

APPENDIX O. LNG EXPORT SENSITIVITIES – S23 AND S37

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1 S23: HIGH/INCREASED LNG EXPORTS

1.1 RGDS S23 WINTER 2018

Figure O1 summarizes the affected generation during the Winter 2018 peak hour by PPA.

Figure O1. RGDS S23 Winter 2018: Peak Hour Affected Generation

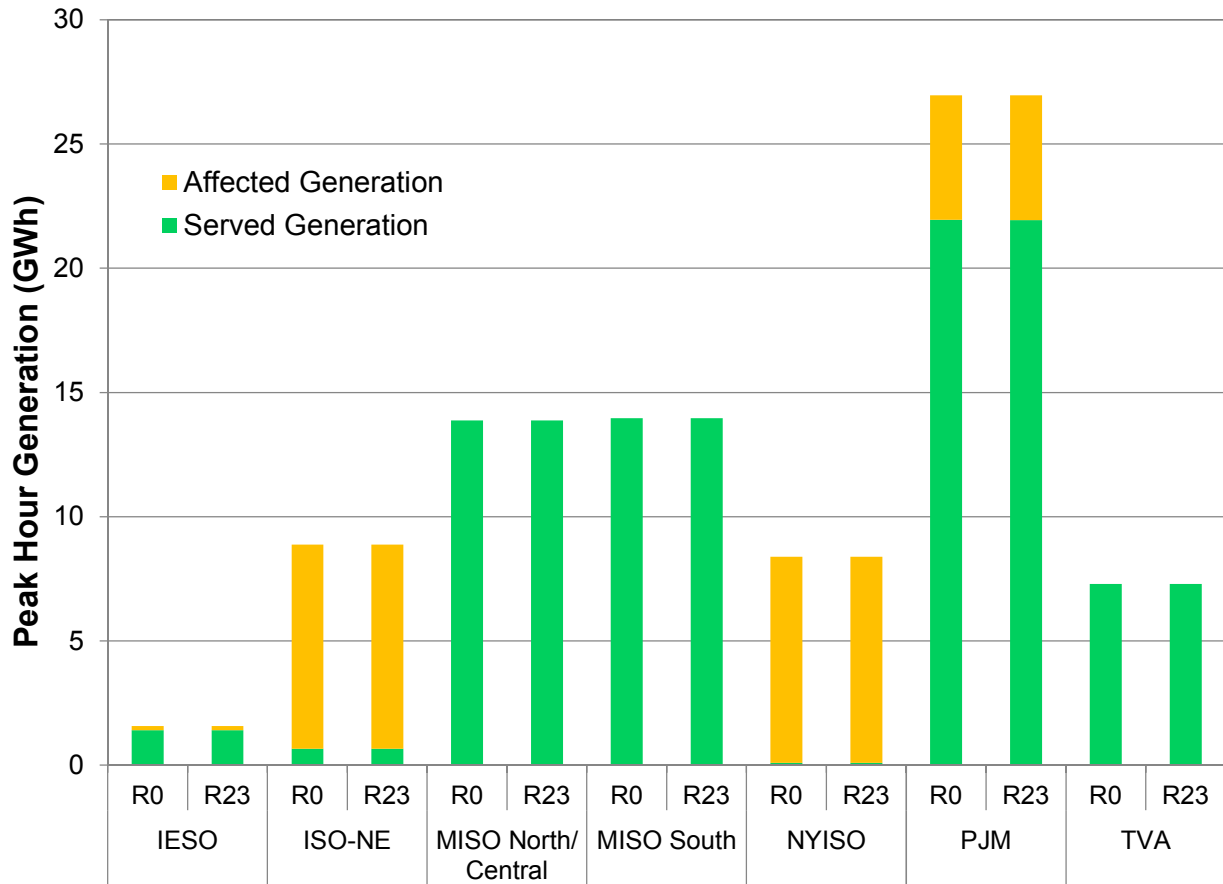


Figure O2 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O1.

Figure O2. RGDS S23 Winter 2018: GPCM Locations with Peak Hour Affected Generation

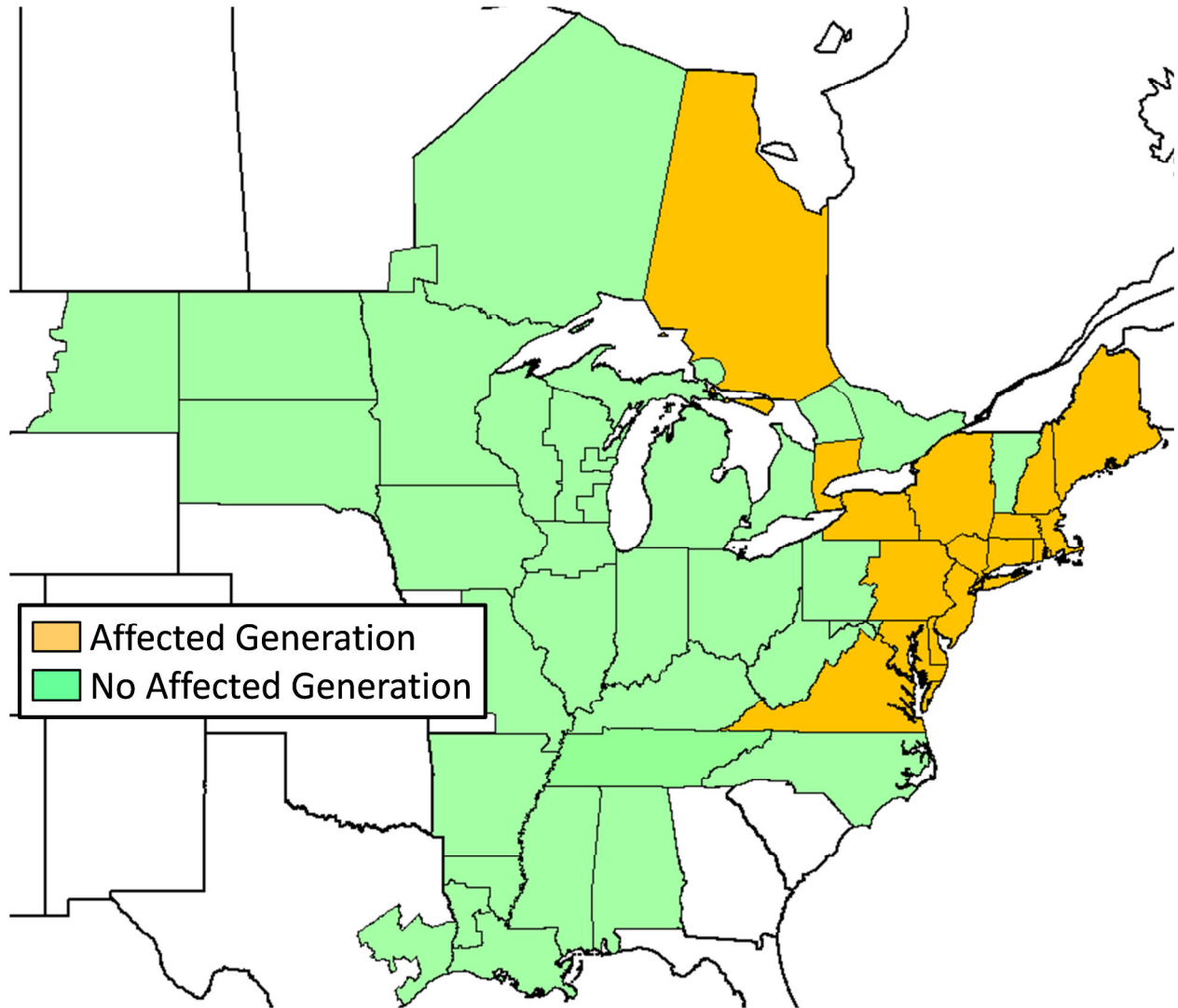


Table O1. RGDS S23 Winter 2018: Unserved Peak Hour Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	16.0	2,200
Delaware	1.8	220
Maine	7.6	1,045
Maryland Eastern	5.0	539
Massachusetts Eastern	12.8	1,781
Massachusetts Western	7.8	1,059
New Hampshire	9.4	1,245
New Jersey	12.0	1,506
New York Central Northern	24.4	3,419
New York City	17.7	2,336
New York Long Island	9.4	1,054
New York Southern	10.9	1,312
New York Western	1.6	179
Ontario (CDA)	0.5	55
Ontario (NDA)	0.8	114
Rhode Island	6.7	887
Virginia	21.0	2,755

Figure O3 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O3 during the Winter 2018 peak hour.

