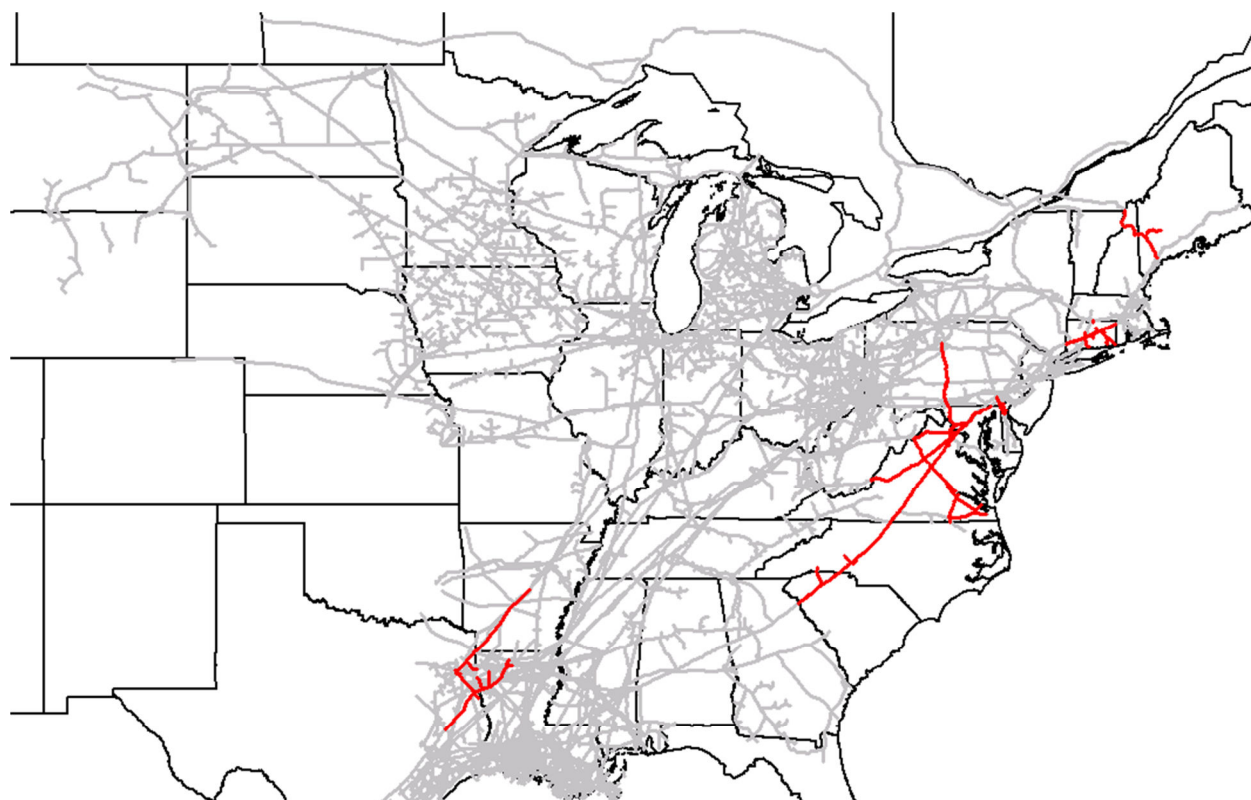
Figure G6. HGDS S2 Summer 2018: Peak Hour Constraints

Table G4 summarizes the results of the frequency and duration analysis.

Table G4. HGDS S2 Summer 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Algonquin CT	5	1	3	12
Columbia Gas VA/MD	2	1	1	2
Dominion Southeast	3	1	3	6
Eastern Shore	7	1	7	28
NB/NS Supply	3	1	39	72
PNGTS N of Westbrook	10	1	3	19
Texas Eastern ETX	8	1	6	18
Transco Z5	7	1	4	14

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 H43 and Figure H44 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 is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d for 2023 as compared with 2018. The locations of the potentially affected 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 H45 and Figure H46 relative to the capacity of the segment.

1.2.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase over the capacity modeled for the summer 2018 of 15 MDth/d. The locations of the potentially affected 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 H47 and Figure H48 relative to the capacity of the segment.

1.2.4 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d, the same as the capacity modeled for the summer of 2018. The locations of the potentially affected 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 H49 and Figure H50 relative to the capacity of the segments.

1.2.5 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H51 and Figure H52 relative to the total production capacity.

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 H53 and Figure H54 relative to the capacity of the segment.

1.2.7 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment is modeled with a capacity of 623 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected 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 H55 and Figure H56 relative to the capacity of the segment.

1.2.8 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected generators are shown in Figure 98 of the report. Generators located in outside the Study Region 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 H57 and Figure H58 relative to the capacity of the segment.

1.3 HGDS S2 WINTER 2023

Figure G7 summarizes the affected generation during the Winter 2023 peak hour by PPA.

Figure G7. HGDS S2 Winter 2023: Peak Hour Affected Generation

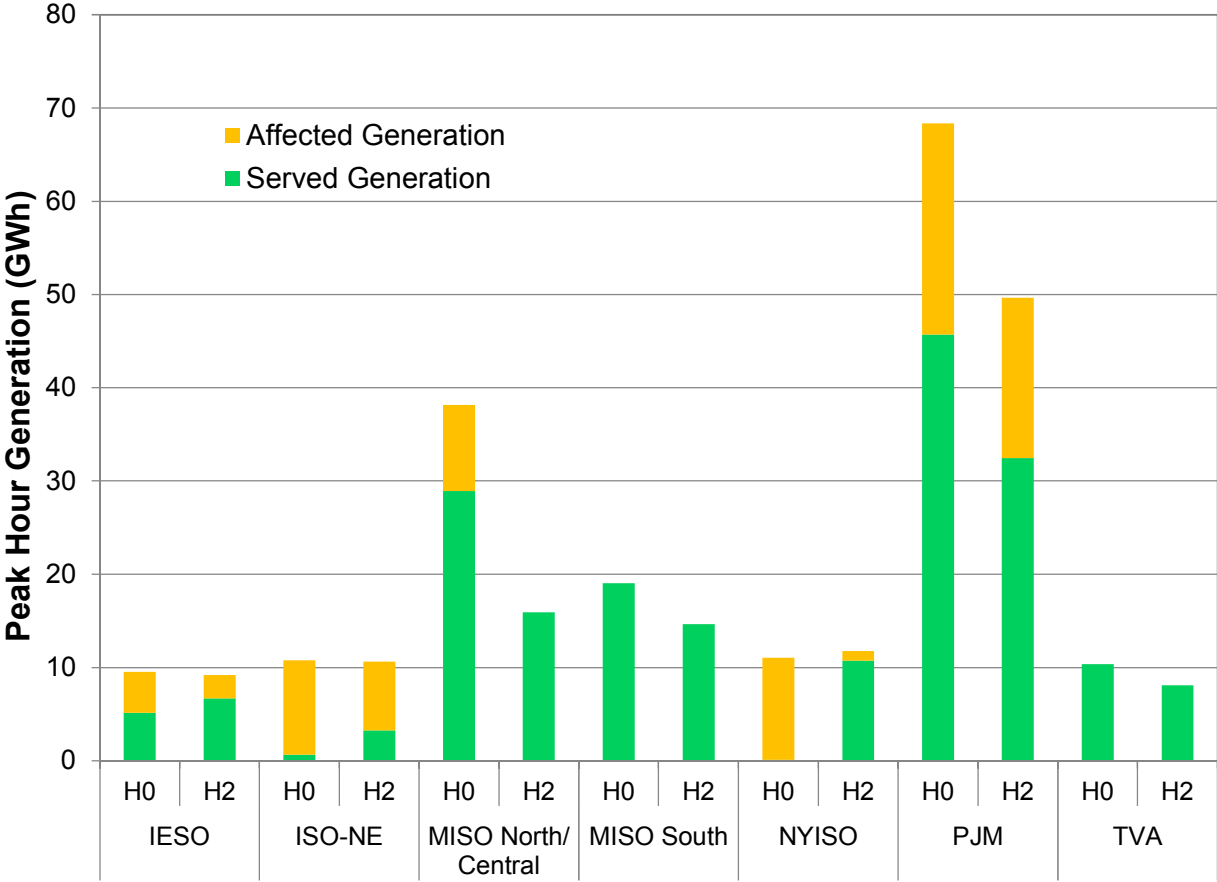


Figure G8 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G5.

Figure G8. HGDS S2 Winter 2023: Locations with Peak Hour Affected Generation

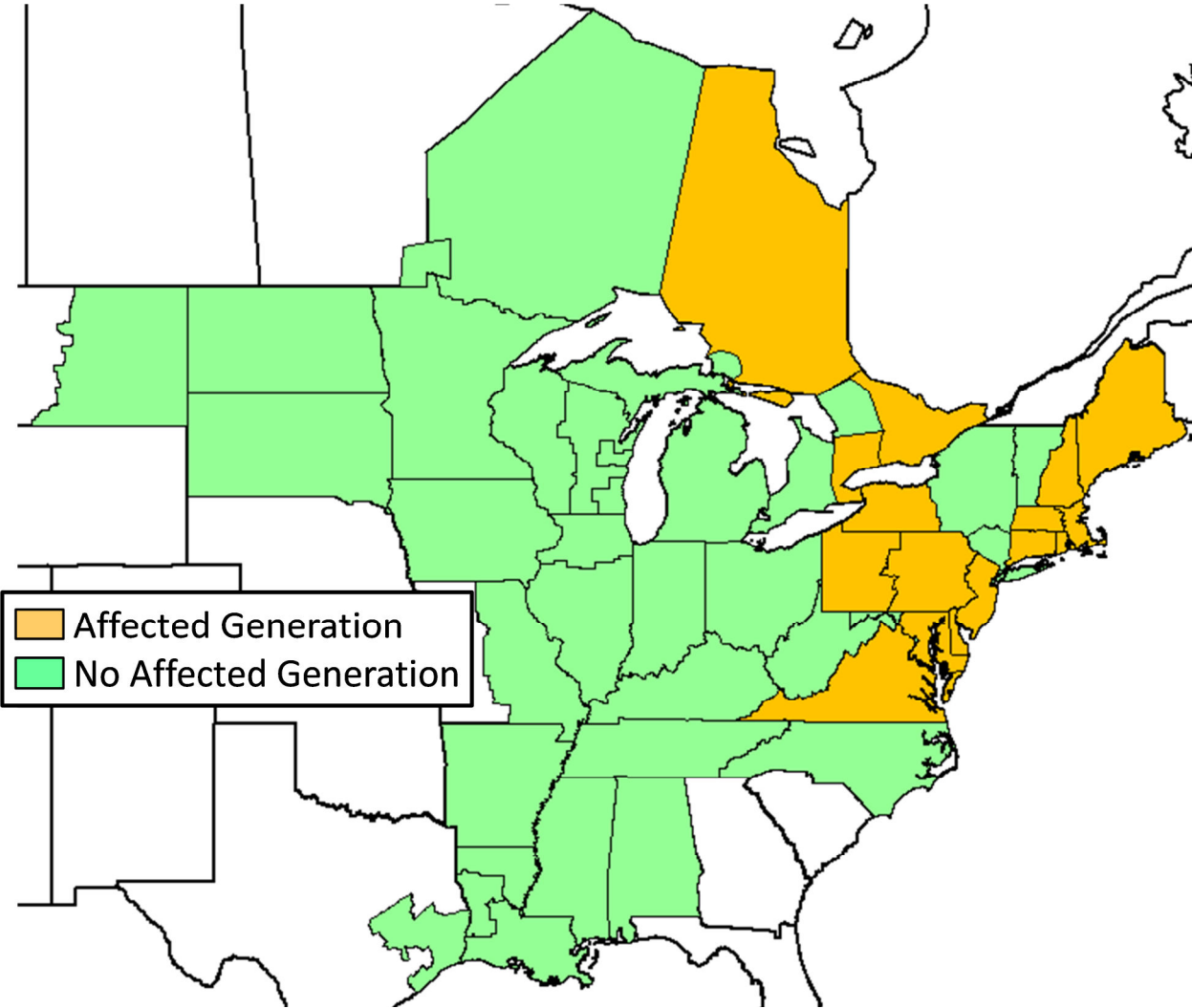


Table G5. HGDS S2 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	13.6	1,894
Delaware	4.9	569
Maine	12.7	1,799
Maryland Eastern	5.0	539
Massachusetts Eastern	8.6	1,201
Massachusetts Western	2.7	361
New Hampshire	12.6	1,757
New Jersey	22.4	2,614
New York City	3.6	520
New York Western	3.6	520
Ontario (CDA)	0.5	56
Ontario (EDA)	17.8	2,350
Ontario (NDA)	0.8	114
Pennsylvania Eastern	51.5	6,906
Pennsylvania Western	2.0	288
Rhode Island	2.7	361
Virginia	49.5	6,255

Figure G9 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G7 during the Winter 2023 peak hour.

Figure G9. HGDS S2 Winter 2023: Peak Hour Constraints

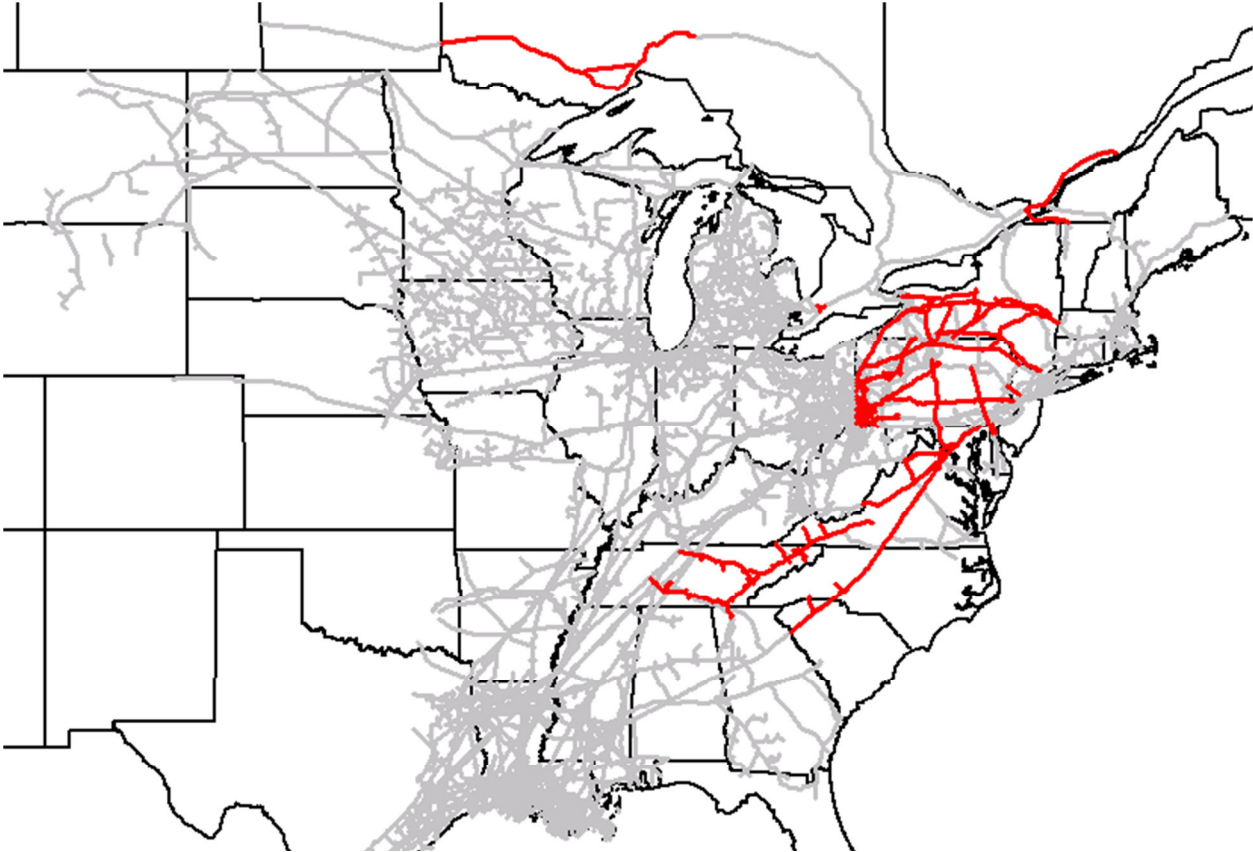


Table G6 summarizes the results of the frequency and duration analysis.

Table G6. HGDS S2 Winter 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	7	1	52	79
Columbia Gas W PA/NY	9	1	16	75
Constitution	2	31	59	90
Dominion Eastern NY	7	1	9	27
Dominion Western NY	6	1	15	36
Dominion Southeast	3	1	54	86
East Tennessee Mainline	6	1	8	22
Eastern Shore	9	1	32	80
Empire Mainline	4	1	13	25
Millennium	3	1	59	89
NB/NS Supply	7	1	5	13
Tennessee Z4 PA	7	1	14	34
Tennessee Z5 NY	3	1	59	89
Texas Eastern M2 PA South	5	1	55	86
Texas Eastern M3 North	10	1	10	41
TransCanada Ontario West	5	1	11	17
TransCanada Quebec to PNGTS	2	31	59	90
Transco Leidy Atlantic	10	1	27	63
Transco Z5	9	1	2	11
Transco Z6 Leidy to 210	5	1	55	86
Union Gas Dawn	5	1	5	12

1.3.1 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 H59 and Figure H60 relative to the capacity of the segment.

