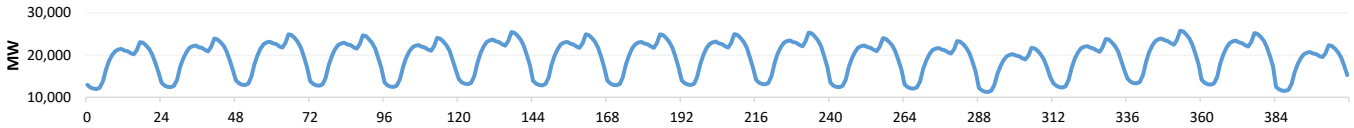
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 1 - PD 1 No Disruptions (Winter 2023/2024)

Hourly Results Summary

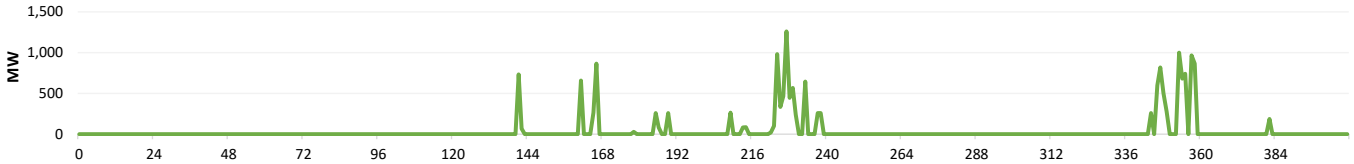
Case Name: Scenario 1 - PD 1 No Disruptions

Load During Modeling Period



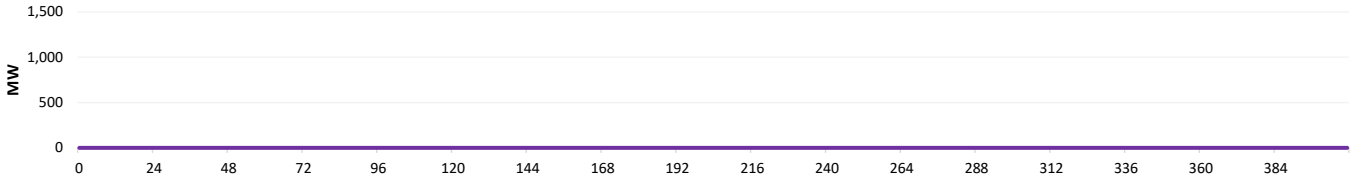
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



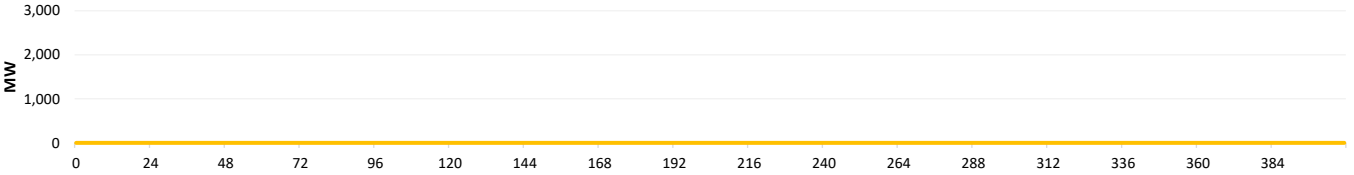
Export Reductions	
Total Hrs.	35
Total MWh	16,119
Avg. MW	39.5

SCR/EDRP Deployed During Modeling Period



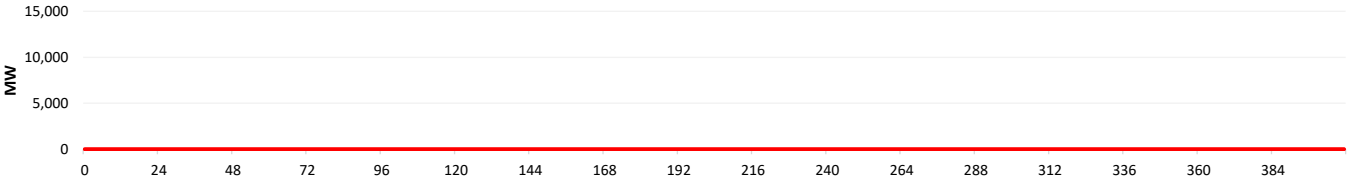
SCR Deployment	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