Figure O3. RGDS S23 Winter 2018: Peak Hour Constraints

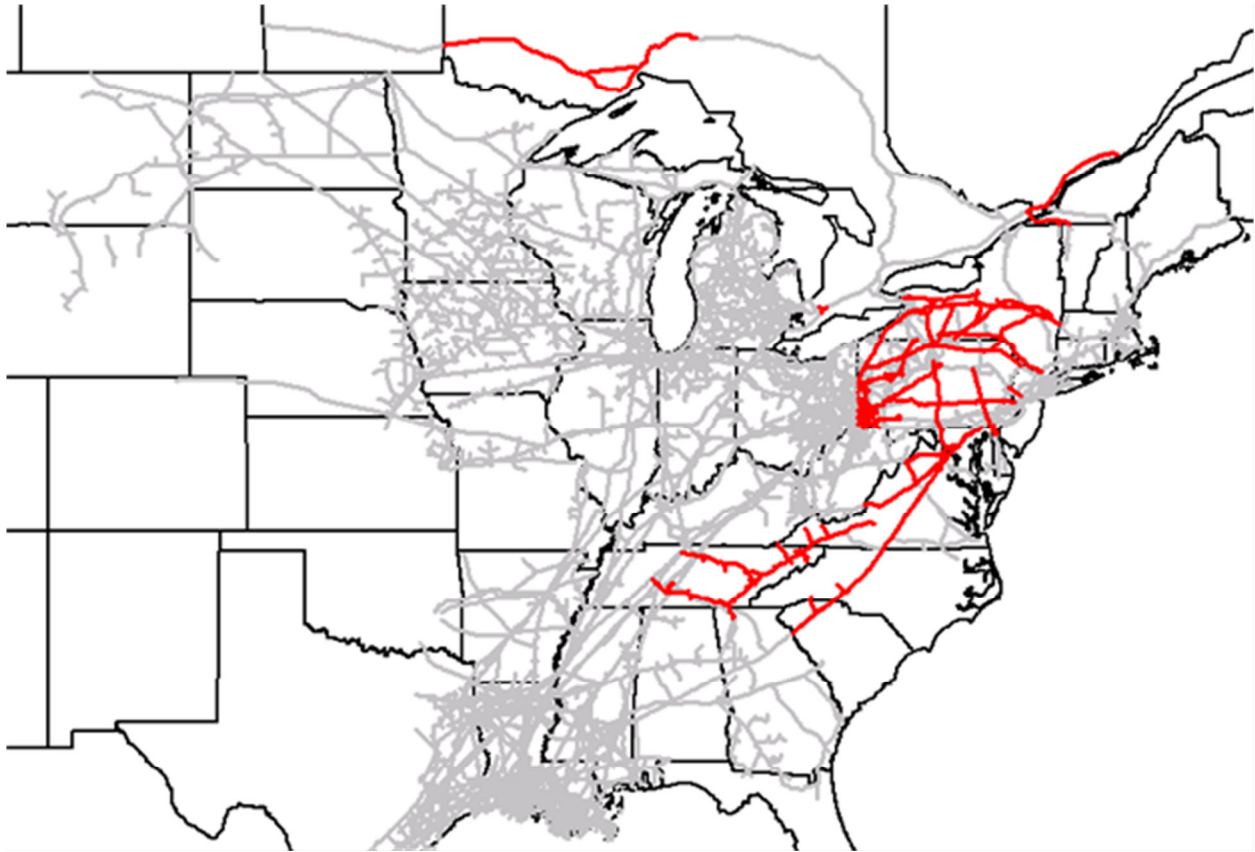


Table O2 summarizes the results of the frequency and duration analysis.

Table O2. RGDS S23 Winter 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	4	3	59	87
Columbia Gas W PA/NY	11	1	5	21
Constitution	5	1	12	25
Dominion Eastern NY	6	1	6	15
Dominion Western NY	1	4	4	4
Dominion Southeast	4	3	31	77
East Tennessee Mainline	7	1	2	9
Eastern Shore	11	1	10	51
Empire Mainline	5	1	12	21
Millennium	4	1	59	83
NB/NS Supply	13	1	20	58
Tennessee Z4 PA	10	1	7	30
Tennessee Z5 NY	2	31	59	90
Texas Eastern M2 PA South	10	1	15	50
Texas Eastern M3 North	10	2	7	39
TransCanada Ontario West	5	1	5	12
TransCanada Quebec	9	1	14	30
Transco Leidy Atlantic	8	2	23	59
Transco Z5	7	1	10	20
Transco Z6 Leidy to 210	5	1	3	8
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 P1 and Figure P2 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 P3 and Figure P4 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 P5 and Figure P5 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 P7 and Figure P8 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 P9 and Figure P10 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 P11 and Figure P12 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 P13 and Figure P14 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 P15 and Figure P16 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 P17 and Figure P18 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 P19 and Figure P20 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 P21 and Figure P22 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 P23 and Figure P24 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 P25 and Figure P26 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 P27 and Figure P28 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 P29 and Figure P30 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 P31 and Figure P32 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 P33 and Figure P34 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 P35 and Figure P36 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 P37 and Figure P38 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 P39 and Figure P40 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 P41 and Figure P42 relative to the capacity of the segment.

1.2 RGDS S23 SUMMER 2018

Figure O4 summarizes the affected generation during the Summer 2018 peak hour by PPA.

Figure O4. RGDS S23 Summer 2018: Peak Hour Affected Generation

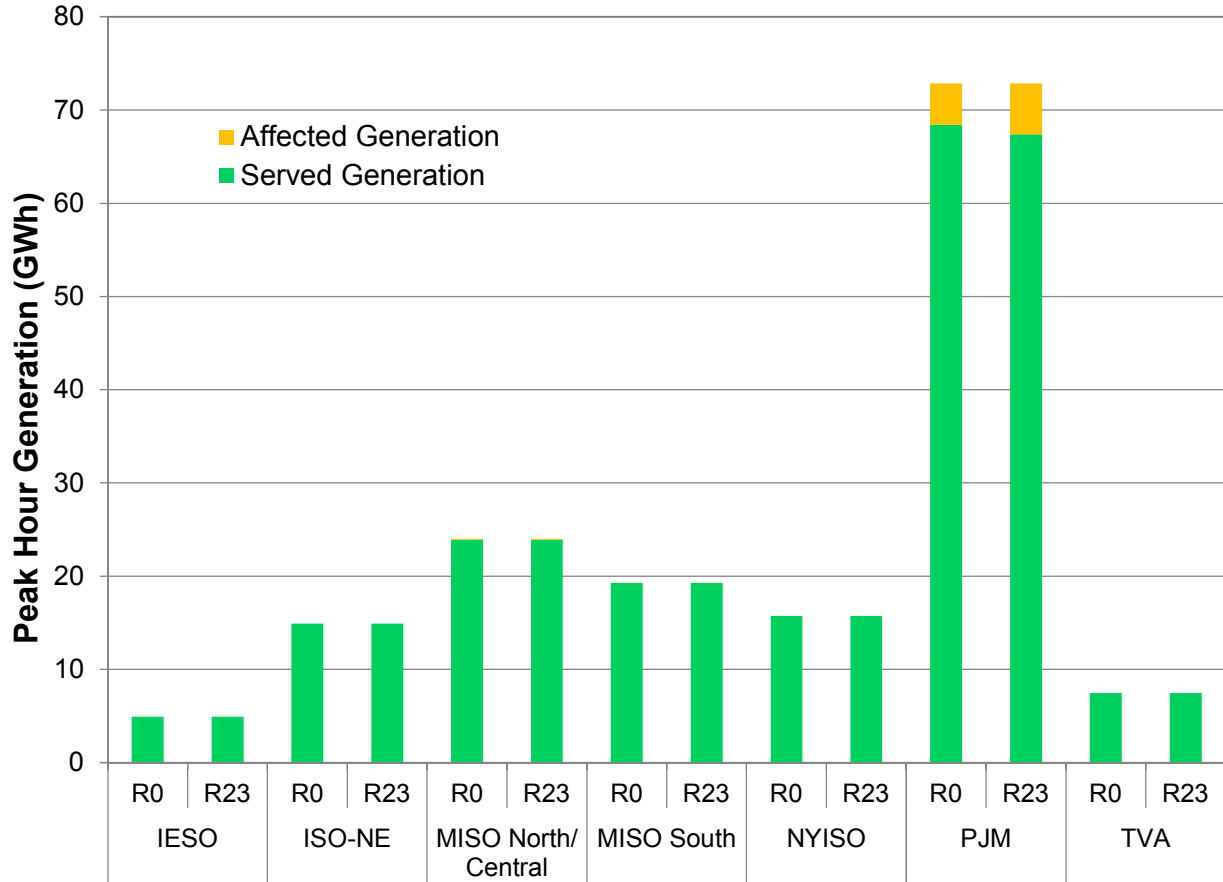


Figure O5 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O3.