1.3.2 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 H61 and Figure H62 relative to the capacity of the segment

1.3.3 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 in New York and Connecticut. 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 H63 and Figure H64 relative to the capacity of the segment.

1.3.4 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 H65 and Figure H66 relative to the capacity of the segment.

1.3.5 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 H67 and Figure H68 relative to the capacity of the segment.

1.3.6 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 H69 and Figure H70 relative to the capacity of the segment.

1.3.7 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 H71 and Figure H72 relative to the capacity of the segment.

1.3.8 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 H73 and Figure H74 relative to the capacity of the segments.

1.3.9 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 H75 and Figure H76 relative to the capacity of the segment.

1.3.10 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, particularly 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 H77 and Figure H78 relative to the capacity of the segment.

1.3.11 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 24 MDth/d in New Brunswick and approximately 599 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H79 and Figure H80 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

1.3.12 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H81 and Figure H82 relative to the capacity of the segment.

1.3.13 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 H83 and Figure H84 relative to the capacity of the segment.

1.3.14 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H85 and Figure H86 relative to the capacity of the segment.

1.3.15 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 the 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, as well as

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 peak hour gas demand downstream of the constrained segment are shown in Figure H87 and Figure H88 relative to the capacity of the segment.

1.3.16 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 H89 and Figure H90 relative to the capacity of the segment.

1.3.17 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H91 and Figure H92 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

1.3.18 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 H93 and Figure H94 relative to the capacity of the segment.

1.3.19 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 H95 and Figure H96 relative to the capacity of the segment.

1.3.20 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H97 and Figure H98 relative to the capacity of the segment.

1.3.21 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 peak hour gas demand downstream of the constrained segment are shown in Figure H99 and Figure H100 relative to the capacity of the segment.

1.4 HGDS S2 SUMMER 2023

Figure G10 summarizes the affected generation during the Summer 2023 peak hour by PPA.

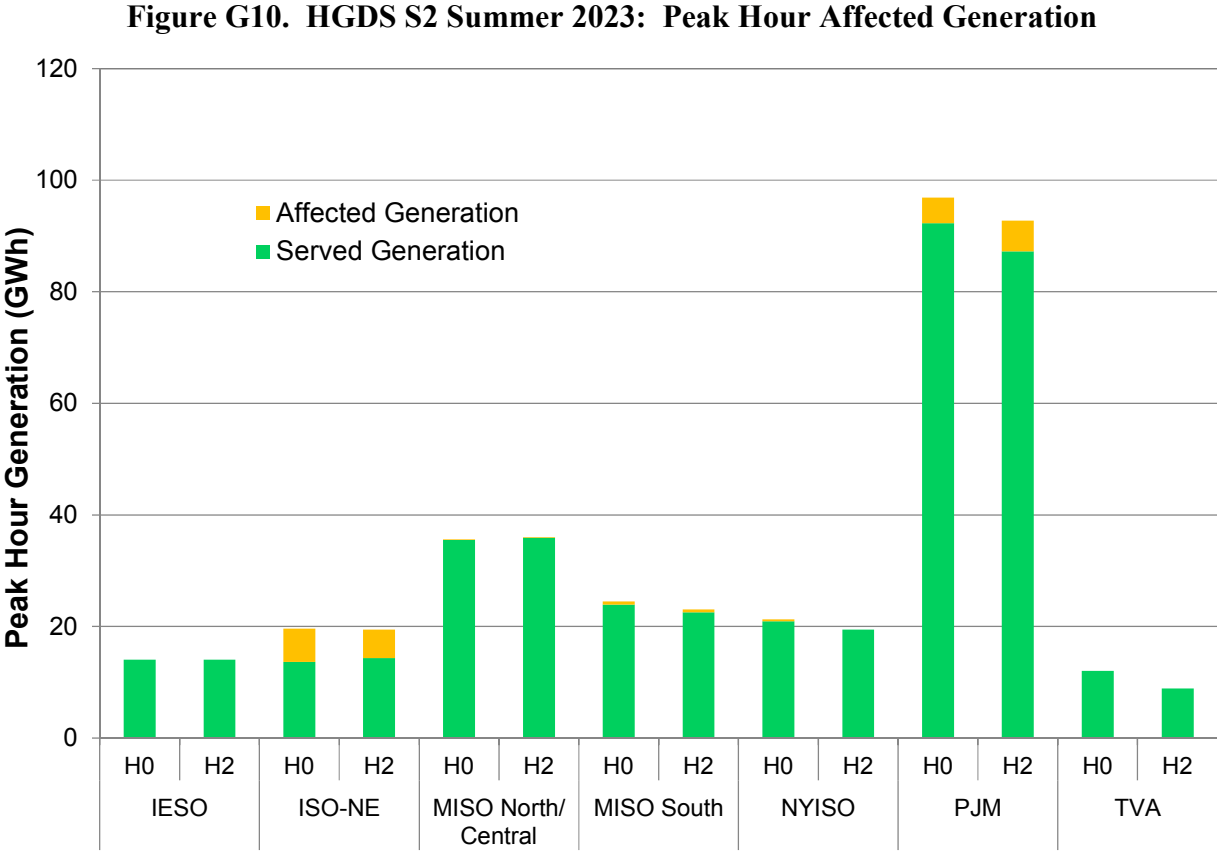


Figure G11 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G7.

Figure G11. HGDS S2 Summer 2023: Locations with Peak Hour Affected Generation

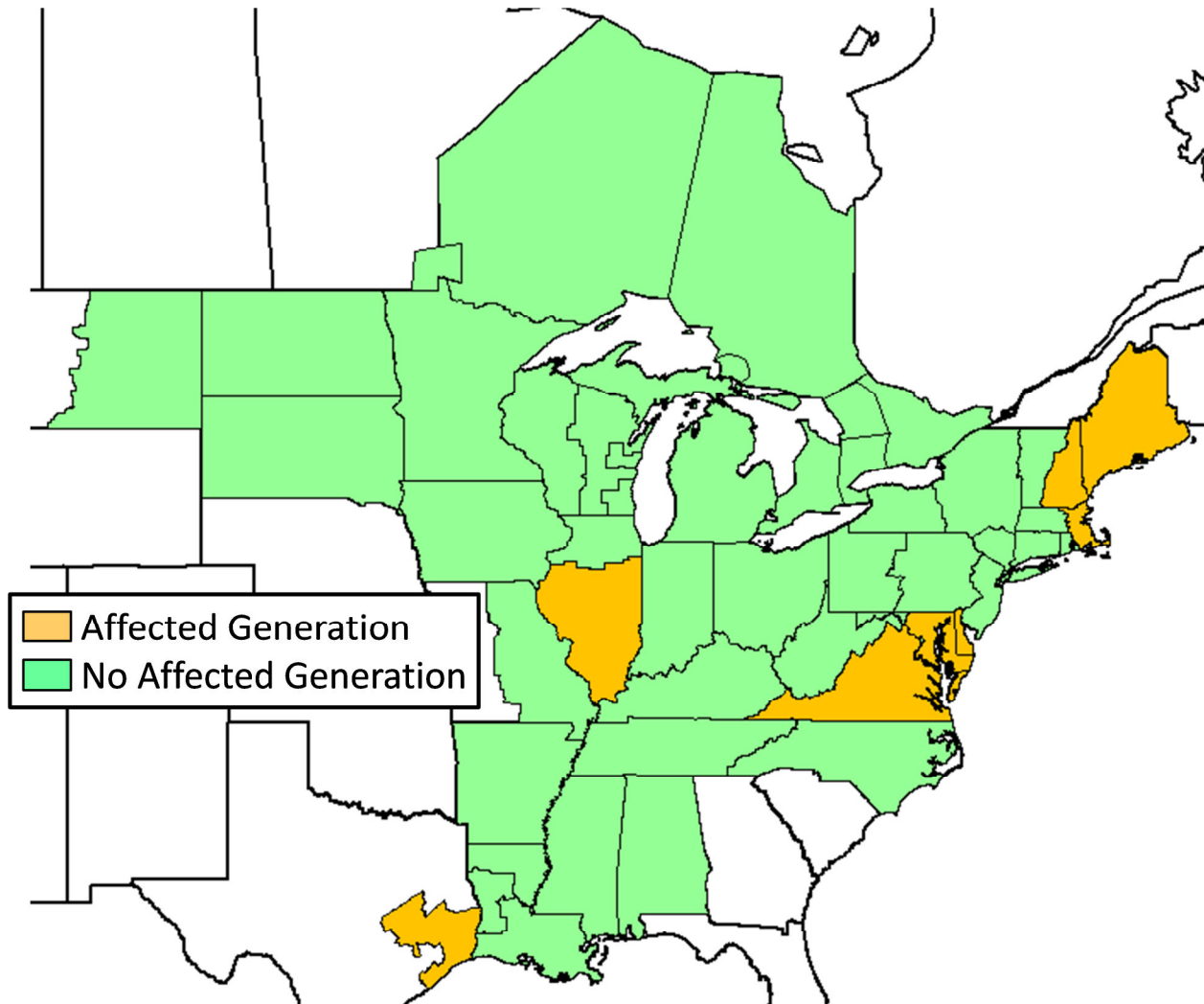


Table G7. HGDS S2 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.6	1,188
Illinois Southern	1.0	112
Maine	17.2	2,318
Maryland Eastern	23.6	3,353
Massachusetts Eastern	8.1	1,108
New Hampshire	11.5	1,600
Texas East (SERC)	3.6	511
Virginia	8.4	936

Figure G12 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G10 during the Summer 2018 peak hour.

Figure G12. HGDS S2 Summer 2023: Peak Hour Constraints

Table G8 summarizes the results of the frequency and duration analysis.

Table G8. HGDS S2 Summer 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Algonquin CT	6	1	8	33
Columbia Gas VA/MD	2	1	4	5
Dominion Southeast	8	1	11	39
Eastern Shore	2	1	9	35
NB/NS Supply	7	1	33	74
PNGTS N of Westbrook	9	1	23	73
Tennessee Z5 NY	1	92	92	92
Texas Eastern ETX	8	1	10	25
Transco Z5	7	1	6	23

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 H101 and Figure H102 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 is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d for 2023 as compared with 2018. The locations of the potentially affected 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 H103 and Figure H104 relative to the capacity of the segment.

1.4.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase over the capacity modeled for the summer 2018 of 15 MDth/d. The locations of the potentially affected 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 H105 and Figure H106 relative to the capacity of the segment.

1.4.4 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d, the same as the capacity modeled for the summer of 2018. The locations of the potentially affected 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 H107 and Figure H108 relative to the capacity of the segments.

1.4.5 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H109 and Figure H110 relative to the total production capacity.

1.4.6 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 H111 and Figure H112 relative to the capacity of the segment.

1.4.7 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 H113 and Figure H114 relative to the capacity of the segment.

1.4.8 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment is modeled with a capacity of 623 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected 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 H115 and Figure H116 relative to the capacity of the segment.

1.4.9 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected generators are shown in Figure 98 of the report. Generators located in outside the Study Region 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 H117 and Figure H118 relative to the capacity of the segment.

1.5 LGDS S2 WINTER 2018

Figure G13 summarizes the affected generation during the Winter 2018 peak hour by PPA.

Figure G13. LGDS S2 Winter 2018: Peak Hour Affected Generation

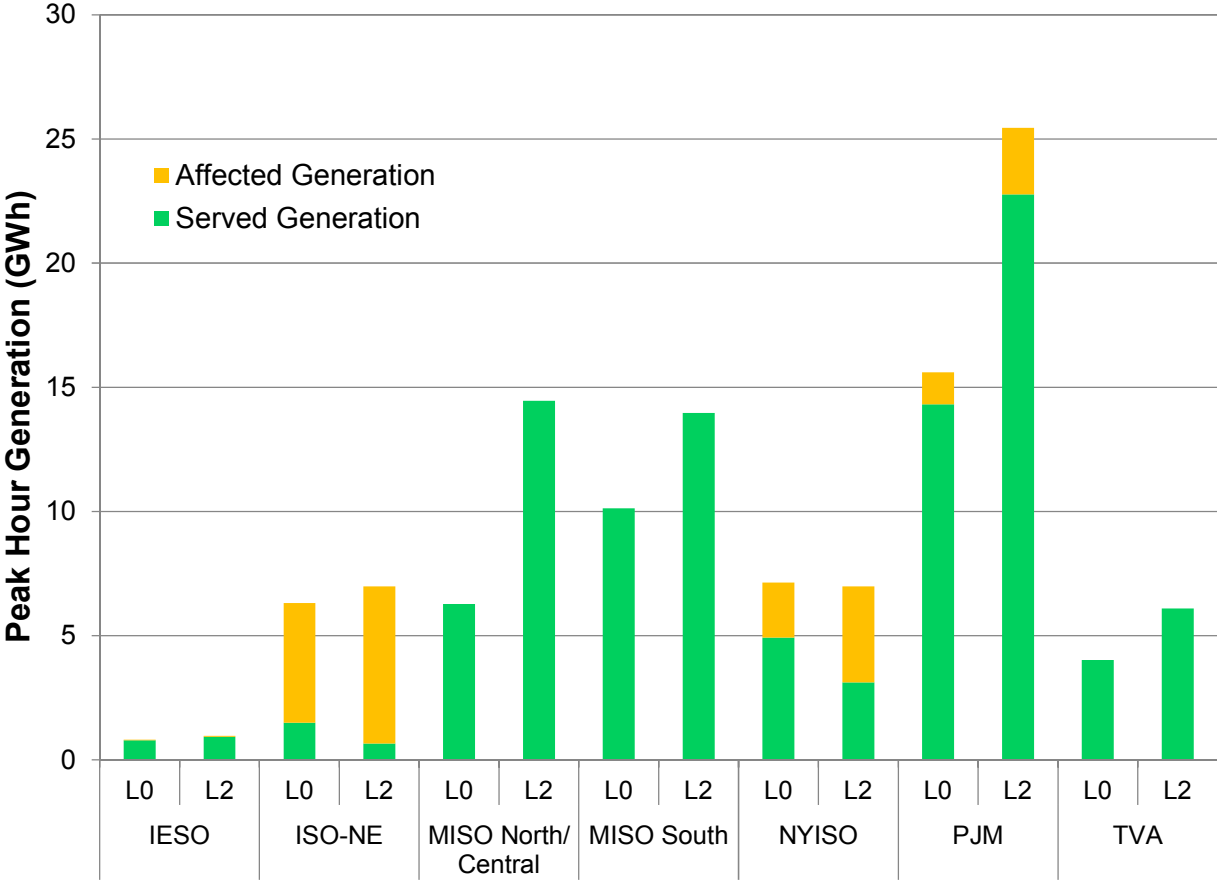


Figure G14 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G9.

Figure G14. LGDS S2 Winter 2018: Locations with Peak Hour Affected Generation

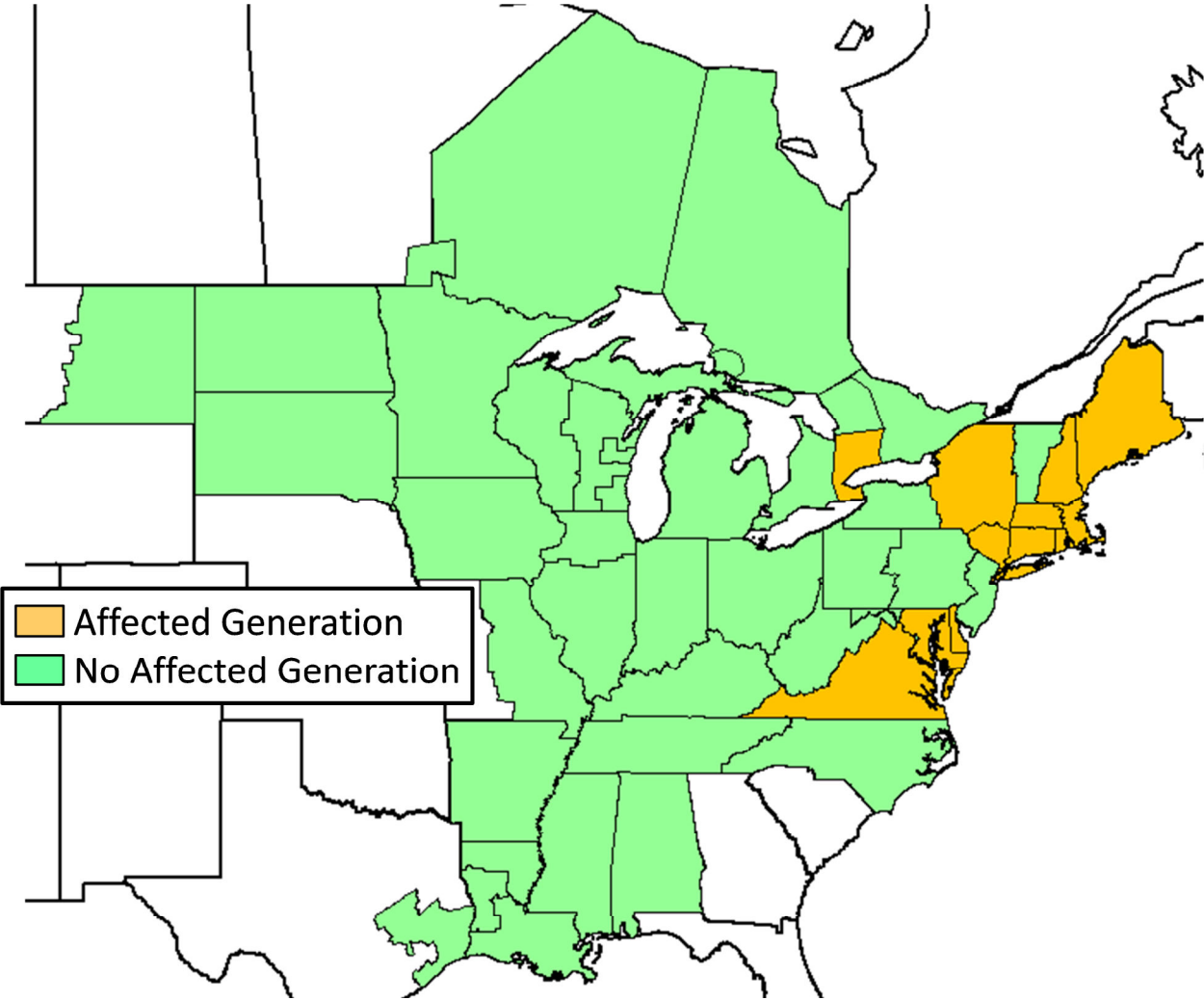


Table G9. LGDS S2 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	11.4	1,431
Delaware	1.6	199
Maine	7.6	1,045
Maryland Eastern	3.6	346
Massachusetts Eastern	12.1	1,673
Massachusetts Western	6.6	893
New Hampshire	4.9	658
New York Central Northern	3.3	461
New York City	14.7	1,752
New York Long Island	10.1	890
New York Southern	5.4	767
Ontario (CDA)	0.2	28
Rhode Island	4.8	631
Virginia	15.5	2,131

Figure G15 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G13 during the Winter 2018 peak hour.