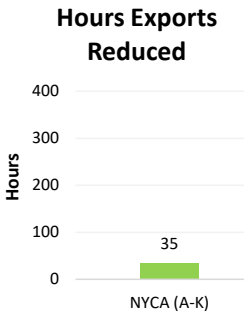


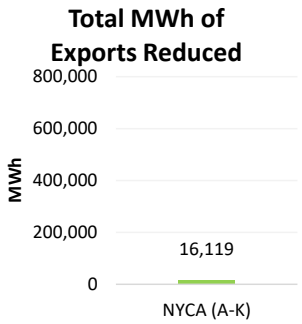
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

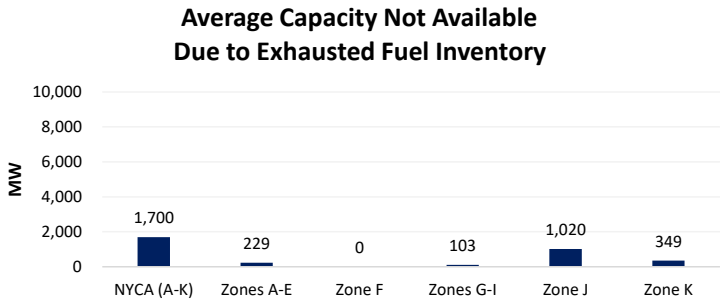
Full Period Results Summary

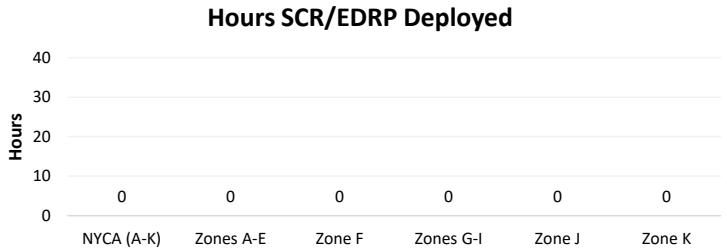
Case Name: Scenario 1 - PD 1 No Disruptions

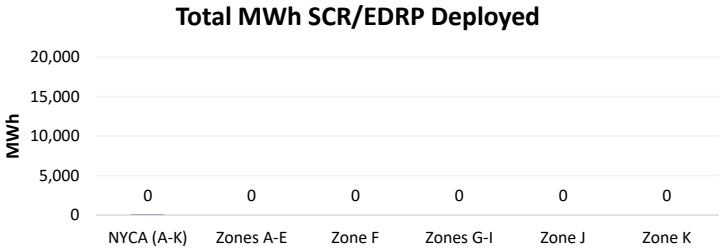
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