Figure O5. RGDS S23 Summer 2018: GPCM Locations with Peak Hour Affected Generation

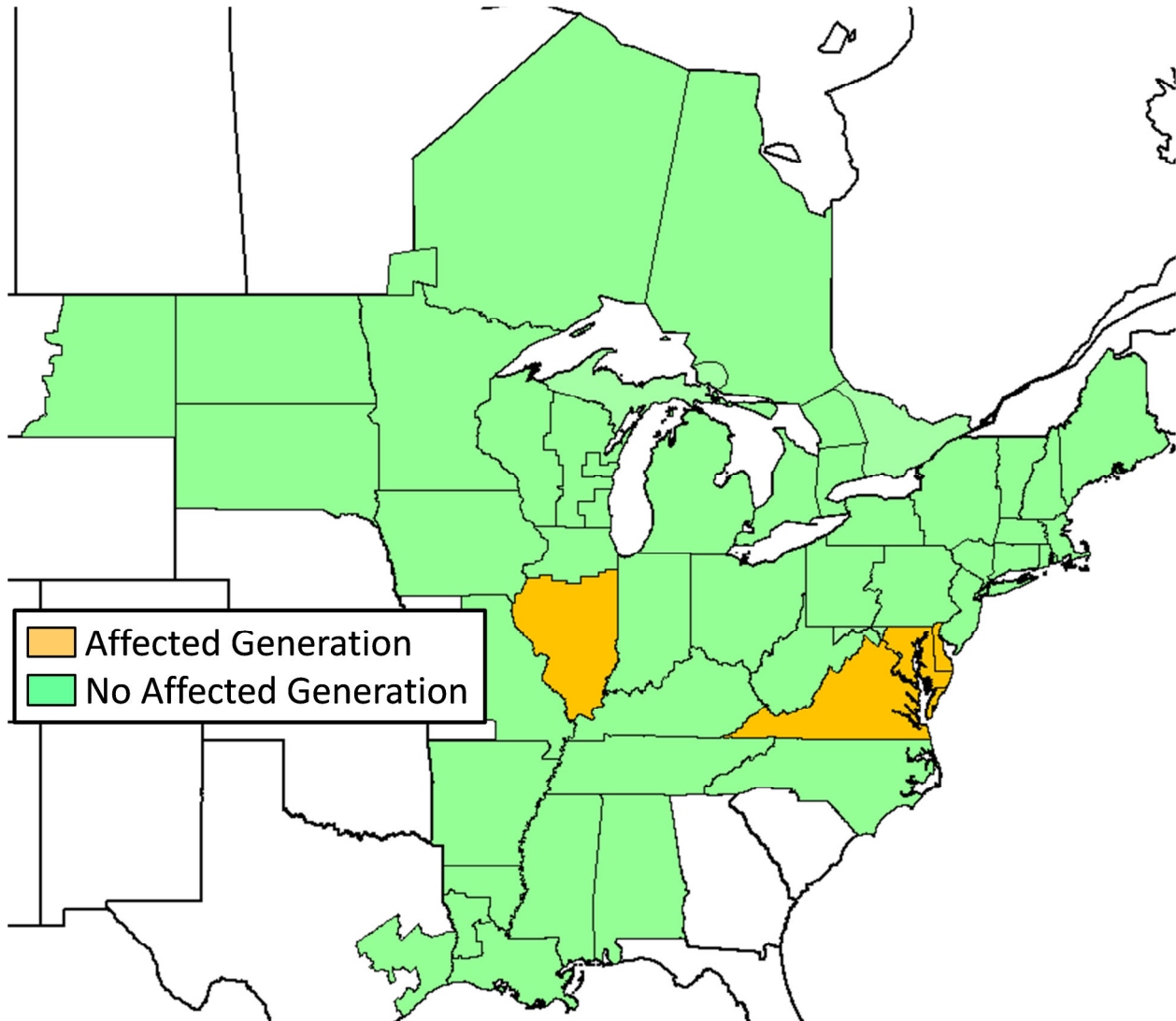


Table O3. RGDS S23 Summer 2018 Unserved Peak Hour Generation Demand and Generation At-Risk

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.3	1,149
Illinois Southern	1.0	112
Maryland Eastern	22.0	3,118
Virginia	11.1	1,208

Figure O6 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O4 during the Summer 2018 peak hour.

Figure O6. RGDS S23 Summer 2018: Peak Hour Constraints

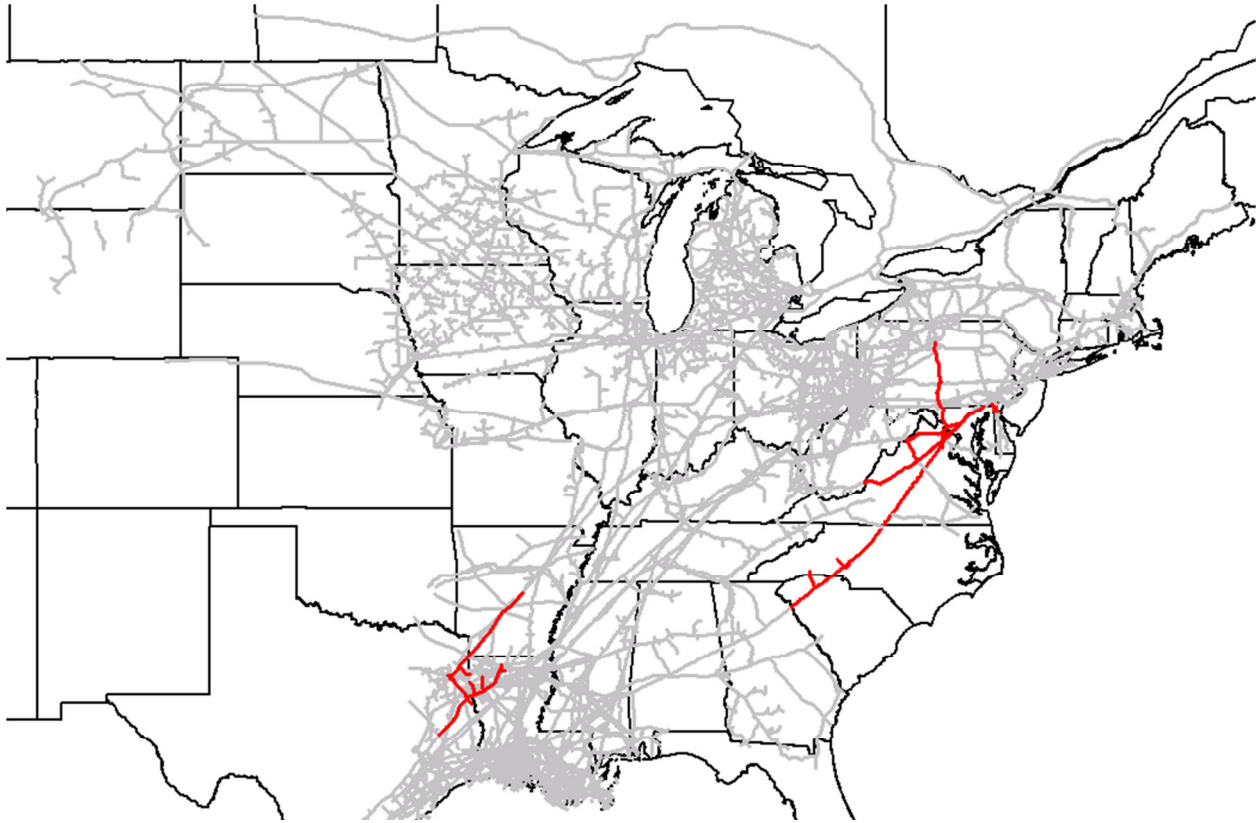


Table O4 summarizes the results of the frequency and duration analysis.

Table O4. RGDS S23 Summer 2018: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	8	1	6	21
Dominion Southeast	11	1	7	24
Eastern Shore	7	1	6	19
Texas Eastern Zone ETX	4	1	6	12
Transco Z5	7	1	6	18

1.2.1 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 P43 and Figure P44 relative to the capacity of the segment.

1.2.2 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 P45 and Figure P46 relative to the capacity of the segment.

1.2.3 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 P47 and Figure P48 relative to the capacity of the segments.

1.2.4 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 P49 and Figure P50 relative to the capacity of the segment.

1.2.5 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 P51 and Figure P52 relative to the capacity of the segment.

1.3 RGDS S23 WINTER 2023

Figure O7 summarizes the affected generation during the Winter 2023 peak hour by PPA.