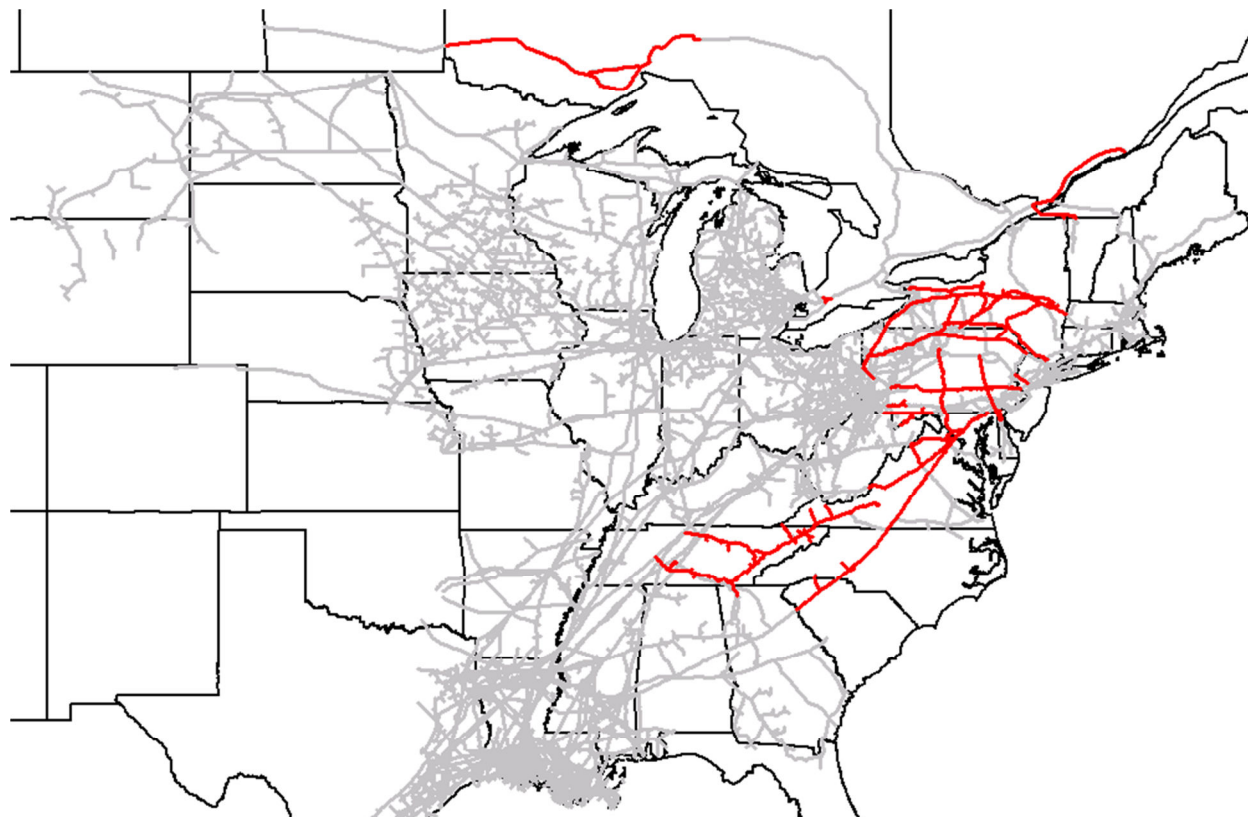
Figure G15. LGDS S2 Winter 2018: Peak Hour Constraints

Table G10 summarizes the results of the frequency and duration analysis.

Table G10. LGDS S2 Winter 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	12	1	5	23
Constitution	3	11	47	89
Dominion Eastern NY	2	1	5	6
Dominion Southeast	3	1	2	4
East Tennessee Mainline	2	1	1	2
Eastern Shore	11	1	8	33
Empire Mainline	1	4	4	4
Millennium	7	1	4	12
NB/NS Supply	15	1	18	52
Tennessee Z4 PA	1	2	2	2
Tennessee Z5 NY	11	1	16	50
Texas Eastern M2 PA South	10	1	13	46
Texas Eastern M3 North	7	2	13	43
TransCanada Ontario West	2	1	2	3
TransCanada Quebec	7	1	13	22
Transco Z5	2	1	2	3
Transco Z6 Leidy to 210	12	1	18	59
Union Gas Dawn	2	1	2	3

1.5.1 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 H119 and Figure H120 relative to the capacity of the segment.

1.5.2 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 in New York and Connecticut. 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 H121 and Figure H122 relative to the capacity of the segment.

1.5.3 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 H123 and Figure H124 relative to the capacity of the segment.

1.5.4 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 H125 and Figure H126 relative to the capacity of the segment.

1.5.5 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 H127 and Figure H128 relative to the capacity of the segment.

1.5.6 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 H129 and Figure H130 relative to the capacity of the segments.

1.5.7 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 H131 and Figure H132 relative to the capacity of the segment.

1.5.8 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, particularly 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 H133 and Figure H134 relative to the capacity of the segment.

1.5.9 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 24 MDth/d in New Brunswick and approximately 599 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H135 and Figure H136 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

1.5.10 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H137 and Figure H138 relative to the capacity of the segment.

1.5.11 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 H139 and Figure H140 relative to the capacity of the segment.

1.5.12 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H141 and Figure H142 relative to the capacity of the segment.

1.5.13 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 the 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, as well as 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 peak hour gas demand downstream of the constrained segment are shown in Figure H143 and Figure H144 relative to the capacity of the segment.

1.5.14 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 H145 and Figure H146 relative to the capacity of the segment.

1.5.15 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H147 and Figure H148 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

1.5.16 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 H149 and Figure H150 relative to the capacity of the segment.

1.5.17 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H151 and Figure H152 relative to the capacity of the segment.

1.5.18 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 peak hour gas demand downstream of the constrained segment are shown in Figure H153 and Figure H154 relative to the capacity of the segment.

1.6 LGDS S2 SUMMER 2018

Figure G16 summarizes the affected generation during the Summer 2018 peak hour by PPA.

Figure G16. LGDS S2 Summer 2018: Peak Hour Affected Generation

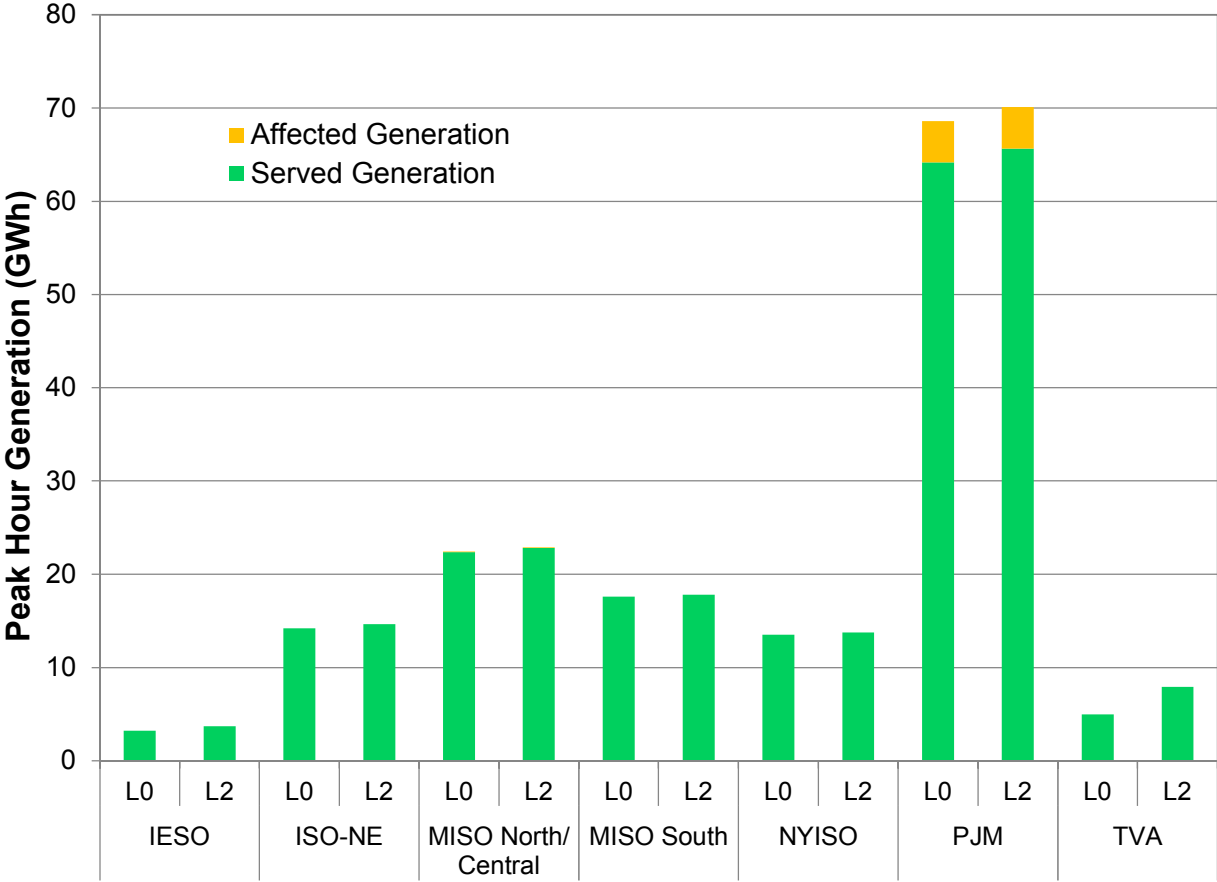


Figure G17 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G11.

Figure G17. LGDS S2 Summer 2018: Locations with Peak Hour Affected Generation

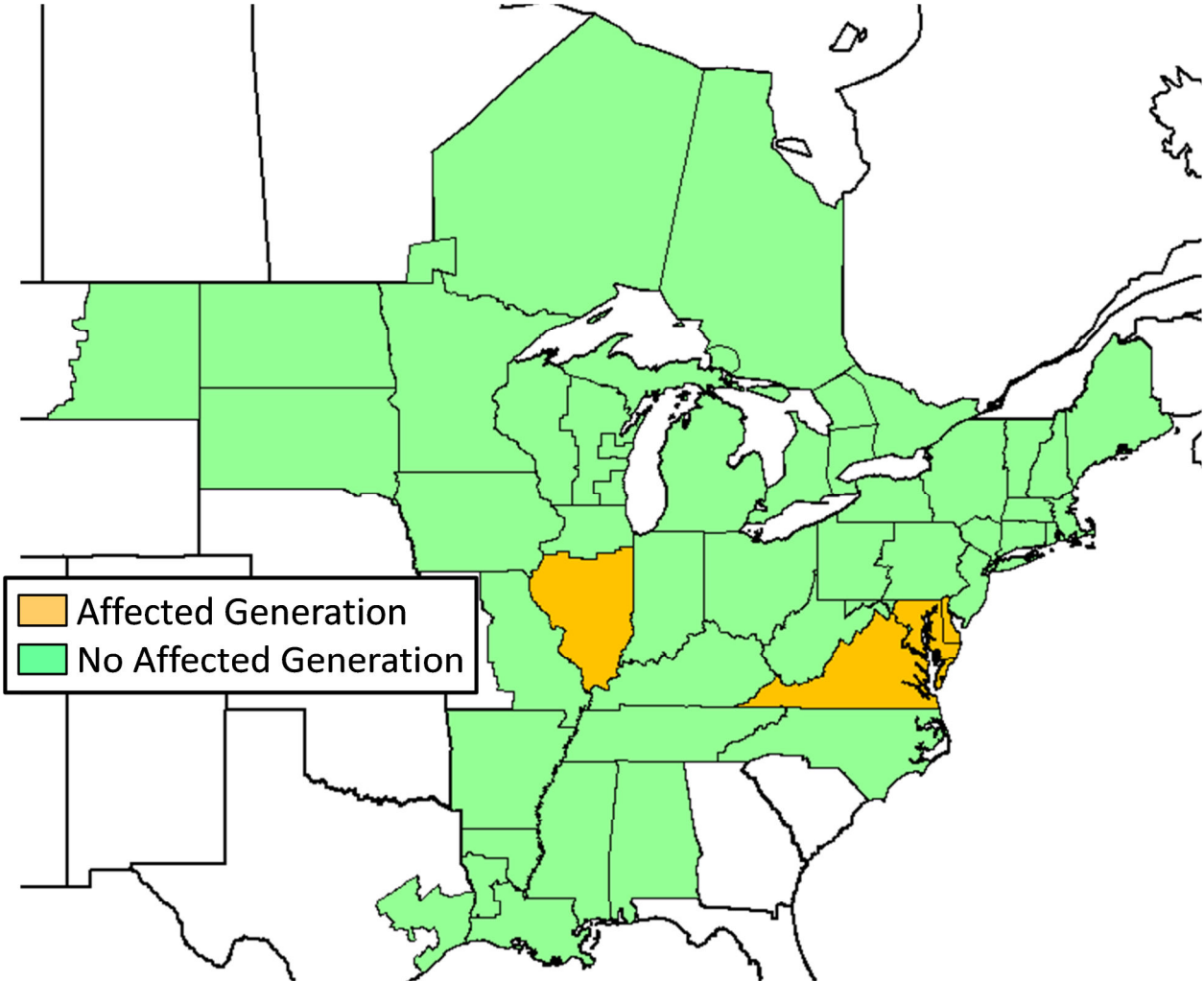


Table G11. LGDS S2 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.3	1,149
Illinois Southern	0.5	50
Maryland Eastern	16.7	2,361
Virginia	8.4	936

Figure G18 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G16 during the Summer 2018 peak hour.