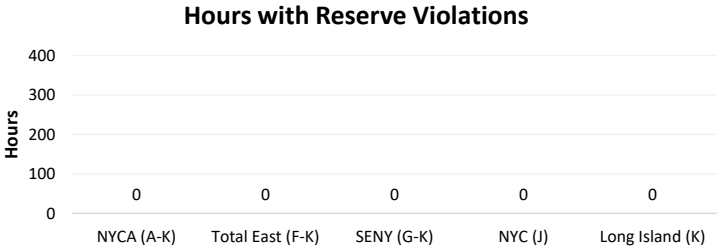


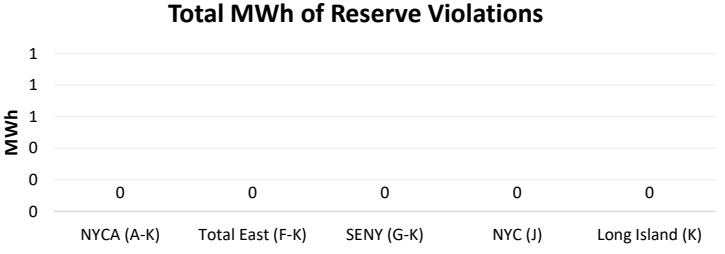


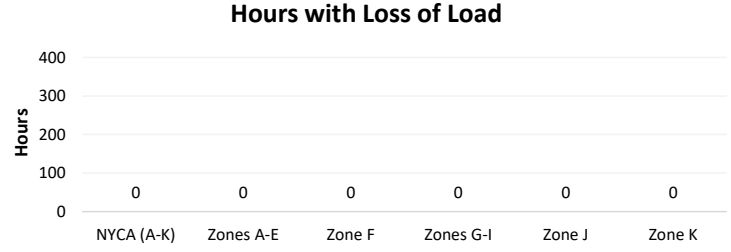