Figure O7. RGDS S23 Winter 2023: Peak Hour Affected Generation

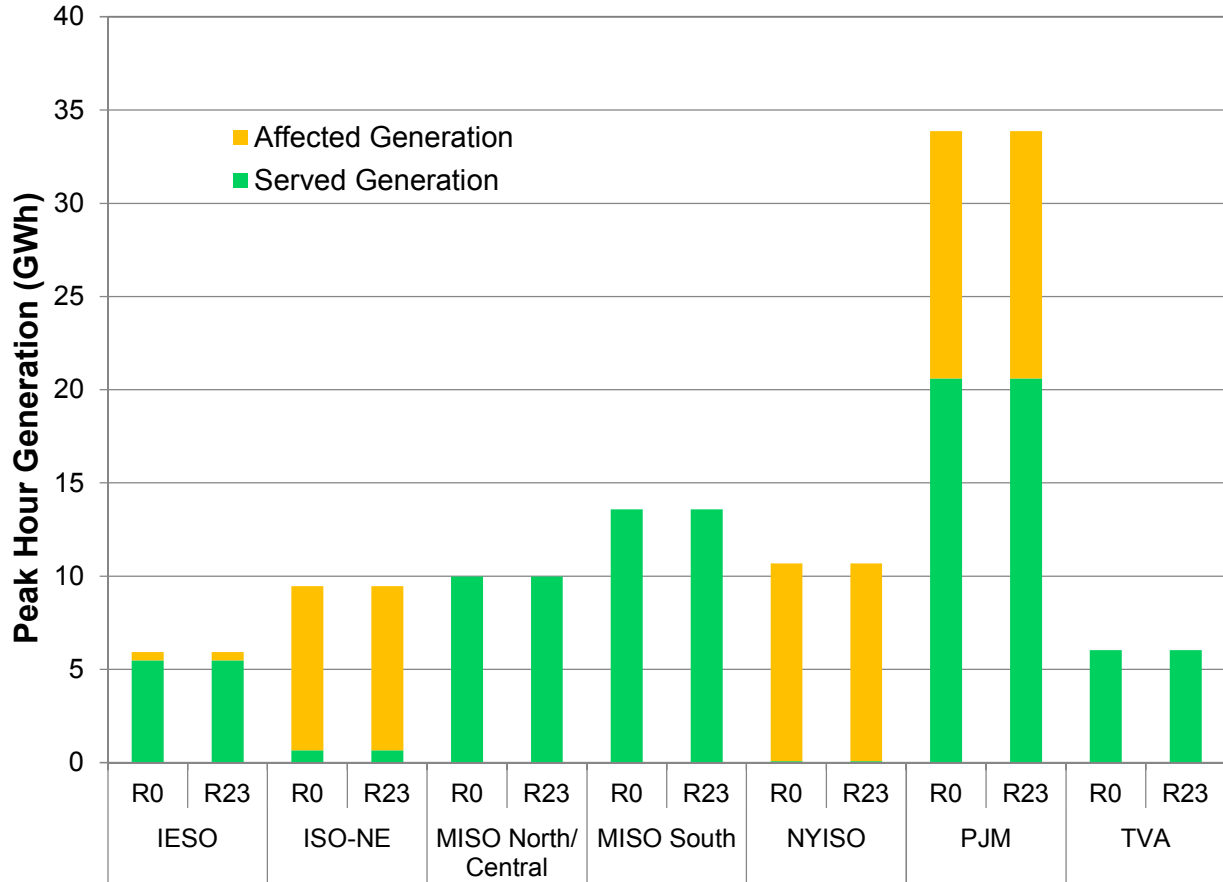


Figure O8 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O5.

Table O5. RGDS S23 Winter 2023: Unserved Peak Hour Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	15.6	2,140
Delaware	1.3	173
Maine	9.1	1,232
Maryland Eastern	5.0	539
Massachusetts Eastern	14.6	2,025
Massachusetts Western	9.3	1,239
New Hampshire	9.4	1,245
New Jersey	10.7	1,372
New York Central Northern	40.1	4,764
New York City	19.8	2,665
New York Long Island	12.8	1,292
New York Southern	15.1	1,629
New York Western	2.2	247
Ontario (CDA)	0.5	55
Ontario (EDA)	2.1	249
Ontario (NDA)	1.2	155
Pennsylvania Eastern	43.5	5,990
Pennsylvania Western	6.7	961
Rhode Island	7.1	936
Virginia	35.4	4,237

Figure O9 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O7 during the Winter 2023 peak hour.

Figure O9. RGDS S23 Winter 2023: Peak Hour Constraints

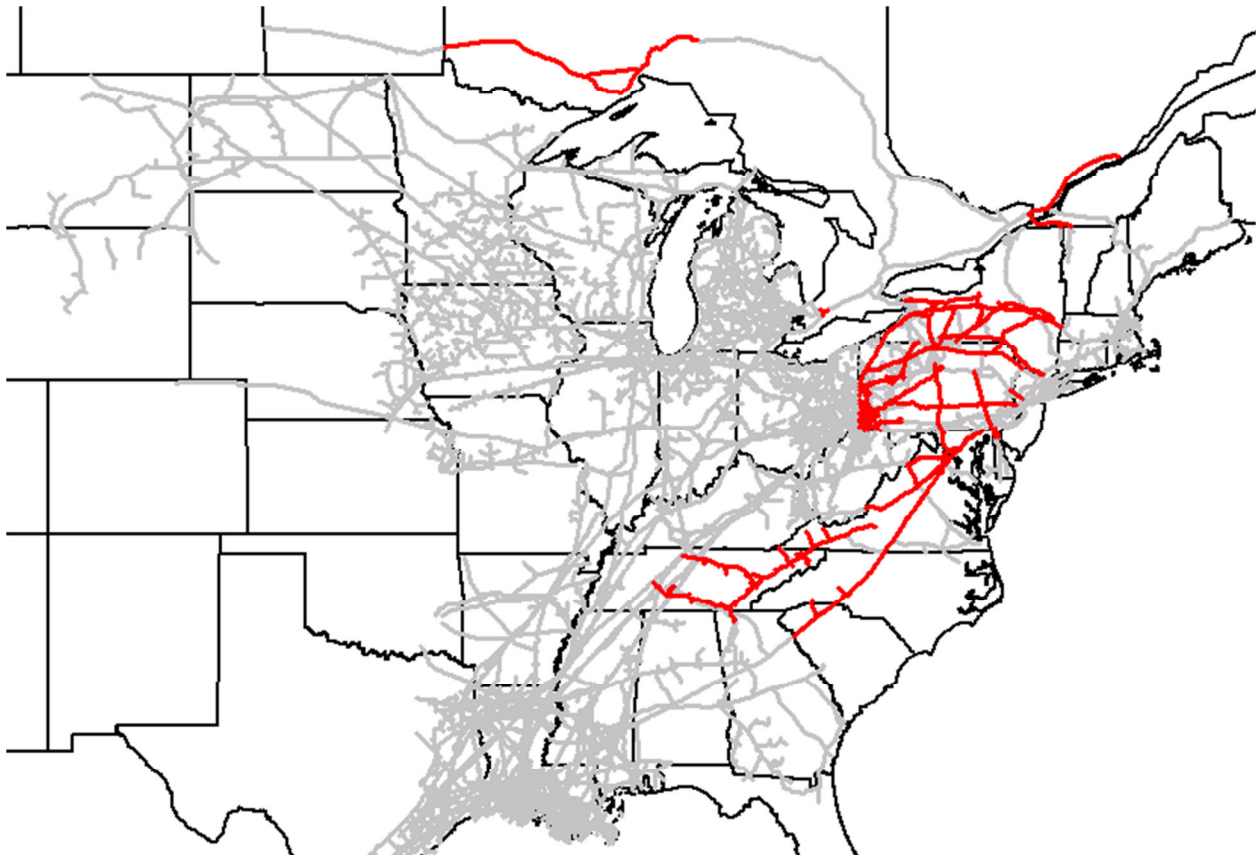


Table O6 summarizes the results of the frequency and duration analysis.

Table O6. RGDS S23 Winter 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	3	4	59	89
Columbia Gas W PA/NY	15	1	5	28
Constitution	2	31	59	90
Dominion Eastern NY	9	1	16	58
Dominion Western NY	1	5	5	5
Dominion Southeast	2	31	59	90
East Tennessee Mainline	5	1	5	11
Eastern Shore	12	1	15	63
Empire Mainline	8	1	44	61
Millennium	7	1	37	68
NB/NS Supply	2	31	59	90
Tennessee Z4 PA	7	1	8	25
Tennessee Z5 NY	3	1	59	89
Texas Eastern M2 PA South	7	1	46	81
Texas Eastern M3 North	6	1	17	47
TransCanada Ontario West	4	1	6	11
TransCanada Quebec	6	1	14	34
Transco Leidy Atlantic	3	4	59	89
Transco Z5	9	1	10	24
Transco Z6 Leidy to 210	5	1	55	86
Union Gas Dawn	3	1	2	4

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 2,679 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 P53 and Figure P54 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 P55 and Figure P56 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 P57 and Figure P58 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 P59 and Figure P60 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 P61 and Figure P62 relative to the capacity of the segment.

1.3.6 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 P63 and Figure P64 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 P65 and Figure P66 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 P67 and Figure P68 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 P69 and Figure P70 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 P71 and Figure P72 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 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 P73 and Figure P74 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 P75 and Figure P76 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 P77 and Figure P78 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 P79 and Figure P80 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 P81 and Figure P82 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 P83 and Figure P84 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 P85 and Figure P86 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 P87 and Figure P88 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 P89 and Figure P90 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 P91 and Figure P92 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 P93 and Figure P94 relative to the capacity of the segment.

1.4 RGDS S23 SUMMER 2023

Figure O10 summarizes the affected generation during the Summer 2023 peak hour by PPA.