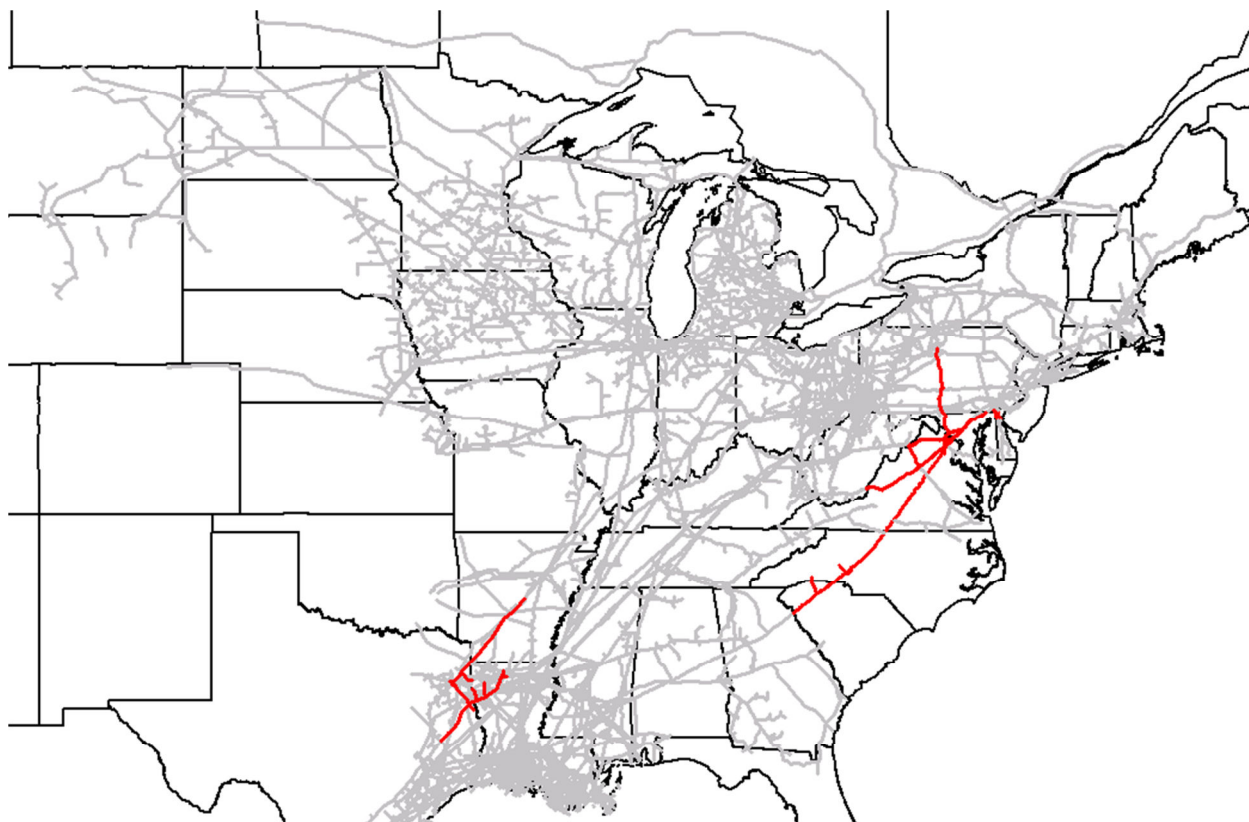
Figure G18. LGDS S2 Summer 2018: Peak Hour Constraints

Table G12 summarizes the results of the frequency and duration analysis.

Table G12. LGDS S2 Summer 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	3	1	1	3
Dominion Southeast	1	1	1	1
Eastern Shore	8	1	7	21
Texas Eastern Zone ETX	7	1	6	15
Transco Z5	4	1	3	7

1.6.1 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 H155 and Figure H156 relative to the capacity of the segment.

1.6.2 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 H157 and Figure H158 relative to the capacity of the segment.

1.6.3 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 H159 and Figure H160 relative to the capacity of the segments.

1.6.4 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 H161 and Figure H162 relative to the capacity of the segment.

1.6.5 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 H163 and Figure H164 relative to the capacity of the segment.

1.7 LGDS S2 WINTER 2023

Figure G19 summarizes the affected generation during the Winter 2023 peak hour by PPA.

Figure G19. LGDS S2 Winter 2023: Peak Hour Affected Generation

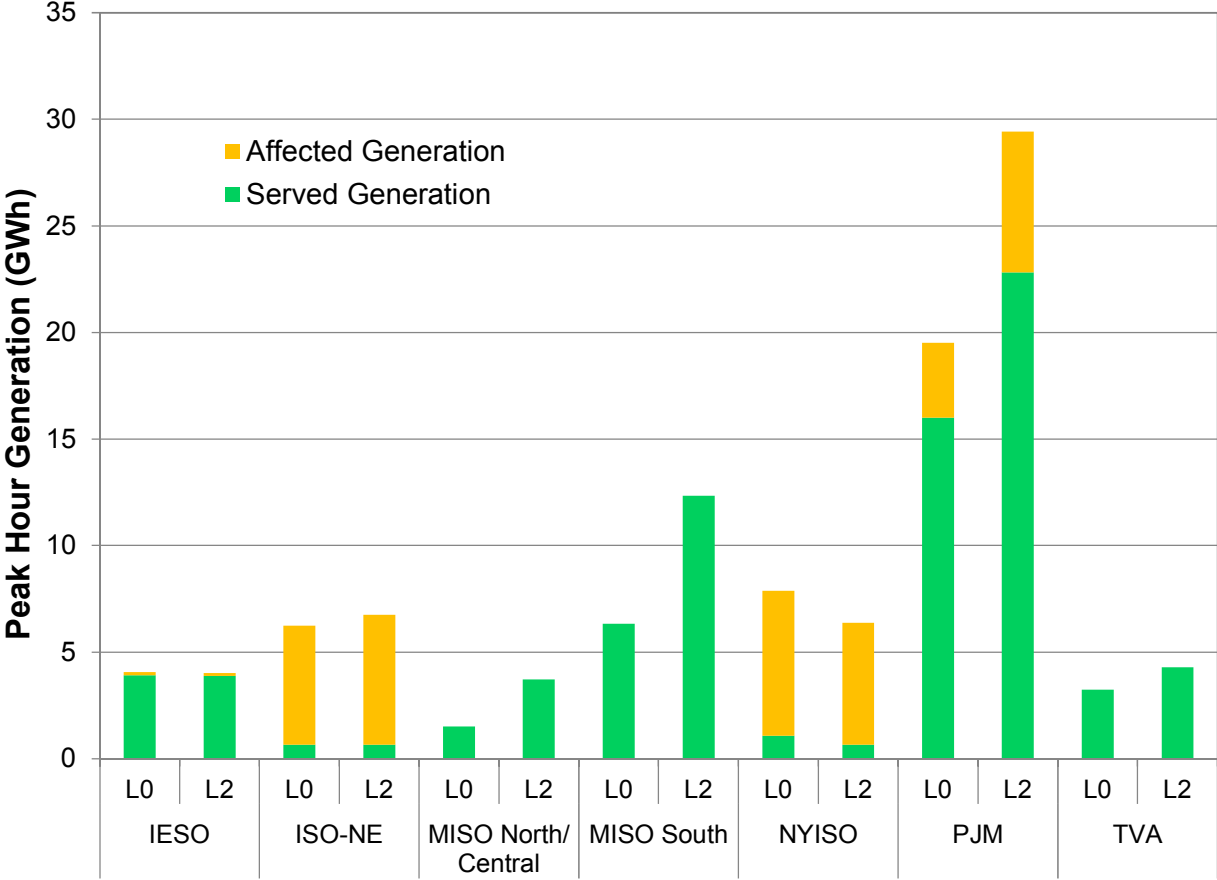


Figure G20 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G13.

Figure G20. LGDS S2 Winter 2023: Locations with Peak Hour Affected Generation

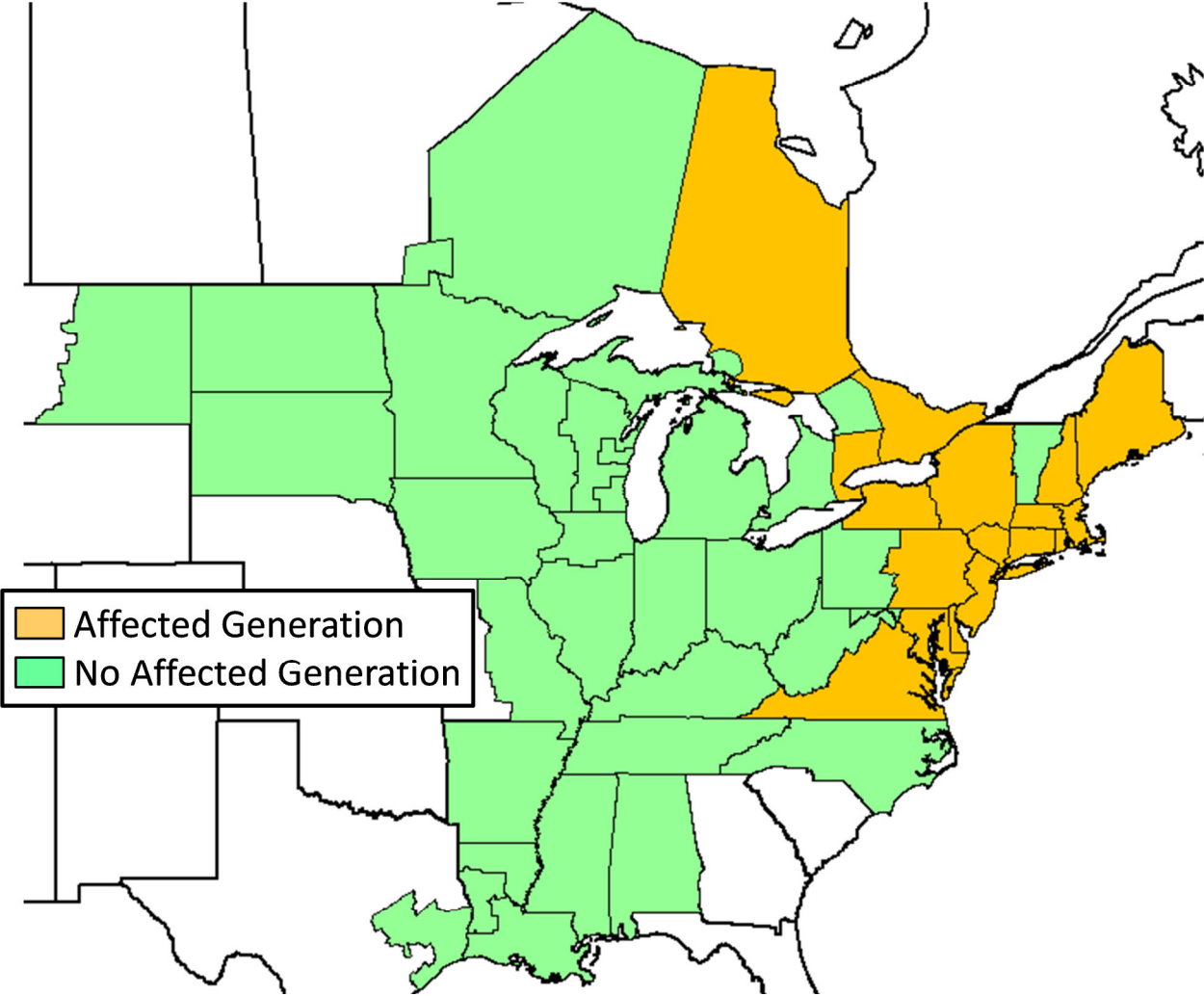


Table G13. LGDS S2 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	9.8	1,345
Delaware	1.3	173
Maine	5.5	759
Maryland Eastern	5.0	539
Massachusetts Eastern	10.9	1,525
Massachusetts Western	7.6	1,008
New Hampshire	9.1	1,207
New Jersey	9.2	1,162
New York Central Northern	24.7	2,798
New York City	8.5	947
New York Long Island	3.3	358
New York Southern	13.8	1,503
New York Western	1.1	126
Ontario (CDA)	0.2	28
Ontario (EDA)	0.1	7
Ontario (NDA)	0.8	114
Pennsylvania Eastern	3.5	494
Rhode Island	1.9	262
Virginia	35.4	4,237

Figure G21 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G19 during the Winter 2023 peak hour.

Figure G21. LGDS S2 Winter 2023: Peak Hour Constraints

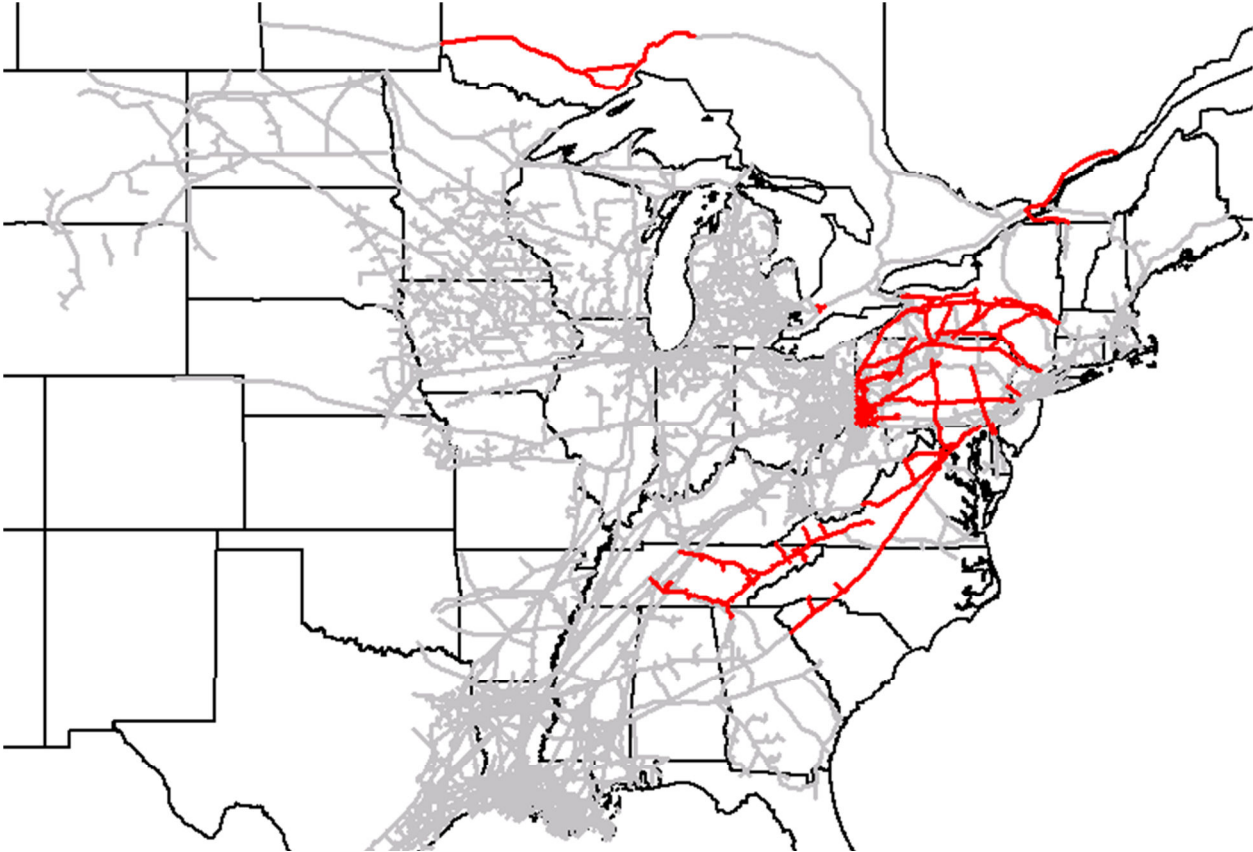


Table G14 summarizes the results of the frequency and duration analysis.

Table G14. LGDS S2 Winter 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	4	2	58	83
Columbia Gas W PA/NY	4	1	6	2
Constitution	2	31	59	90
Dominion Eastern NY	3	2	9	13
Dominion Western NY	1	4	4	4
Dominion Southeast	8	1	32	69
East Tennessee Mainline	3	1	2	5
Eastern Shore	13	1	12	49
Empire Mainline	8	1	13	32
Millennium	2	31	59	90
NB/NS Supply	2	31	59	90
Tennessee Z4 PA	6	1	4	15
Tennessee Z5 NY	5	1	55	86
Texas Eastern M2 PA South	10	1	6	25
Texas Eastern M3 North	8	1	4	22
TransCanada Ontario West	5	1	11	17
TransCanada Quebec	6	1	8	20
Transco Leidy Atlantic				
Transco Z5	5	1	2	6
Transco Z6 Leidy to 210	14	1	4	28
Union Gas Dawn	3	1	2	3

1.7.1 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas’s Virginia/Maryland segment, which is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d over the 2018 capacity. The locations of the potentially affected 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 H165 and Figure H166 relative to the capacity of the segment.

1.7.2 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 H167 and Figure H168 relative to the capacity of the segment

1.7.3 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 in New York and Connecticut. 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 H169 and Figure H170 relative to the capacity of the segment.

1.7.4 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 H171 and Figure H172 relative to the capacity of the segment.

1.7.5 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 H173 and Figure H174 relative to the capacity of the segment.

1.7.6 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase of 15 MDth/d over 2018. 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 H175 and Figure H176 relative to the capacity of the segment.

1.7.7 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 H177 and Figure H178 relative to the capacity of the segment.

1.7.8 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 H179 and Figure H180 relative to the capacity of the segments.

1.7.9 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 H181 and Figure H182 relative to the capacity of the segment.

1.7.10 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, particularly 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 H183 and Figure H184 relative to the capacity of the segment.

1.7.11 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H185 and Figure H186 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

1.7.12 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H187 and Figure H188 relative to the capacity of the segment.

1.7.13 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 H189 and Figure H190 relative to the capacity of the segment.

1.7.14 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H191 and Figure H192 relative to the capacity of the segment.

1.7.15 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 the 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, as well as 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 peak hour gas demand downstream of the constrained segment are shown in Figure H193 and Figure H194 relative to the capacity of the segment.

1.7.16 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 H195 and Figure H196 relative to the capacity of the segment.

1.7.17 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H197 and Figure H198 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

1.7.18 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 H199 and Figure H200 relative to the capacity of the segment.

1.7.19 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 H201 and Figure H202 relative to the capacity of the segment.

1.7.20 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H203 and Figure H204 relative to the capacity of the segment.

1.7.21 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 peak hour gas demand downstream of the constrained segment are shown in Figure H205 and Figure H206 relative to the capacity of the segment.

1.8 LGDS S2 SUMMER 2023

Figure G22 summarizes the affected generation during the Summer 2023 peak hour by PPA.

Figure G22. LGDS S2 Summer 2023: Peak Hour Affected Generation

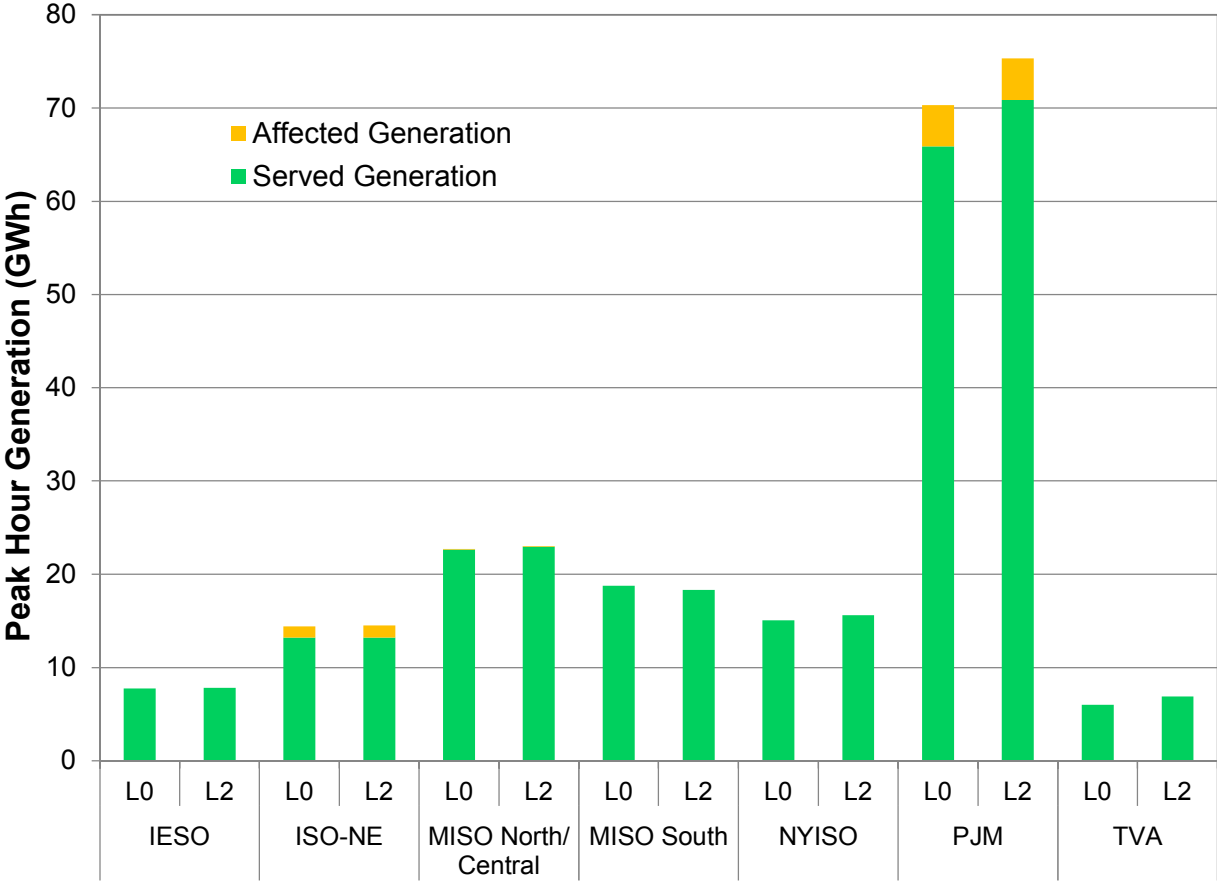


Figure G23 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G15.

Figure G23. LGDS S2 Summer 2023: Locations with Peak Hour Affected Generation

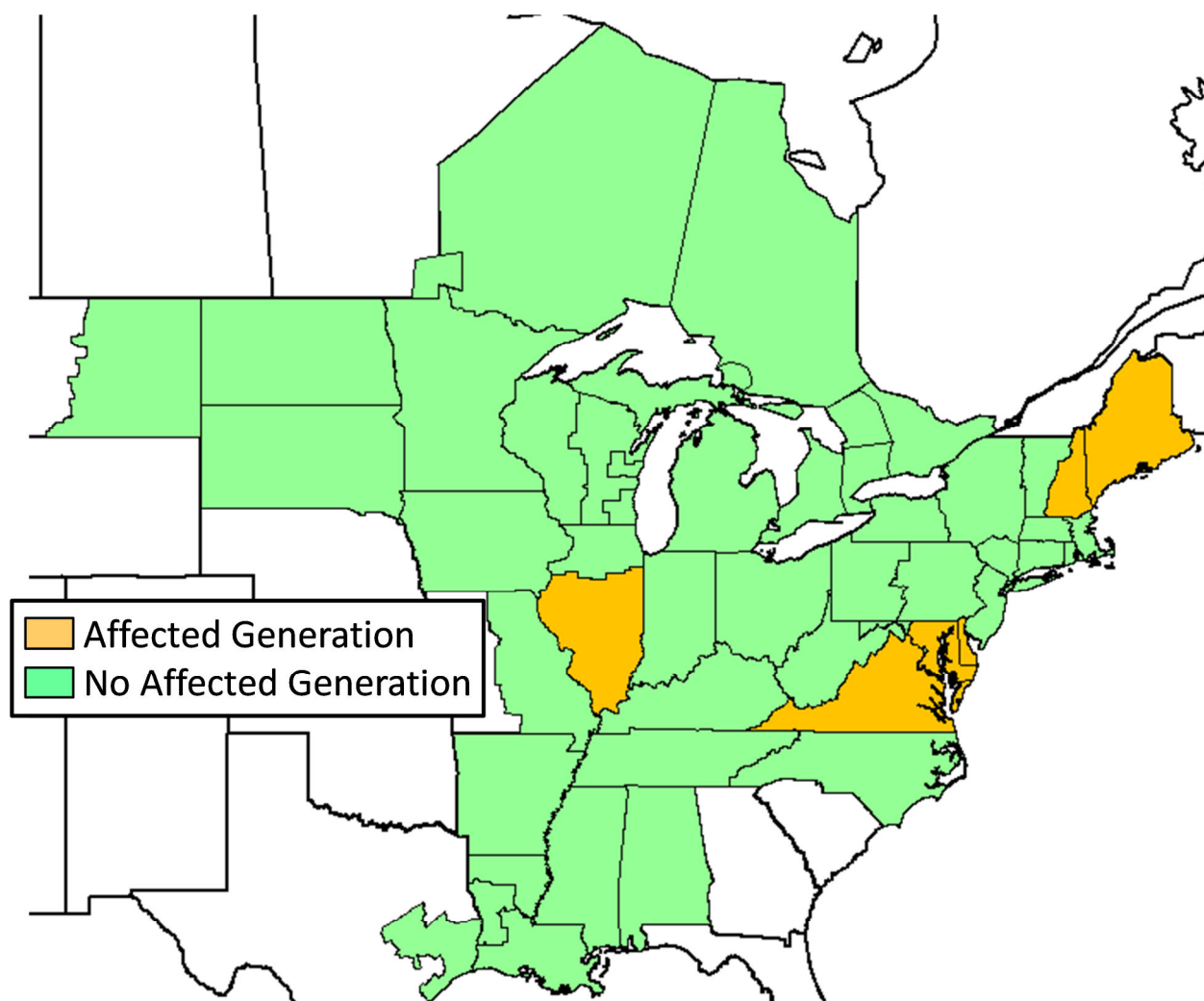


Table G15. LGDS S2 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.3	1,149
Illinois Southern	0.6	67
Maine	4.0	540
Maryland Eastern	16.7	2,361
New Hampshire	6.9	780
Virginia	8.4	936

Figure G24 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G22 during the Summer 2018 peak hour.

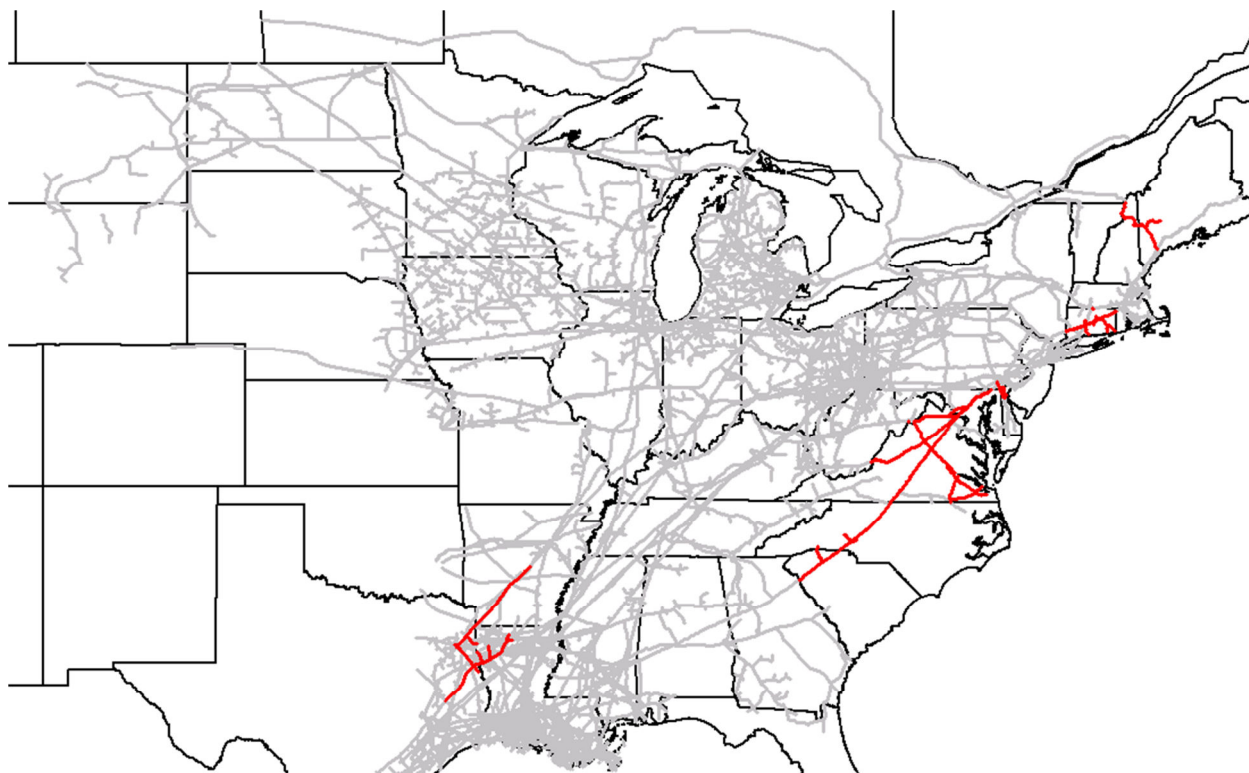
Figure G24. LGDS S2 Summer 2023: Peak Hour Constraints

Table G16 summarizes the results of the frequency and duration analysis.

Table G16. LGDS S2 Summer 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Algonquin Connecticut	4	1	3	9
Columbia Gas VA/MD	3	1	3	5
Dominion Southeast	6	1	8	16
Eastern Shore	7	1	3	15
NB/NS Supply	12	2	8	40
PNGTS N of Westbrook	9	1	3	15
Texas Eastern Zone ETX	5	1	6	13
Transco Z5	7	1	3	15

1.8.1 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 H207 and Figure H208 relative to the capacity of the segment.

1.8.2 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas's Virginia/Maryland segment is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d for 2023 as compared with 2018. The locations of the potentially affected 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 H209 and Figure H210 relative to the capacity of the segment.

1.8.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase over the capacity modeled for the summer 2018 of 15 MDth/d. The locations of the potentially affected 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 H211 and Figure H212 relative to the capacity of the segment.

1.8.4 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d, the same as the capacity modeled for the summer of 2018. The locations of the potentially affected 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 H213 and Figure H214 relative to the capacity of the segments.

1.8.5 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H215 and Figure H216 relative to the total production capacity.

1.8.6 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 H217 and Figure H218 relative to the capacity of the segment.

1.8.7 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment is modeled with a capacity of 623 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected 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 H219 and Figure H220 relative to the capacity of the segment.

1.8.8 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected generators are shown in Figure 98 of the report. Generators located in outside the Study Region 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 H221 and Figure H222 relative to the capacity of the segment.

2 S3: SIGNIFICANTLY LOWER GAS PRICES

2.1 RGDS S3 WINTER 2018

Figure G25 summarizes the affected generation during the Winter 2018 peak hour by PPA.

Figure G25. RGDS S3 Winter 2018: Peak Hour Affected Generation

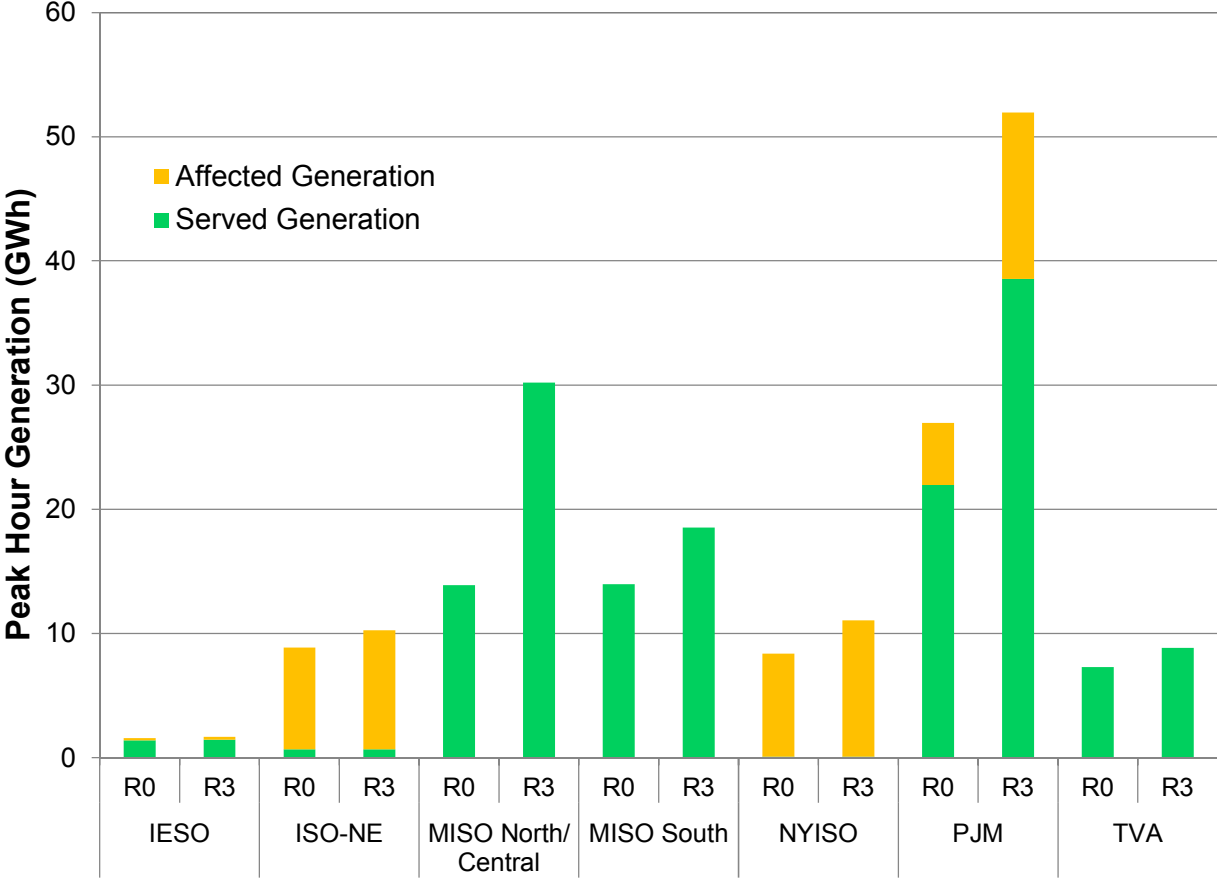


Figure G26 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G17.