Figure O10. RGDS S23 Summer 2023: Peak Hour Affected Generation

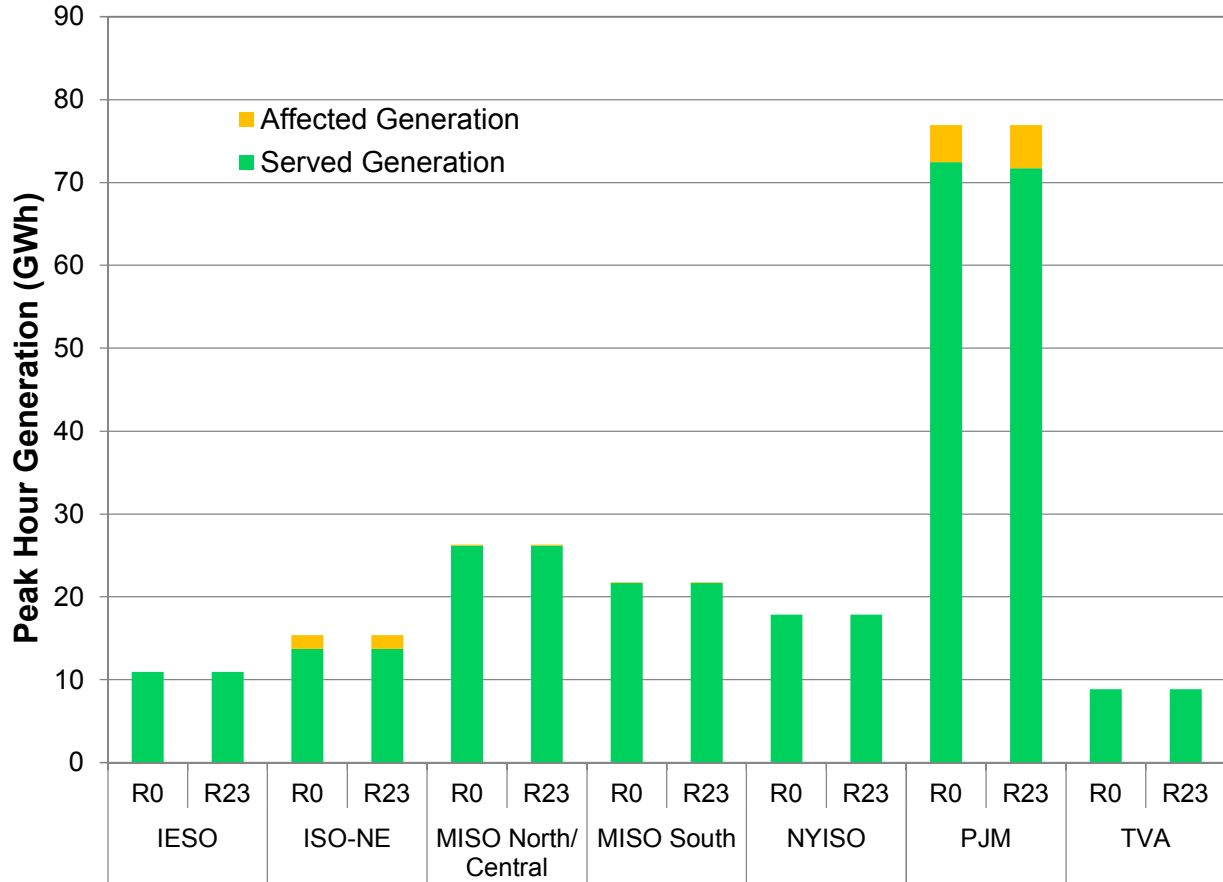


Figure O11 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O7.

Figure O11. RGDS S23 Summer 2023: GPCM Locations with Peak Hour Affected Generation

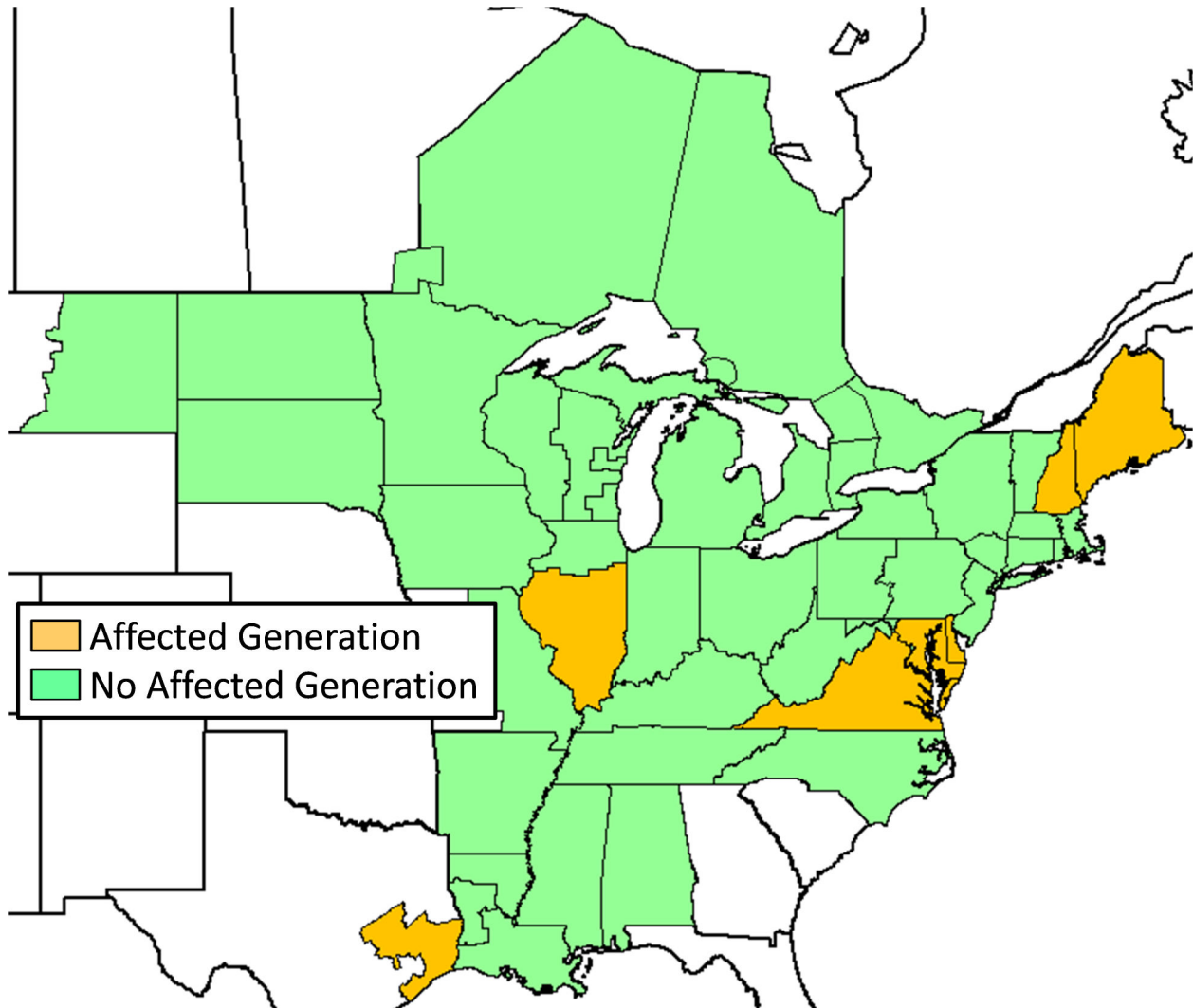


Table O7. RGDS S23 Summer 2023: Unserved Peak Hour Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.5	1,175
Illinois Southern	1.0	112
Maine	6.0	809
Maryland Eastern	16.7	2,361
New Hampshire	7.6	857
Texas East (SERC)	0.6	81
Virginia	15.5	1,668

Figure O12 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O10 during the Summer 2023 peak hour.

Figure O12. RGDS S23 Summer 2023: Peak Hour Constraints



Table O8 summarizes the results of the frequency and duration analysis.

Table O8. RGDS S23 Summer 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Algonquin Connecticut	6	1	3	12
Columbia Gas VA/MD	9	1	6	20
Dominion Southeast	10	1	18	50
Eastern Shore	9	1	7	27
NB/NS Supply	5	2	27	70
PNGTS N of Westbrook	10	1	8	41
PNGTS S of Westbrook	11	1	7	33
Texas Eastern Zone ETX	7	1	6	17
Transco Z5	6	1	6	16

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 P95 and Figure P96 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 P97 and Figure P98 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 P99 and Figure P100 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 P101 and Figure P102 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 P103 and Figure P104 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 P105 and Figure P106 relative to the capacity of the segment.

1.4.7 PNGTS South of Westbrook

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

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P107 and Figure P108 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 P109 and Figure P110 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 P111 and Figure P112 relative to the capacity of the segment.

2 S37: S13 + CANAPORT CONVERTED TO LNG EXPORT FACILITY

2.1 RGDS S37 WINTER 2023

Figure O13 summarizes the affected generation during the Winter 2023 peak hour by PPA.

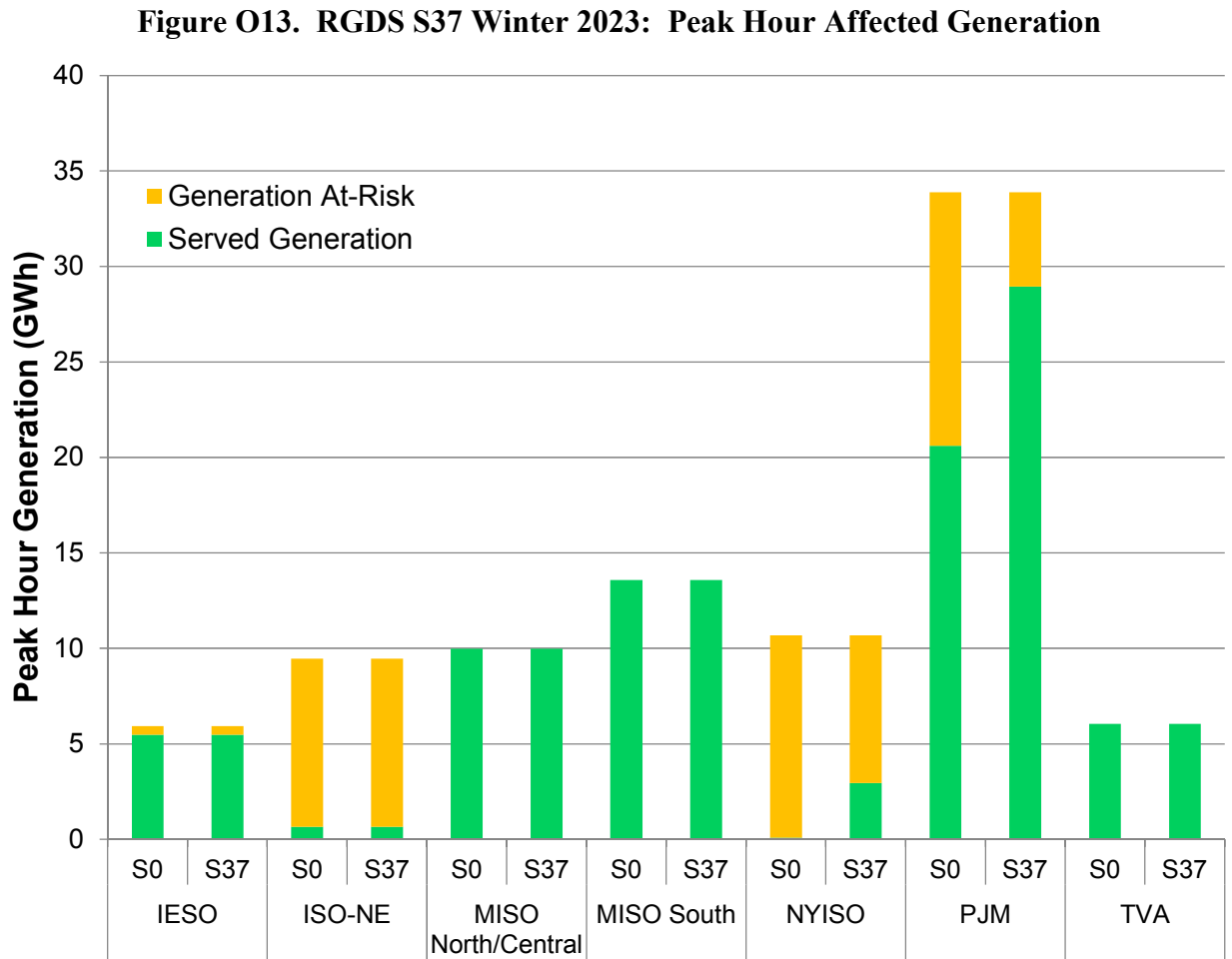


Figure O14 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O9.

Figure O14. RGDS S37 Winter 2023: GPCM Locations with Peak Hour Affected Generation

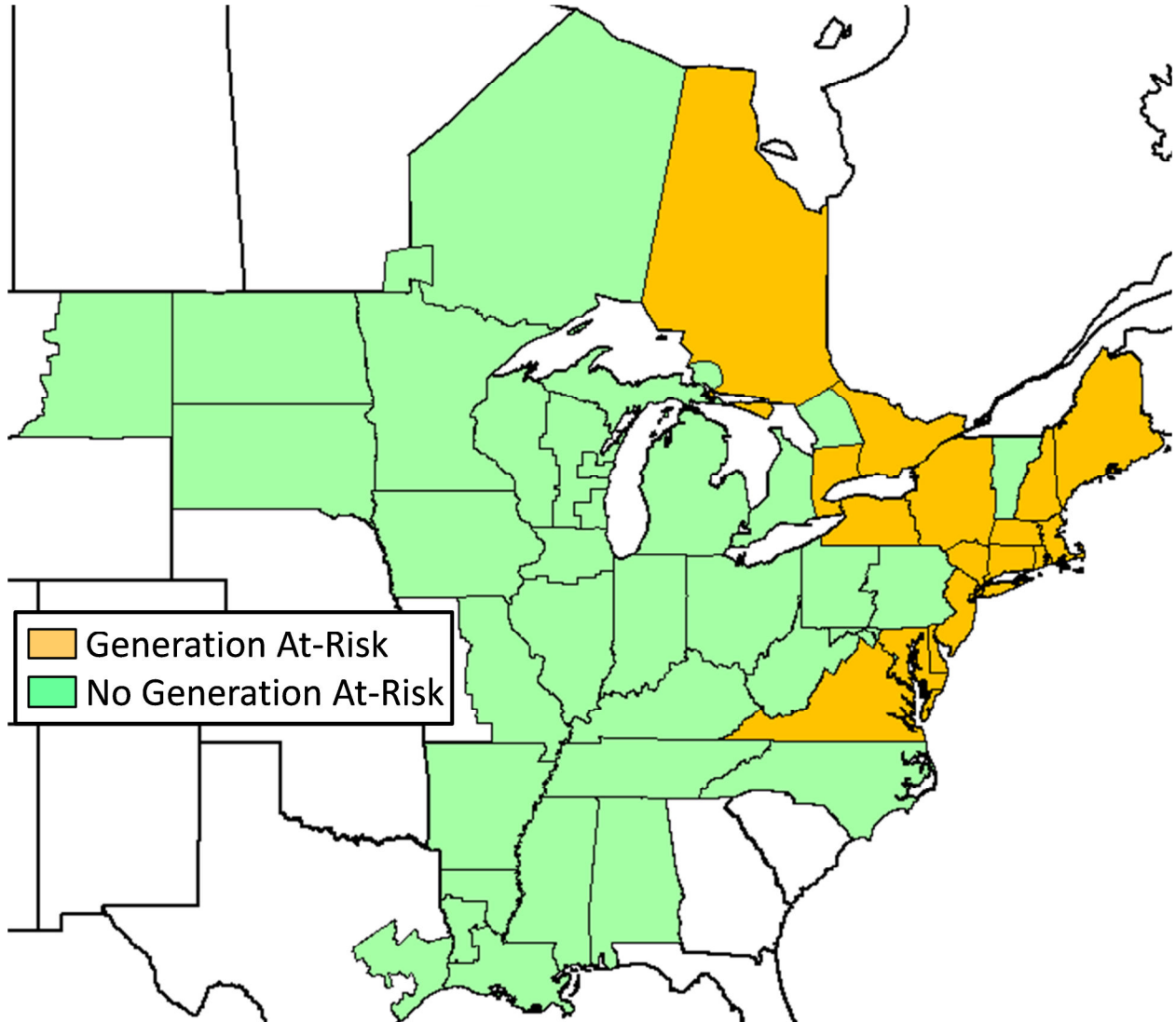


Table O9. RGDS S37 Winter 2023: Unserved Peak Hour Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Connecticut	15.6	2,140
Delaware	1.1	151
Maine	9.1	1,232
Maryland Eastern	5.0	539
Massachusetts Eastern	14.6	2,025
Massachusetts Western	9.3	1,239
New Hampshire	9.4	1,245
New York Central Northern	15.3	1,890
New York City	19.8	2,665
New York Long Island	12.8	1,292
New York Southern	15.1	1,629
New York Western	2.2	247
Ontario (CDA)	0.5	55
Ontario (EDA)	2.1	249
Ontario (NDA)	1.2	155
Rhode Island	7.1	936
Virginia	35.4	4,237

Figure O15 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O13 during the Winter 2023 peak hour.

Figure O15. RGDS S37 Winter 2023: Peak Hour Constraints



Table O10 summarizes the results of the frequency and duration analysis.

Table O10. RGDS S37 Winter 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	6	1	52	80
Constitution	2	31	59	90
Dominion Eastern NY	5	1	6	12
Dominion Western NY	1	5	5	5
Dominion Southeast	4	1	52	85
East Tennessee	5	1	5	11
Eastern Shore	12	1	15	63
Empire Mainline	4	1	13	22
Iroquois Z1 → Z2	2	31	59	90
M&N U.S.	2	31	59	90
Millennium	7	1	37	68
Tennessee Z4 PA	7	1	8	25
Texas Eastern M2 PA South	7	1	46	81
Texas Eastern M3 North	6	1	17	47
TransCanada Ontario West	4	1	6	11
Transco Leidy Atlantic	3	4	59	89
Transco Z5	8	1	2	9
Transco Z6 Leidy to 210	5	1	55	86
Union Gas Dawn	2	1	2	3

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 P113 and Figure P114 relative to the capacity of the segment.

2.1.2 Constitution Pipeline

Constitution’s proposed delivery capacity is 650 MDth/d. The 100% peak hour utilization on Constitution potentially affects generators served by Iroquois both directly and behind LDCs 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 P115 and Figure P116 relative to the capacity of the segment.

2.1.3 Dominion Eastern New York

Dominion's Eastern New York segment is modeled with a capacity of 1,019 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 P117 and Figure P118 relative to the capacity of the segment.

2.1.4 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 P119 and Figure P120 relative to the capacity of the segment.

2.1.5 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 P121 and Figure P122 relative to the capacity of the segment.