Figure G26. RGDS S3 Winter 2018: Locations with Peak Hour Affected Generation

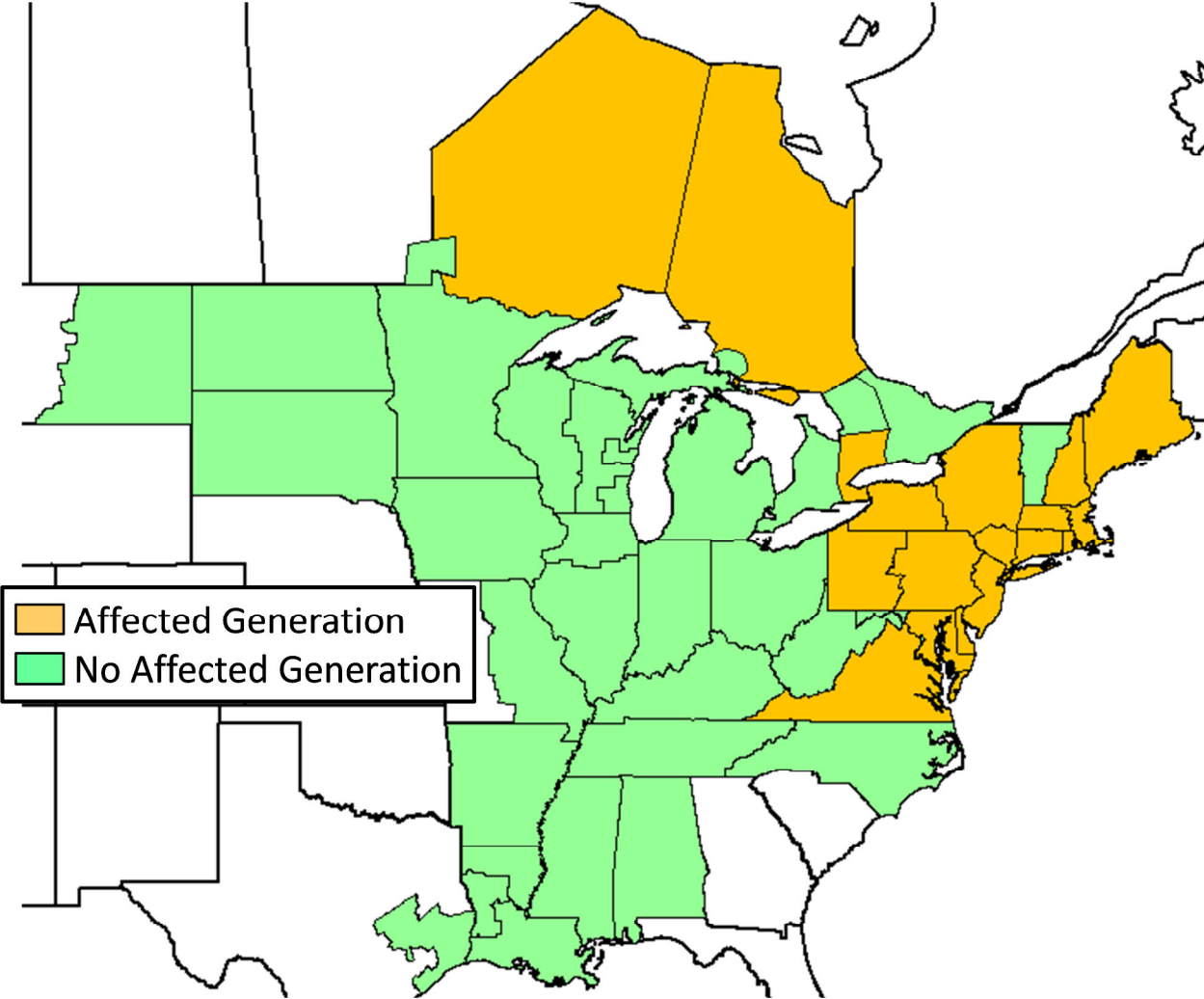
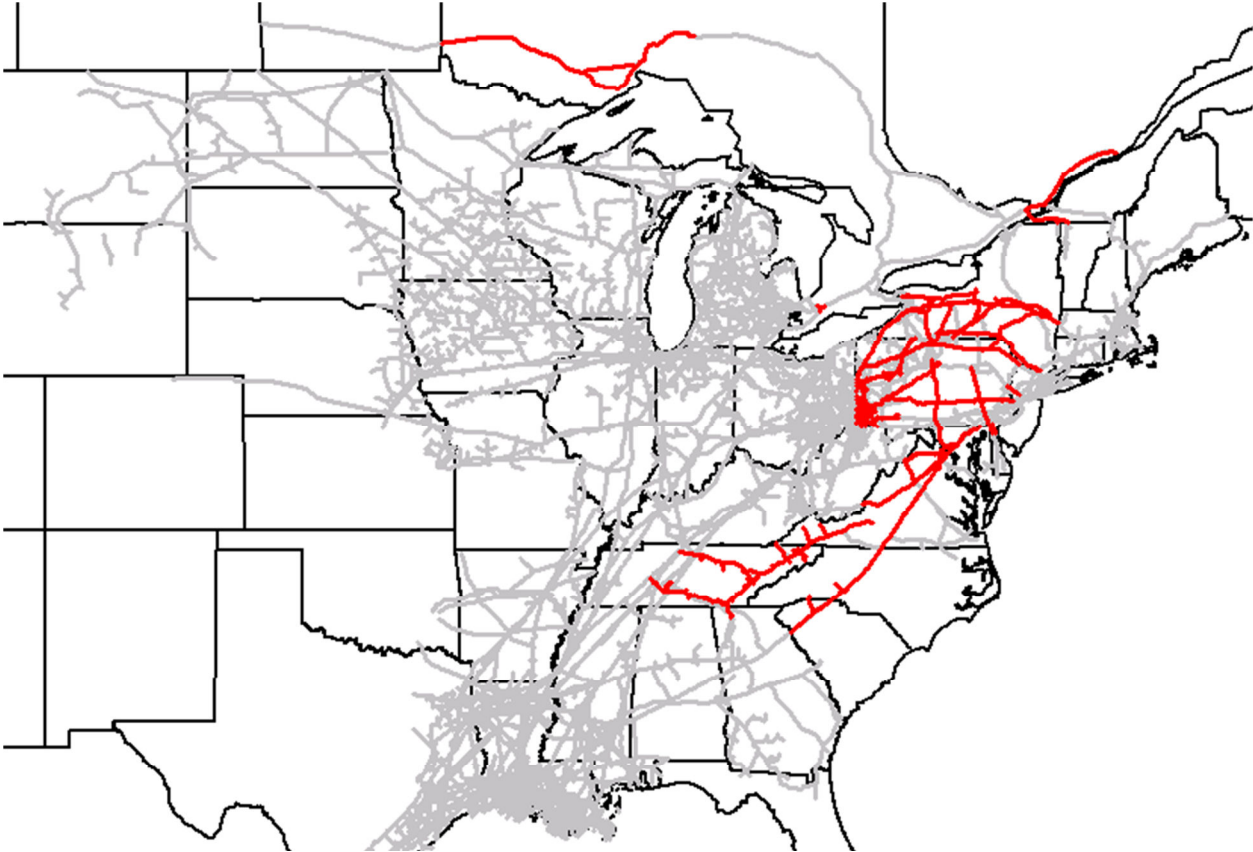


Table G17. RGDS S3 Winter 2018: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	19.8	2,633
Delaware	1.3	173
Maine	9.5	1,292
Maryland Eastern	1.7	228
Massachusetts Eastern	16.4	2,279
Massachusetts Western	7.8	1,059
New Hampshire	9.4	1,245
New Jersey	18.6	2,548
New York Central Northern	48.2	5,871
New York City	16.0	2,098
New York Long Island	9.3	1,063
New York Southern	10.9	1,312
New York Western	1.7	196
Ontario (CDA)	1.4	150
Ontario (NDA)	0.4	41
Ontario (WDA)	0.4	38
Pennsylvania Eastern	33.3	4,673
Pennsylvania Western	11.0	1,574
Rhode Island	8.4	1,083
Virginia	36.7	4,622
Connecticut	19.8	2,633
Delaware	1.3	173

Figure G27 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G25 during the Winter 2018 peak hour.

Figure G27. RGDS S3 Winter 2018: Peak Hour Constraints



Error! Reference source not found. summarizes the results of the frequency and duration analysis.

Table G18. RGDS S3 Winter 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	14	1	12	50
Columbia Gas W PA/NY	6	1	2	8
Constitution	2	31	59	90
Dominion Eastern NY	13	1	13	41
Dominion Western NY	1	4	4	4
Dominion Southeast	5	1	4	13
East Tennessee Mainline	7	1	5	21
Eastern Shore	10	1	4	20
Empire Mainline	12	1	15	48
Millennium	7	1	38	69
NB/NS Supply	14	1	21	63
Tennessee Z4 PA	5	1	47	78
Tennessee Z5 NY	2	31	59	90
Texas Eastern M2 PA South	4	1	59	84
Texas Eastern M3 North	6	1	50	78
TransCanada Ontario West	5	1	8	15
TransCanada Quebec	6	1	22	30
Transco Leidy Atlantic	2	31	59	90
Transco Z5	8	1	12	26
Transco Z6 Leidy to 210	9	1	15	55
Union Gas Dawn	2	1	3	4

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 H223 and Figure H224 relative to the capacity of the segment.

2.1.2 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 H225 and Figure H226 relative to the capacity of the segment

2.1.3 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 in New York and Connecticut. 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 H227 and Figure H228 relative to the capacity of the segment.

2.1.4 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 H229 and Figure H230 relative to the capacity of the segment.

2.1.5 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 H231 and Figure H232 relative to the capacity of the segment.

2.1.6 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 H233 and Figure H234 relative to the capacity of the segment.

2.1.7 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 H235 and Figure H236 relative to the capacity of the segment.

2.1.8 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 H237 and Figure H238 relative to the capacity of the segments.

2.1.9 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 H239 and Figure H240 relative to the capacity of the segment.

2.1.10 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, particularly 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 H241 and Figure H242 relative to the capacity of the segment.

2.1.11 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 24 MDth/d in New Brunswick and approximately 599 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H243 and Figure H244 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

2.1.12 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H245 and Figure H246 relative to the capacity of the segment.

2.1.13 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 H247 and Figure H248 relative to the capacity of the segment.

2.1.14 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H249 and Figure H250 relative to the capacity of the segment.

2.1.15 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 the 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, as well as 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 peak hour gas demand downstream of the constrained segment are shown in Figure H251 and Figure H252 relative to the capacity of the segment.

2.1.16 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 H253 and Figure H254 relative to the capacity of the segment.

2.1.17 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H255 and Figure H256 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

2.1.18 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 H257 and Figure H258 relative to the capacity of the segment.

2.1.19 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 H259 and Figure H260 relative to the capacity of the segment.

2.1.20 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H261 and Figure H262 relative to the capacity of the segment.

2.1.21 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 peak hour gas demand downstream of the constrained segment are shown in Figure H263 and Figure H264 relative to the capacity of the segment.

2.2 RGDS S3 SUMMER 2018

Figure G28 summarizes the affected generation during the Summer 2018 peak hour by PPA.

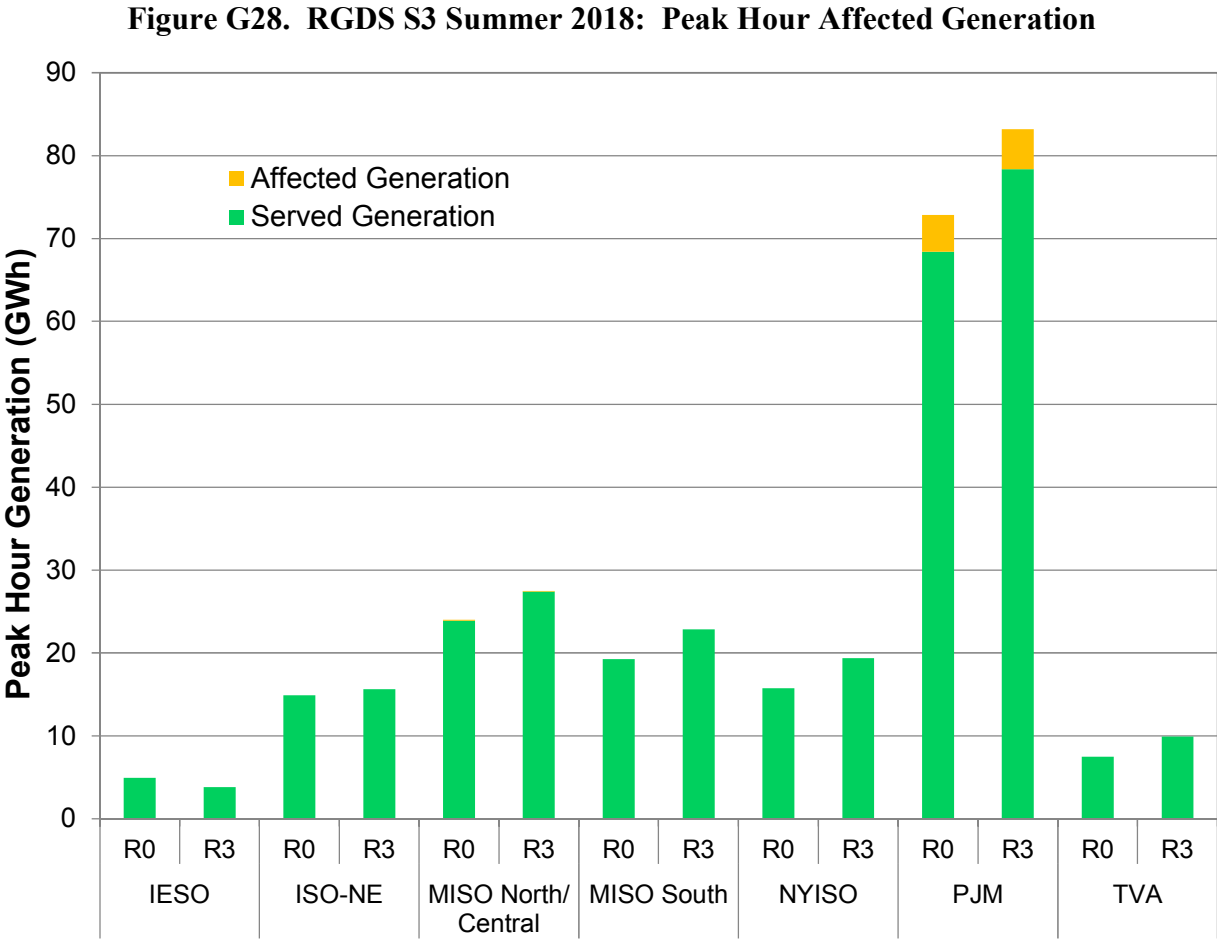
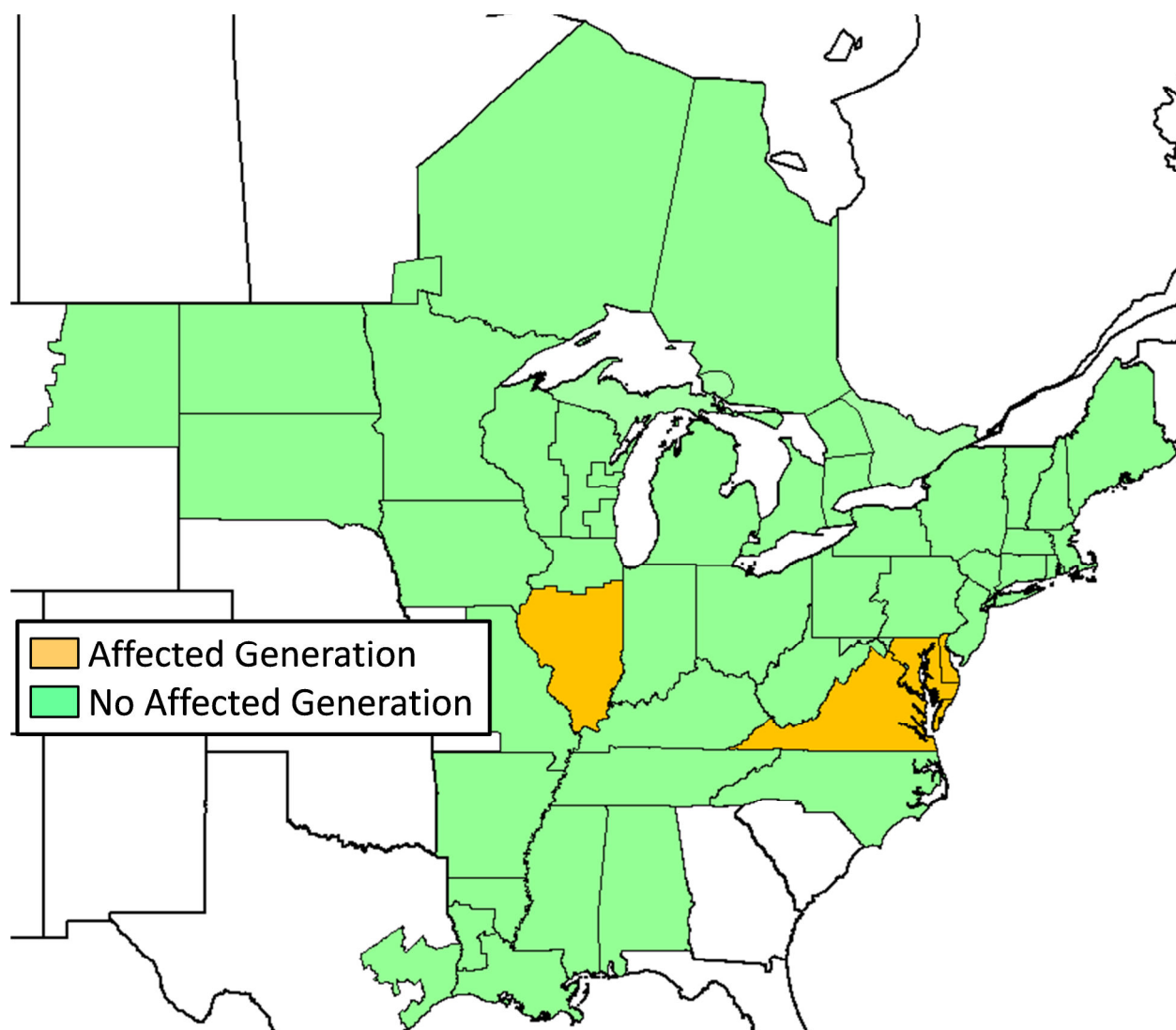


Figure G29 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G19.