2.1.6 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 P123 and Figure P124 relative to the capacity of the segment.

2.1.7 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 P125 and Figure P126 relative to the capacity of the segments.

2.1.8 Empire Mainline

The Empire mainline is modeled with a capacity of 940 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 P127 and Figure P128 relative to the capacity of the segment.

2.1.9 Iroquois Zone 1 to Zone 2

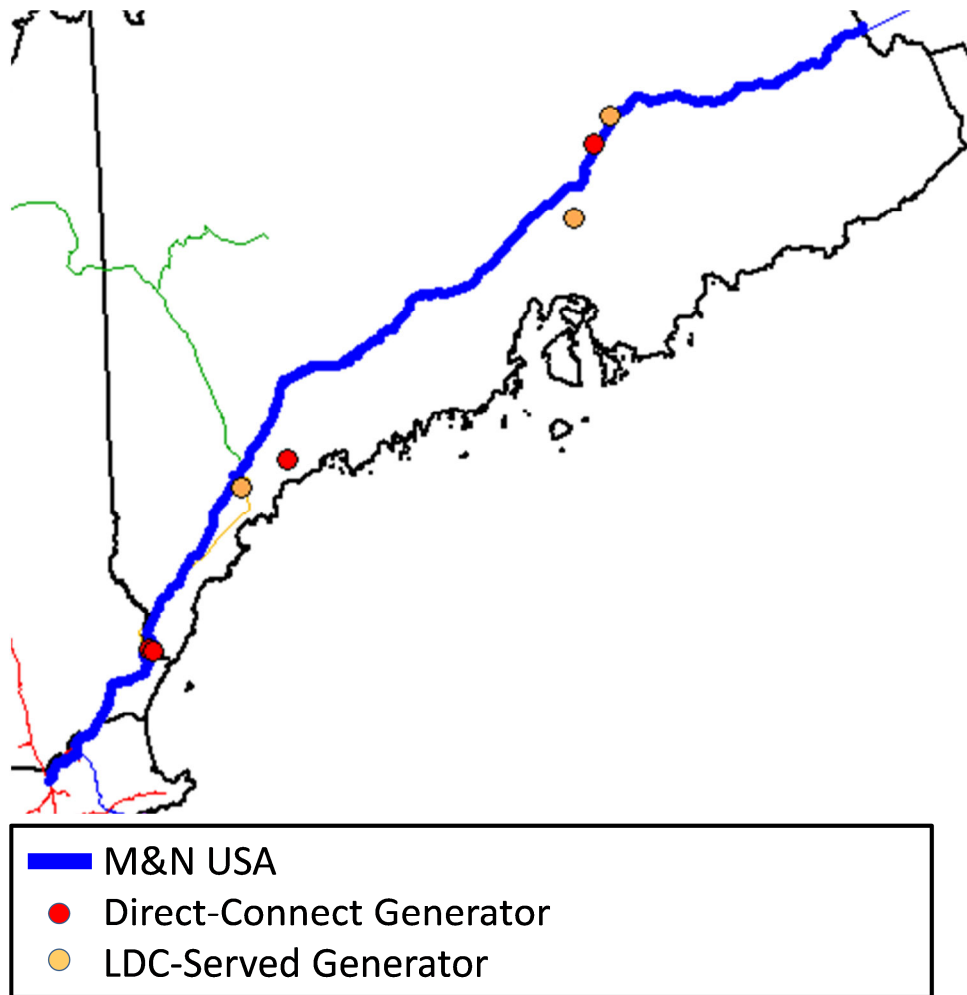
The 100% peak hour utilization of the link between Iroquois Zone 1 and Iroquois Zone 1, which is modeled with a capacity of 855 MDth/d, potentially affects generators directly connected to Iroquois in New York and Connecticut, and generators behind LDCs served by Iroquois in New York and Connecticut.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

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P129 and Figure P130 relative to the capacity of the segment.

2.1.10 M&N U.S.

M&N U.S. is modeled with a capacity of 1,847 MDth/d. The 100% peak hour utilization on M&N's mainline 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 O16. Generators located in the Canadian Maritimes could also be affected by this supply constraint, but have not been included in the summary results.

Figure O16. Generators Affected by M&N U.S. Constraint



The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P131 and Figure P132 relative to the capacity of the segment.

2.1.11 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 P133 and Figure P134 relative to the capacity of the segment.

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 P135 and Figure P136 relative to the capacity of the segment.

2.1.13 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 P137 and Figure P138 relative to the capacity of the segment.

2.1.14 Texas Eastern M3 – Northern Line

The Texas Eastern M3 Northern Line is modeled with a capacity of 2,987 MDth/d. The 100% peak hour utilization on 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 P139 and Figure P140 relative to the capacity of the segment.

2.1.15 TransCanada Ontario West

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

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P141 and Figure P142 relative to the capacity of the segment.

2.1.16 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 P143 and Figure P144 relative to the capacity of the segment.

2.1.17 Transco Zone 5

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

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P145 and Figure P146 relative to the capacity of the segment.

2.1.18 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 P147 and Figure P148 relative to the capacity of the segment.

2.1.19 Union Gas Dawn

The 100% peak hour utilization on Union Gas's Dawn segment, which is modeled with a capacity of 6,612 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 P149 and Figure P150 relative to the capacity of the segment.

2.2 RGDS S37 SUMMER 2023

Figure O17 summarizes the affected generation during the Summer 2023 peak hour by PPA.

Figure O17. RGDS S37 Summer 2023: Peak Hour Affected Generation

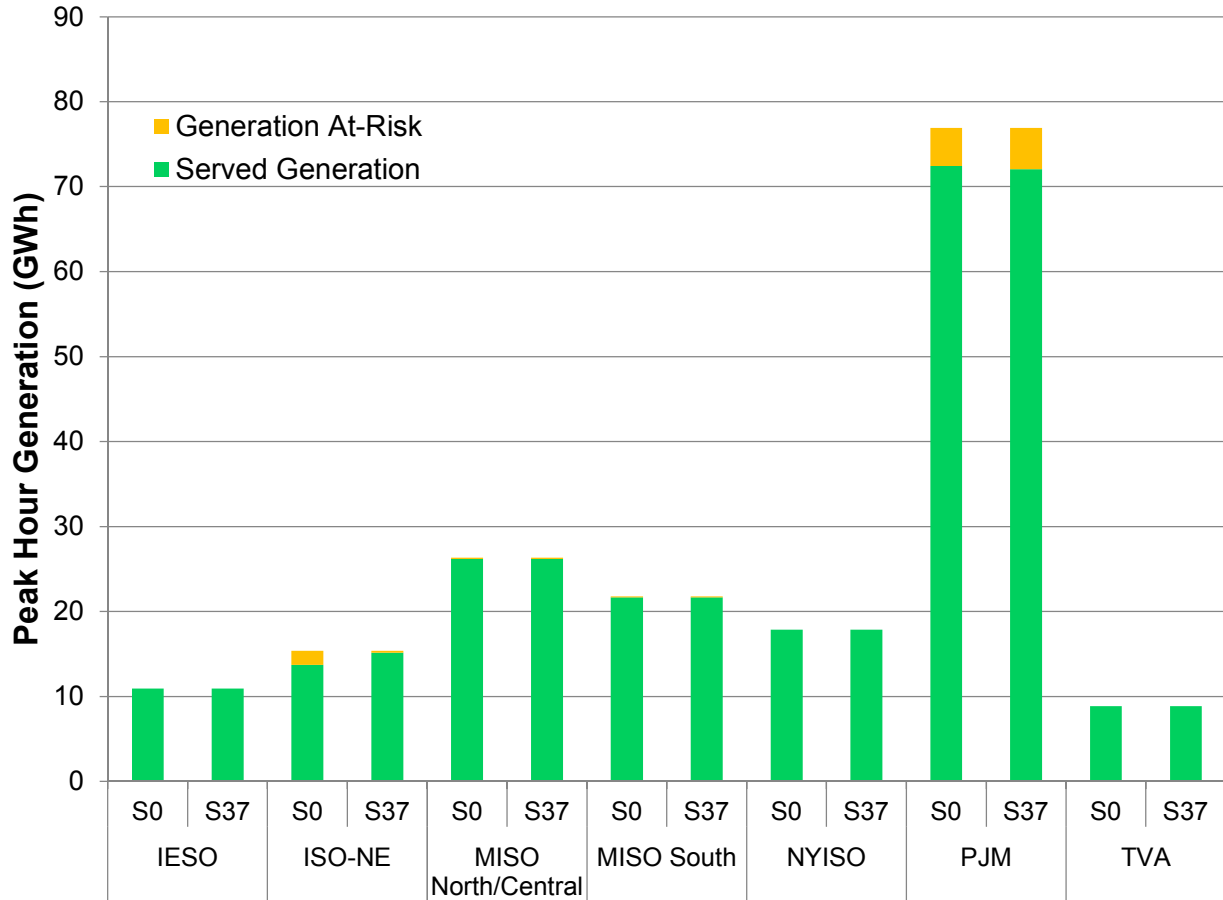


Figure O18 summarizes the unserved demand by GPCM location. The unserved demand and affected generation by location are quantified in Table O11.