Figure G29. RGDS S3 Summer 2018: Locations with Peak Hour Affected Generation**Table G19. RGDS S3 Summer 2018: Peak Hour Unserved Generation Demand and Affected Generation**

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.9	1,210
Illinois Southern	1.0	113
Maryland Eastern	18.9	2,679
Virginia	8.4	936

Figure G30 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G28 during the Summer 2018 peak hour.

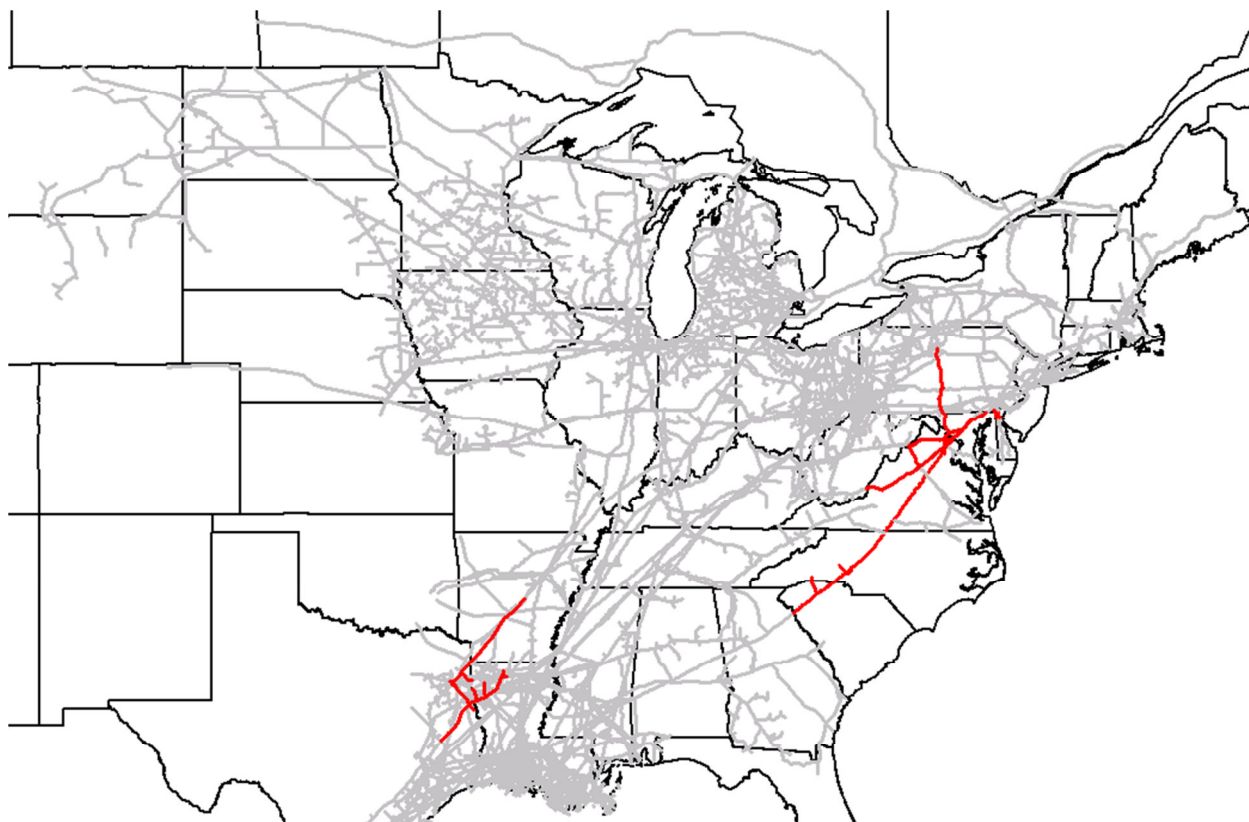
Figure G30. RGDS S3 Summer 2018: Peak Hour Constraints

Table G20 summarizes the results of the frequency and duration analysis.

Table G20. RGDS S3 Summer 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	5	1	1	5
Dominion Southeast	15	1	8	41
Eastern Shore	9	1	16	48
Texas Eastern ETX	10	1	6	22
Transco Z5	7	1	16	42

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 H265 and Figure H266 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 H267 and Figure H268 relative to the capacity of the segment.

2.2.3 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 H269 and Figure H270 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 H271 and Figure H272 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 H273 and Figure H274 relative to the capacity of the segment.

2.3 RGDS S3 WINTER 2023

Figure G31 summarizes the affected generation during the Winter 2023 peak hour by PPA.

Figure G31. RGDS S3 Winter 2023: Peak Hour Affected Generation

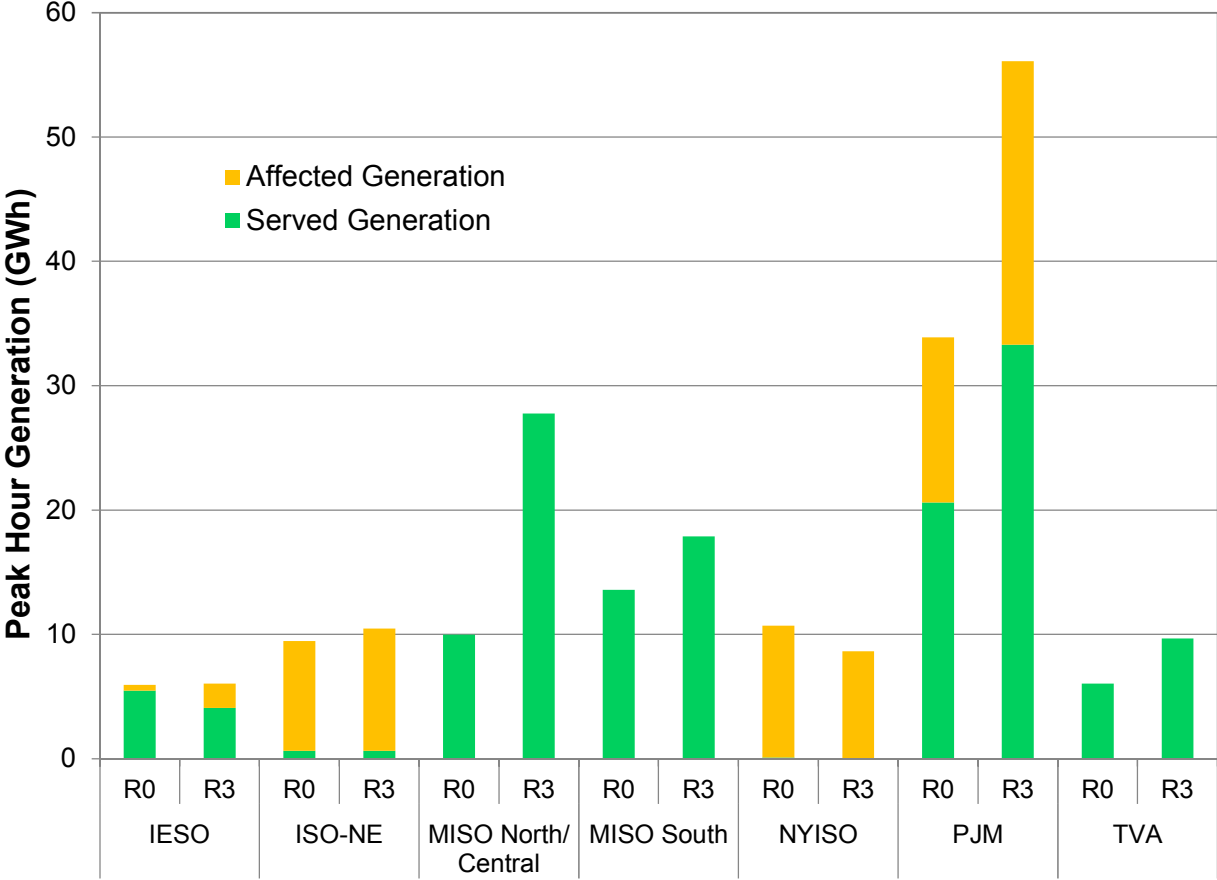


Figure G32 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G21.

Figure G32. RGDS S3 Winter 2023: Locations with Peak Hour Affected Generation

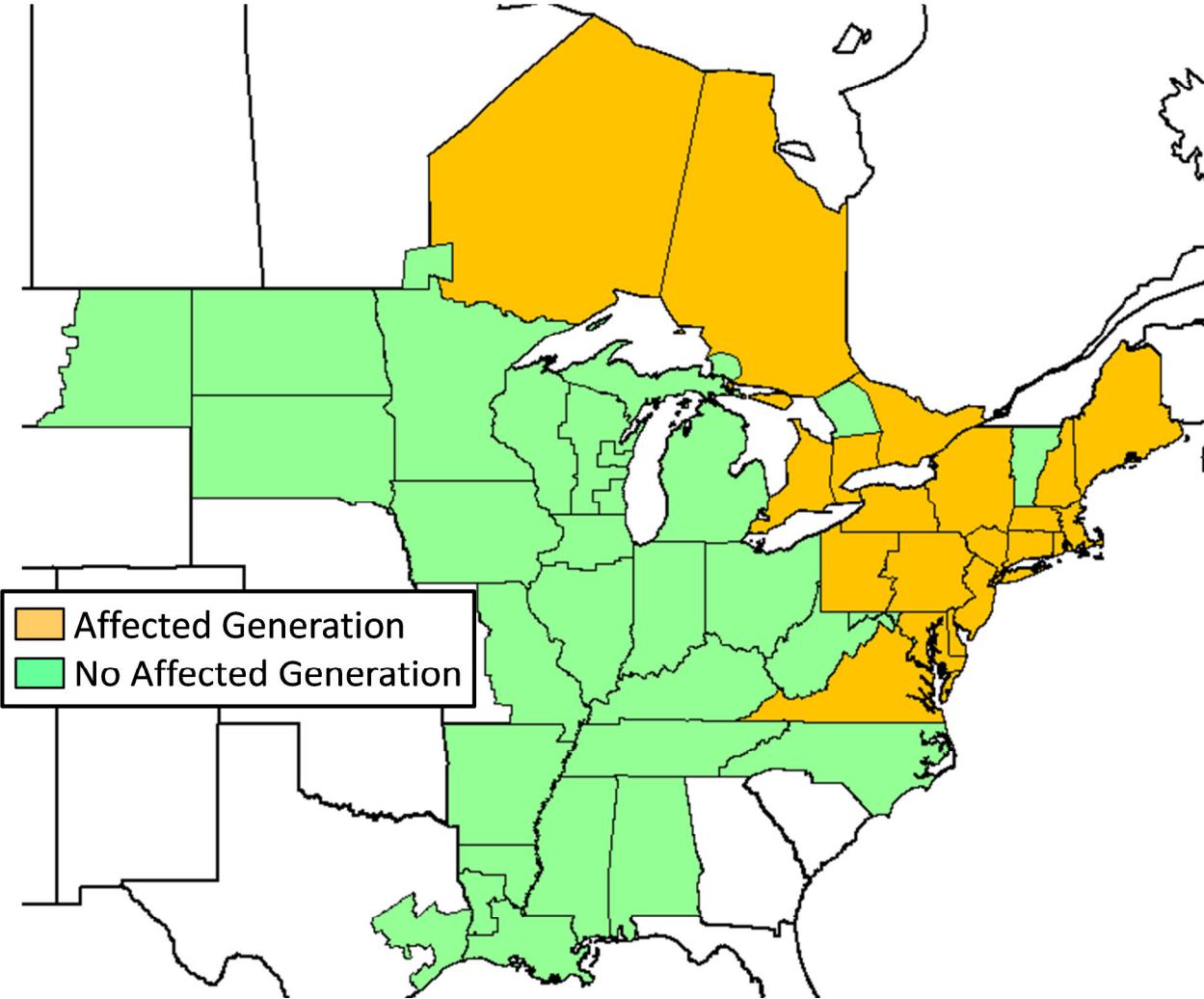


Table G21. RGDS S3 Winter 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	18.8	2,530
Delaware	0.3	30
Maine	9.5	1,292
Maryland Eastern	12.5	1,217
Massachusetts Eastern	16.4	2,279
Massachusetts Western	9.1	1,219
New Hampshire	9.4	1,245
New Jersey	15.4	2,182
New York Central Northern	45.7	5,459
New York City	7.5	848
New York Long Island	5.2	540
New York Southern	13.8	1,503
New York Western	2.3	255
Ontario (CDA)	1.6	181
Ontario (EDA)	2.1	249
Ontario (NDA)	1.2	155
Ontario (StClair)	9.7	1,347
Ontario (WDA)	0.4	38
Pennsylvania Eastern	78.6	10,926
Pennsylvania Western	11.0	1,574
Rhode Island	9.6	1,255
Virginia	54.1	6,866

Figure G33 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G31 during the Winter 2023 peak hour.

Figure G33. RGDS S3 Winter 2023: Peak Hour Constraints

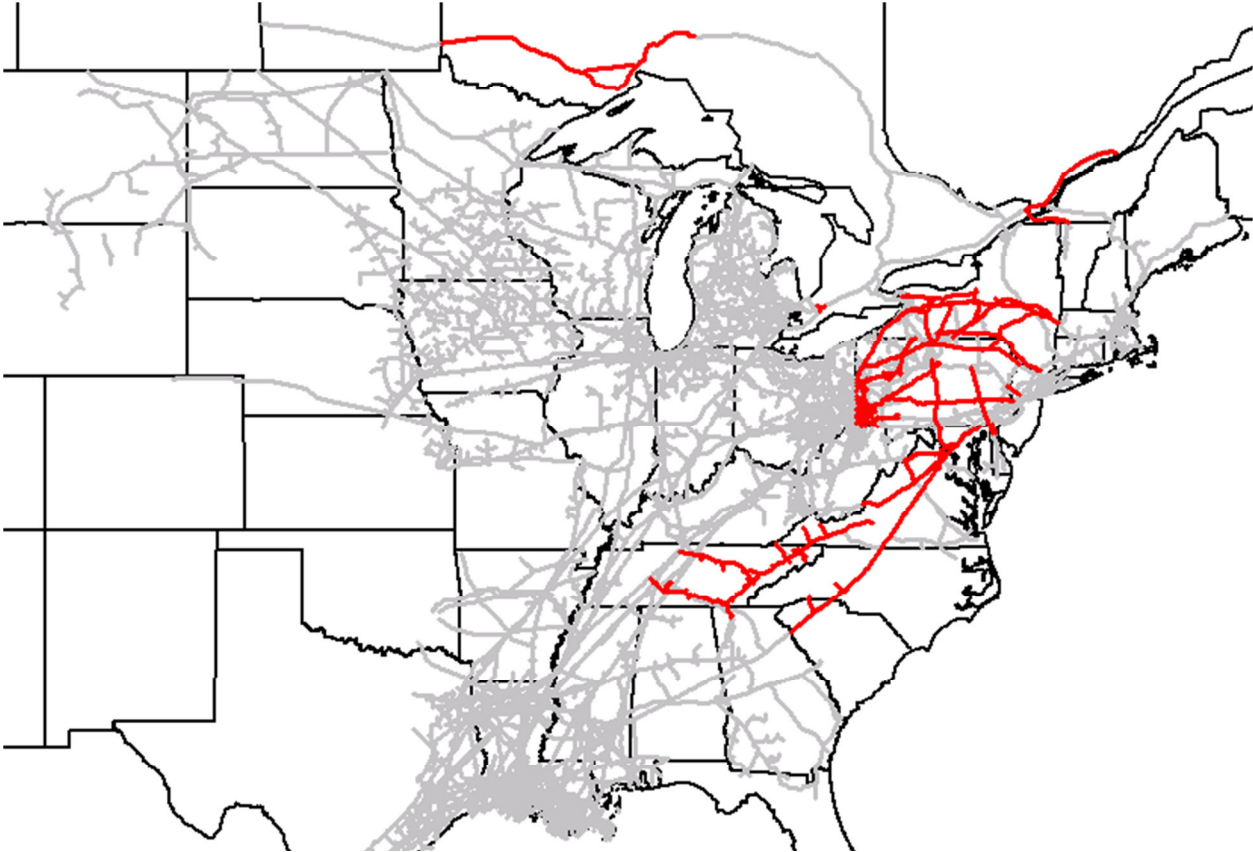


Table G22 summarizes the results of the frequency and duration analysis.

Table G22. RGDS S3 Winter 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	5	2	52	82
Columbia Gas W PA/NY	11	1	3	16
Constitution	2	31	59	90
Dominion Eastern NY	6	1	35	65
Dominion Western NY	1	5	5	5
Dominion Southeast	5	4	32	70
East Tennessee Mainline	7	1	5	19
Eastern Shore	5	1	3	7
Empire Mainline	5	1	54	63
Great Lakes East	11	1	12	45
Millennium	7	1	38	69
NB/NS Supply	2	31	59	90
Tennessee Z4 PA	6	1	48	81
Tennessee Z5 NY	3	1	59	89
Texas Eastern M2 PA South	2	31	59	90
Texas Eastern M3 North	3	2	59	88
TransCanada Ontario West	7	1	12	24
TransCanada Quebec to PNGTS	5	2	15	37
Transco Leidy Atlantic	2	31	59	90
Transco Z5	9	1	12	27
Transco Z6 Leidy to 210	2	31	59	90
Union Gas Dawn	3	1	2	4

2.3.1 Columbia Gas Virginia / Maryland

The 100% peak hour utilization on Columbia Gas’s Virginia/Maryland segment, which is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d over the 2018 capacity. The locations of the potentially affected 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 H275 and Figure H276 relative to the capacity of the segment.

2.3.2 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 H277 and Figure H278 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 in New York and Connecticut. 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 H279 and Figure H280 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 H281 and Figure H282 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 H283 and Figure H284 relative to the capacity of the segment.

2.3.6 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase of 15 MDth/d over 2018. 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 H285 and Figure H286 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 H287 and Figure H288 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 H289 and Figure H290 relative to the capacity of the segments.

2.3.9 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 H291 and Figure H292 relative to the capacity of the segment.

2.3.10 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.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H293 and Figure H294 relative to the capacity of the segment.

2.3.11 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, particularly 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 H295 and Figure H296 relative to the capacity of the segment.

2.3.12 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H297 and Figure H298 relative to the total production capacity. The generator gas demand in these figures only reflects generators located in the Study Region.

2.3.13 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 in New England. The locations of these generators are shown in Figure 91 of the report.

The peak hour demand forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure H299 and Figure H300 relative to the capacity of the segment.

2.3.14 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 H301 and Figure H302 relative to the capacity of the segment.

2.3.15 Texas Eastern M2 PA – Southern Branch

The Texas Eastern M2 PA – 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. Generators that are served by Algonquin and Eastern Shore either directly or behind an LDC would also potentially be affected. 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 H303 and Figure H304 relative to the capacity of the segment.

2.3.16 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 the 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, as well as 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 peak hour gas demand downstream of the constrained segment are shown in Figure H305 and Figure H306 relative to the capacity of the segment.

2.3.17 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 H307 and Figure H308 relative to the capacity of the segment.

2.3.18 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. Limitations for customers in Quebec could arise from this constraint, but such limitations have not been included in the results reported below.

The seasonal daily forecasts of RCI and generator peak hour demand downstream of the constrained segment are shown in Figure H309 and Figure H310 relative to the capacity of the segment. The generator gas demand in these figures includes only gas demand at generators in the Study Region. Gas demand from non-Study Region generators is not included in the tabulation of results.

2.3.19 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 H311 and Figure H312 relative to the capacity of the segment.

2.3.20 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 H313 and Figure H314 relative to the capacity of the segment.

2.3.21 Transco Zone 6 Leidy Line to Station 210

The Transco Zone 6 Leidy to Station 210 segment is modeled with a capacity of 3,310 MDth/d. The 100% peak hour utilization on this segment potentially affects generators directly connected to Transco in New Jersey and Pennsylvania and generators behind LDCs served by Transco in New Jersey, Pennsylvania, New York City and Long Island. The locations of generators served along this Transco segment 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 H315 and Figure H316 relative to the capacity of the segment.

2.3.22 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 peak hour gas demand downstream of the constrained segment are shown in Figure H317 and Figure H318 relative to the capacity of the segment.

2.4 RGDS S3 SUMMER 2023

Figure G34 summarizes the affected generation during the Summer 2023 peak hour by PPA.

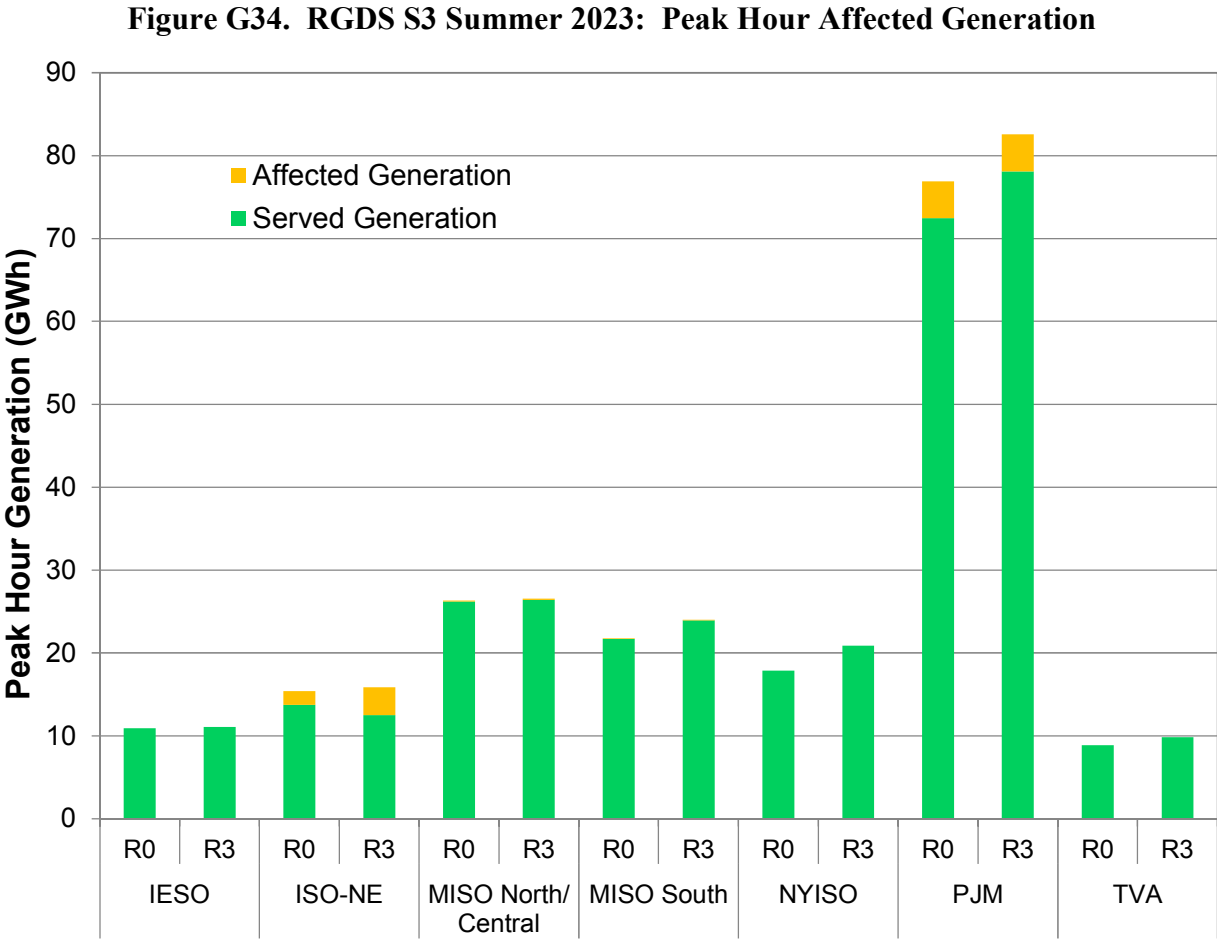


Figure G35 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table G23.

Figure G35. RGDS S3 Summer 2023: Locations with Peak Hour Affected Generation

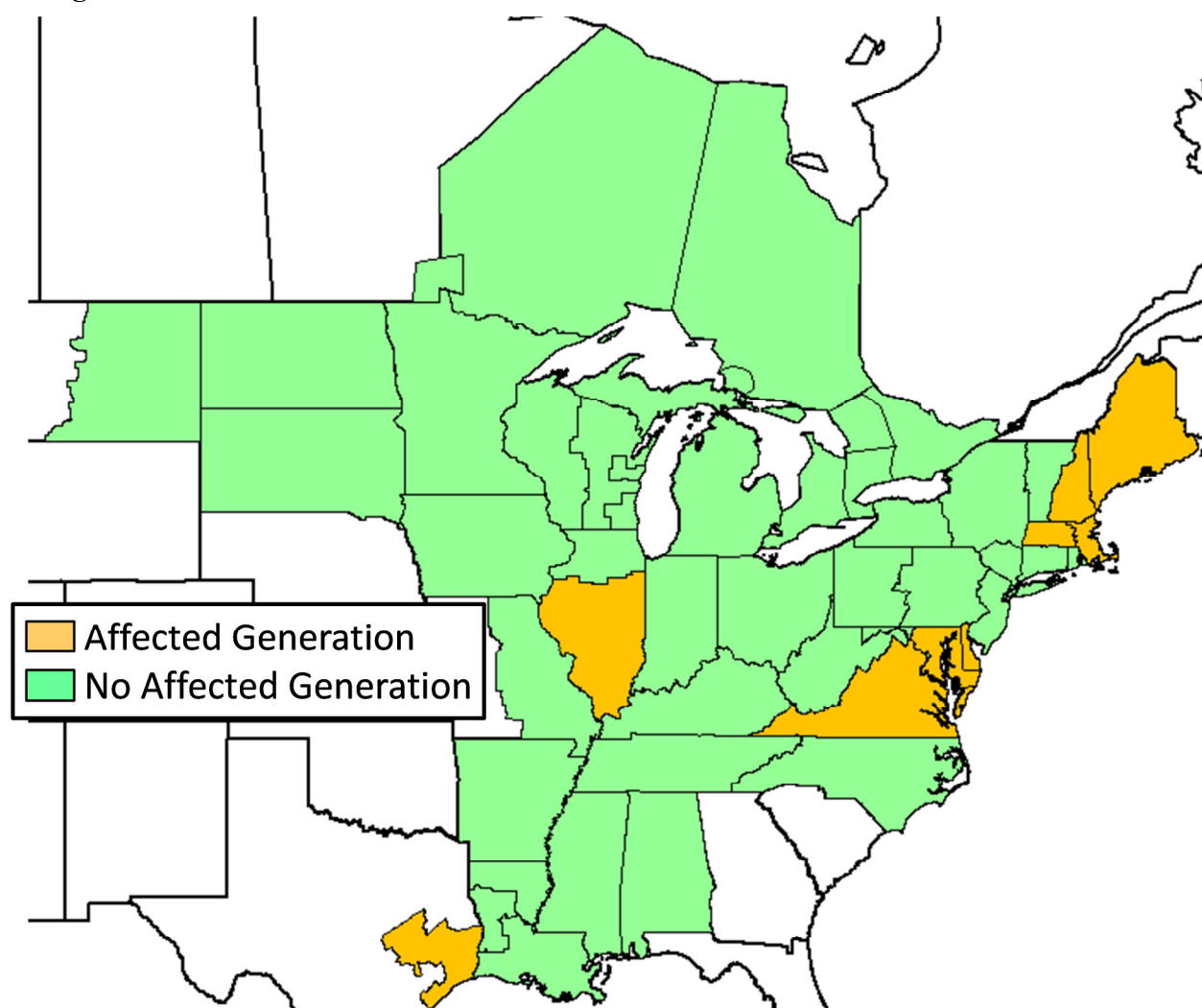


Table G23. RGDS S3 Summer 2023: Peak Hour Unserved Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.5	1,175
Illinois Southern	1.0	112
Maine	10.5	1,357
Maryland Eastern	16.7	2,361
Massachusetts Eastern	3.2	383
Massachusetts Western	1.2	139
New Hampshire	12.3	1,480
Texas East (SERC)	0.6	81
Virginia	8.4	936

Figure G36 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure G34 during the Summer 2023 peak hour.

Figure G36. RGDS S3 Summer 2023: Peak Hour Constraints

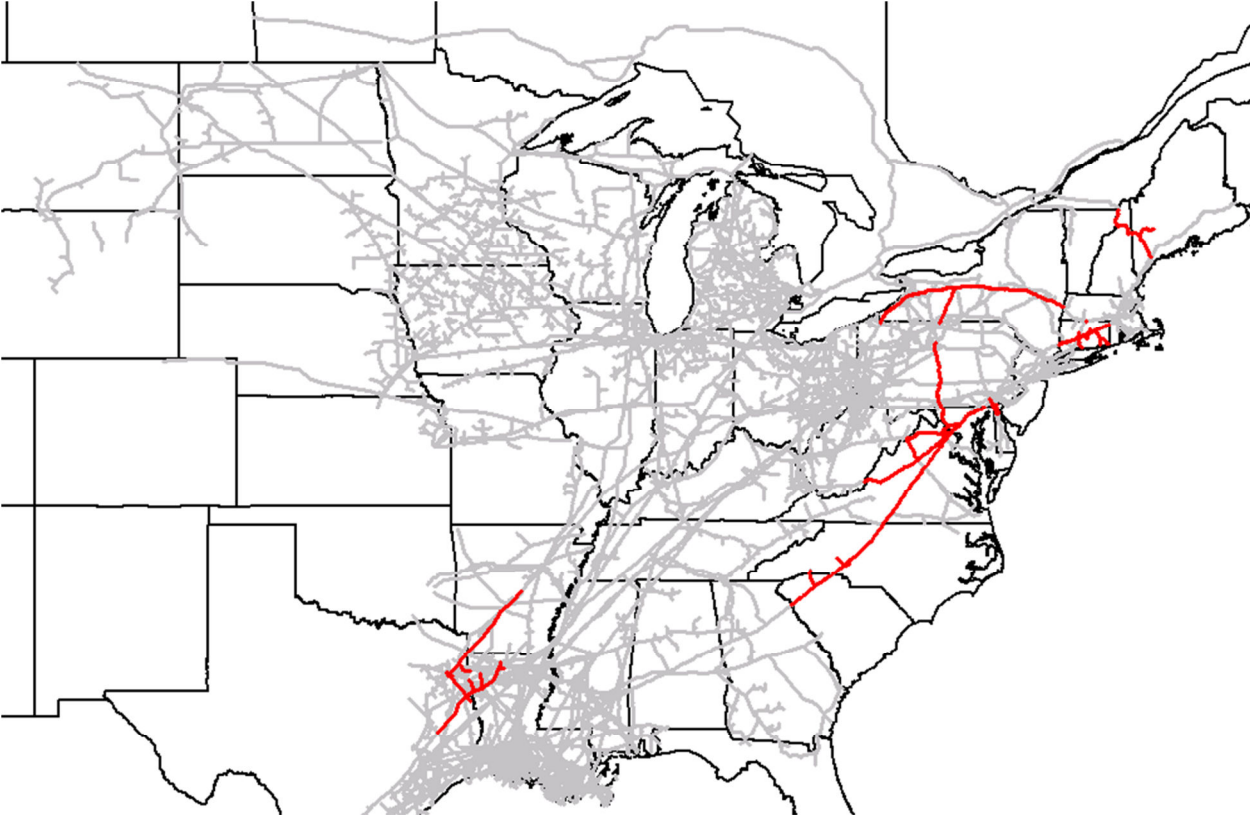


Table G24 summarizes the results of the frequency and duration analysis.

Table G24. RGDS S3 Summer 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Algonquin CT	10	1	9	27
Columbia Gas VA/MD	8	1	6	17
Dominion Southeast	10	1	20	69
Eastern Shore	7	1	16	43
NB/NS Supply	4	2	69	78
PNGTS N of Westbrook	11	1	19	62
Tennessee Z5 NY	1	92	92	92
Texas Eastern ETX	10	1	10	32
Transco Z5	8	1	13	35

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 H319 and Figure H320 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 is modeled with a capacity of 2,679 MDth/d, an increase of 202 MDth/d for 2023 as compared with 2018. The locations of the potentially affected 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 H321 and Figure H322 relative to the capacity of the segment.

2.4.3 Dominion Southeast

Dominion Southeast is modeled with a capacity of 555 MDth/d, an increase over the capacity modeled for the summer 2018 of 15 MDth/d. The locations of the potentially affected 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 H323 and Figure H324 relative to the capacity of the segment.

2.4.4 Eastern Shore

Eastern Shore is modeled with a capacity of 203 MDth/d, the same as the capacity modeled for the summer of 2018. The locations of the potentially affected 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 H325 and Figure H326 relative to the capacity of the segments.

2.4.5 New Brunswick Supply / Nova Scotia Offshore Supply

Production from Atlantic Canada is capped at approximately 40 MDth/d in New Brunswick and approximately 243 MDth/d for Nova Scotia Offshore. This supply 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 could 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 H327 and Figure H328 relative to the total production capacity.

2.4.6 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 H329 and Figure H330 relative to the capacity of the segment.

2.4.7 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 H331 and Figure H332 relative to the capacity of the segment.

2.4.8 Texas Eastern Zone ETX

The 100% peak hour utilization on Texas Eastern's East Texas segment is modeled with a capacity of 623 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected 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 H333 and Figure H334 relative to the capacity of the segment.

2.4.9 Transco Zone 5

Transco Zone 5 is modeled with a capacity of 3,967 MDth/d, the same capacity as modeled for 2018. The locations of the potentially affected generators are shown in Figure 98 of the report. Generators located in outside the Study Region 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 H335 and Figure H336 relative to the capacity of the segment.