Figure O18. RGDS S37 Summer 2023: GPCM Locations with Peak Hour Affected Generation

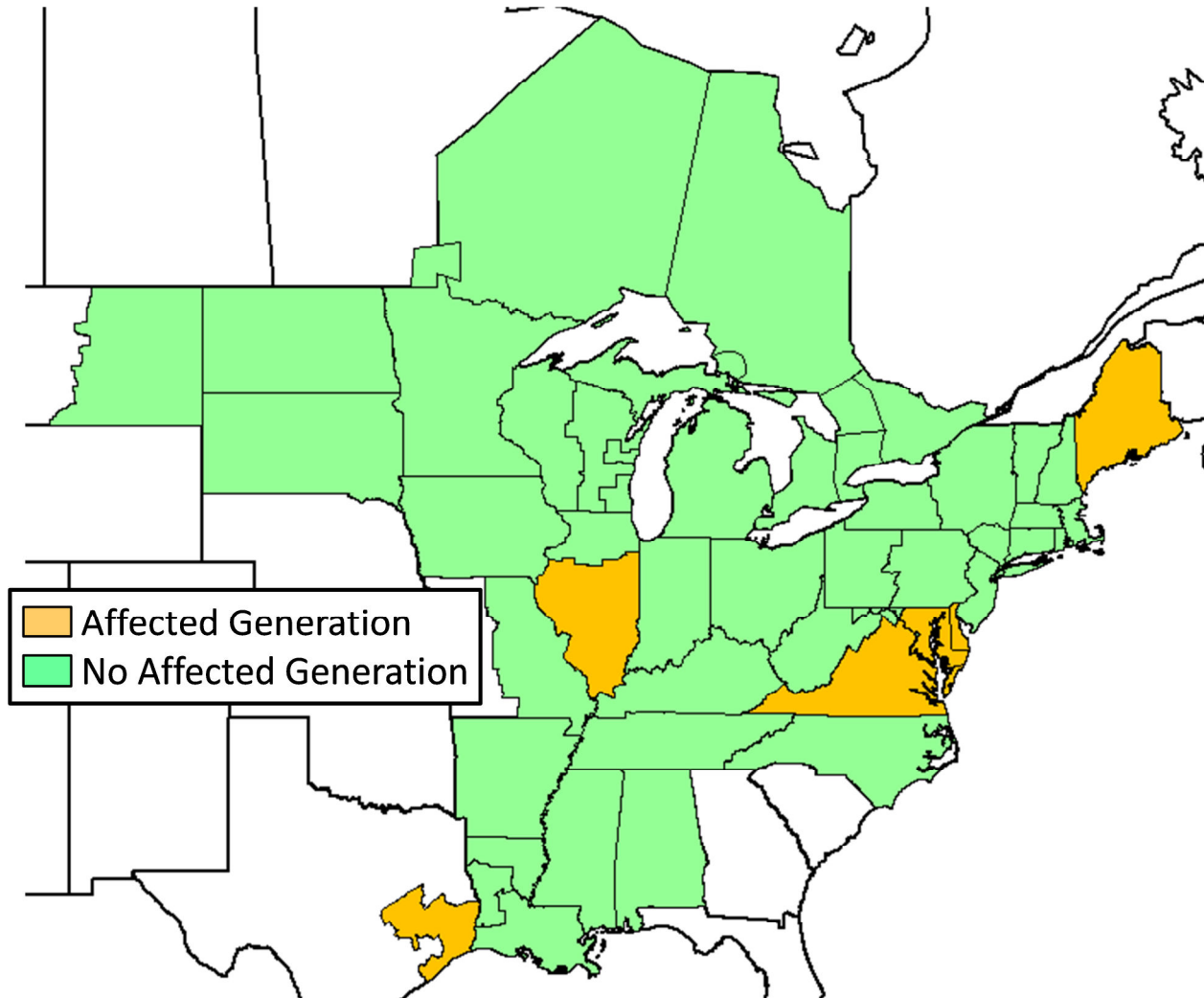


Table O11. RGDS S37 Summer 2023: Unserved Peak Hour Generation Demand and Affected Generation

Location	Unserved Generation Gas Demand (MDth)	Affected Generation (MWh)
Delaware	8.5	1,175
Illinois Southern	1.0	112
Maine	1.7	217
Maryland Eastern	16.7	2,361
Texas East (SERC)	0.6	81
Virginia	11.8	1,303

Figure O19 shows the constrained pipeline segments, in red, that result in the affected generation shown in Figure O17 during the Summer 2023 peak hour.

Figure O19. RGDS S37 Summer 2023: Peak Hour Constraints

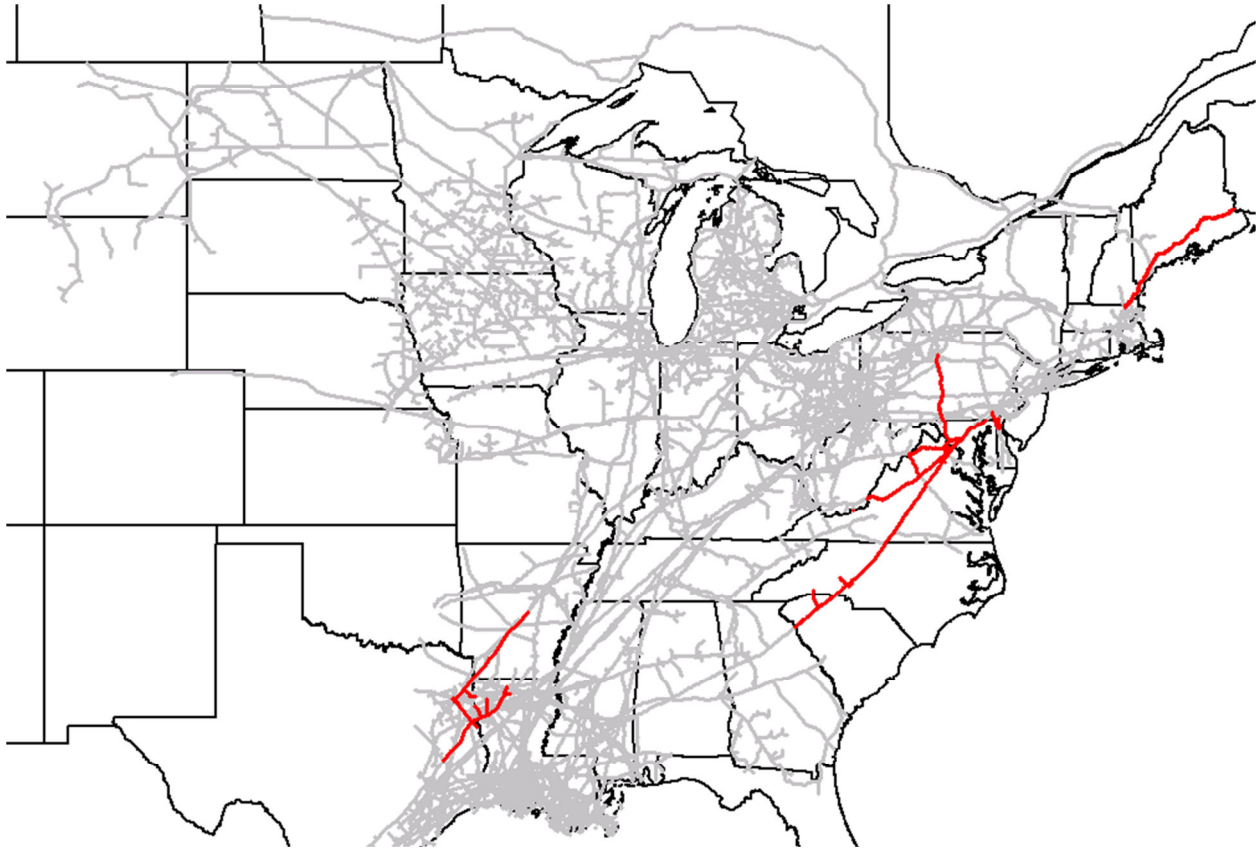


Table O12 summarizes the results of the frequency and duration analysis.

Table O12. RGDS S37 Summer 2023: Frequency and Duration of Constraints

Constraint	# of Events	Min. Duration (Days)	Max. Duration (Days)	Total # of Days
Columbia Gas VA/MD	2	1	3	4
Dominion Southeast	9	1	7	27
Eastern Shore	9	1	7	27
M&N USA	1	92	92	92
Texas Eastern Zone ETX	7	1	6	17
Transco Z5	6	1	6	16

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 P151 and Figure P152 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 P153 and Figure P154 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 P155 and Figure P156 relative to the capacity of the segments.

2.2.4 M&N U.S.

M&N U.S. is modeled with a capacity of 1,300 MDth/d. The 100% peak hour utilization on M&N's mainline 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 O16. Generators located in the Canadian Maritimes could also be affected by this supply constraint, but have not been included in the summary results.

The seasonal daily forecasts of RCI and generator gas demand downstream of the constrained segment are shown in Figure P157 and Figure P158 relative to the capacity of the segment.

2.2.5 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 P159 and Figure P160 relative to the capacity of the segment.

2.2.6 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 P161 and Figure P162 relative to the capacity of the segment.