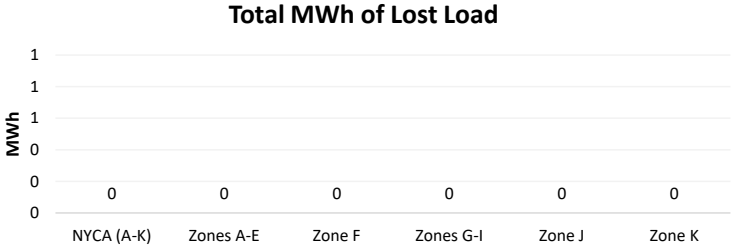


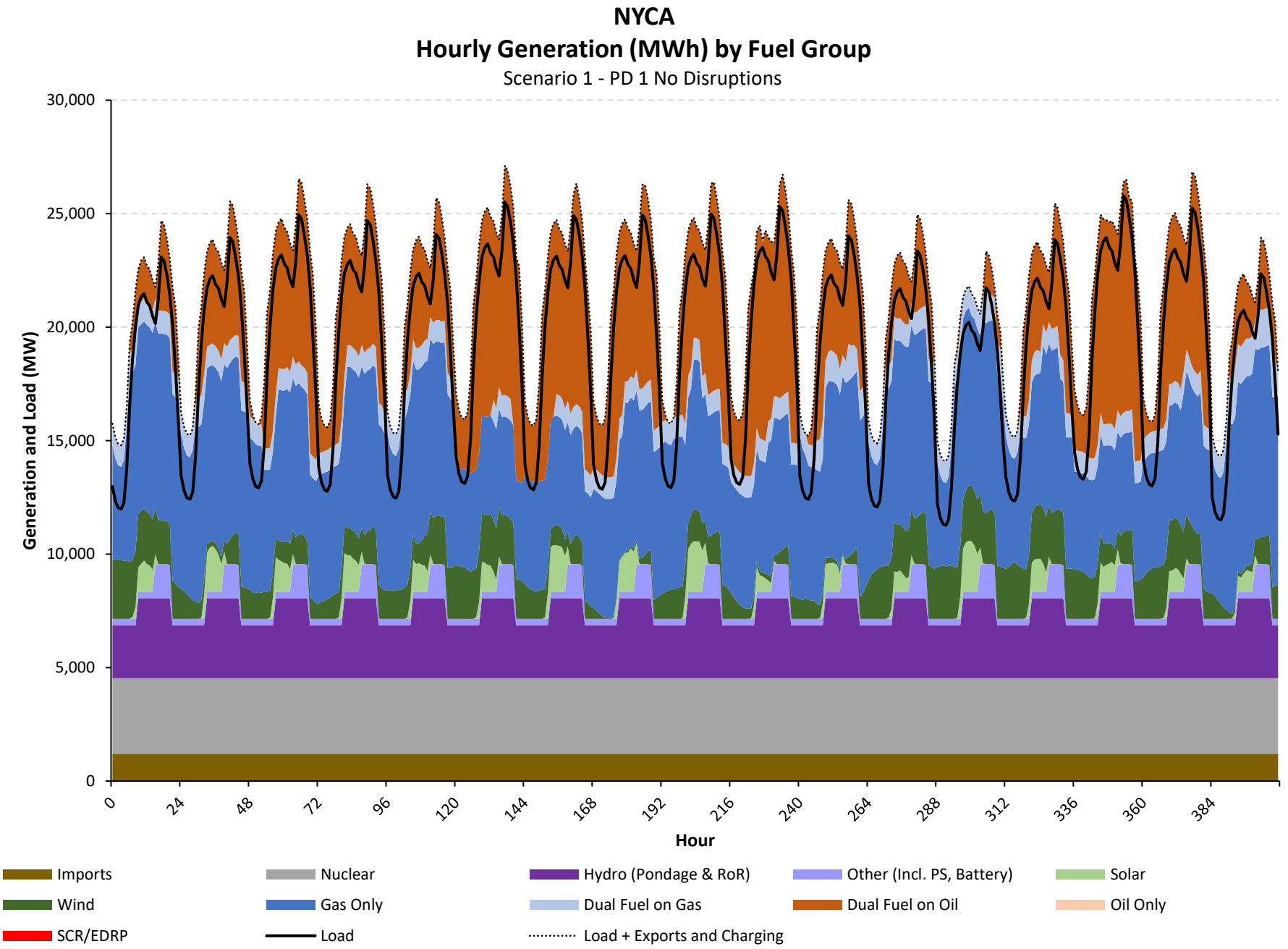


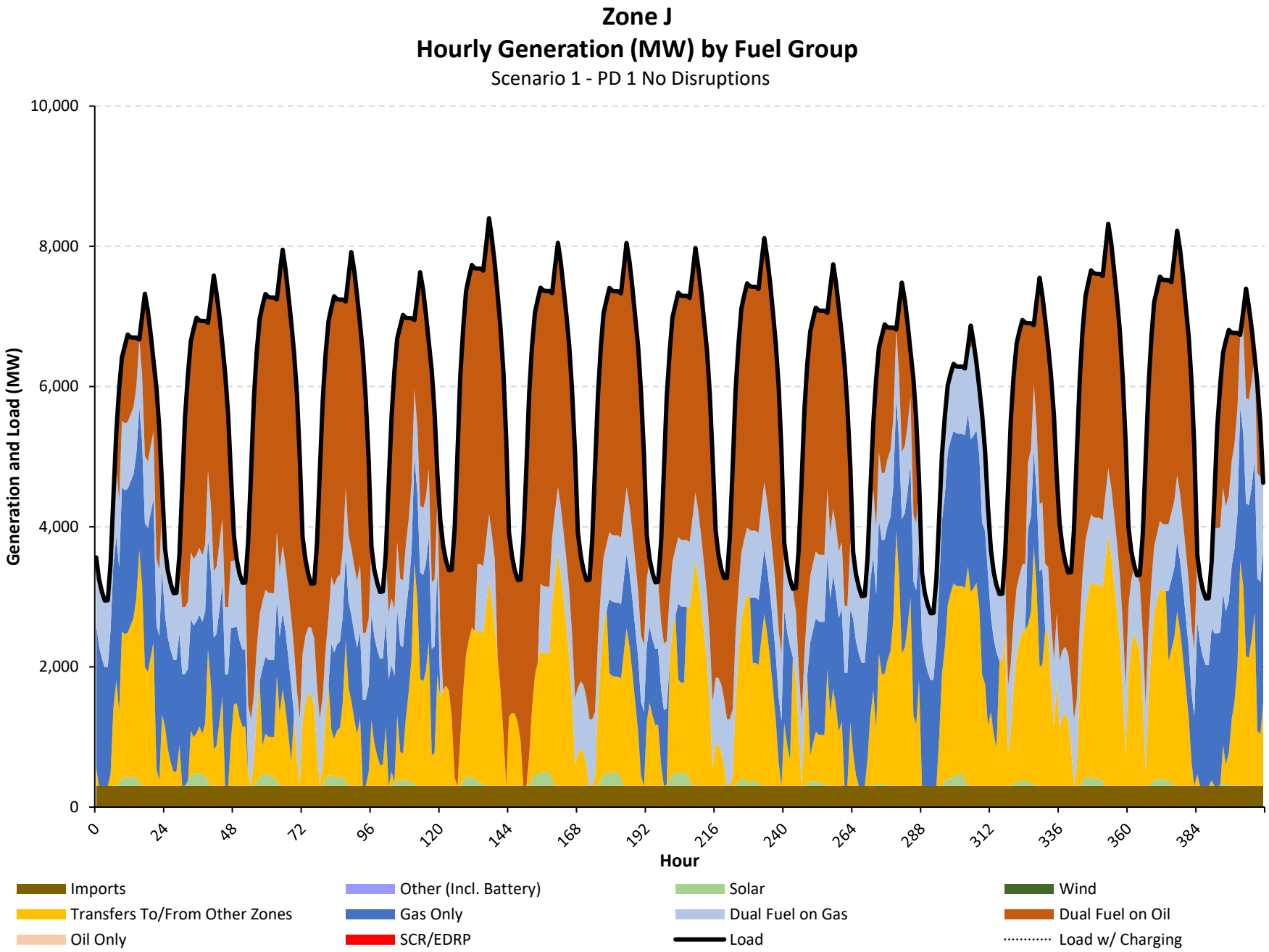




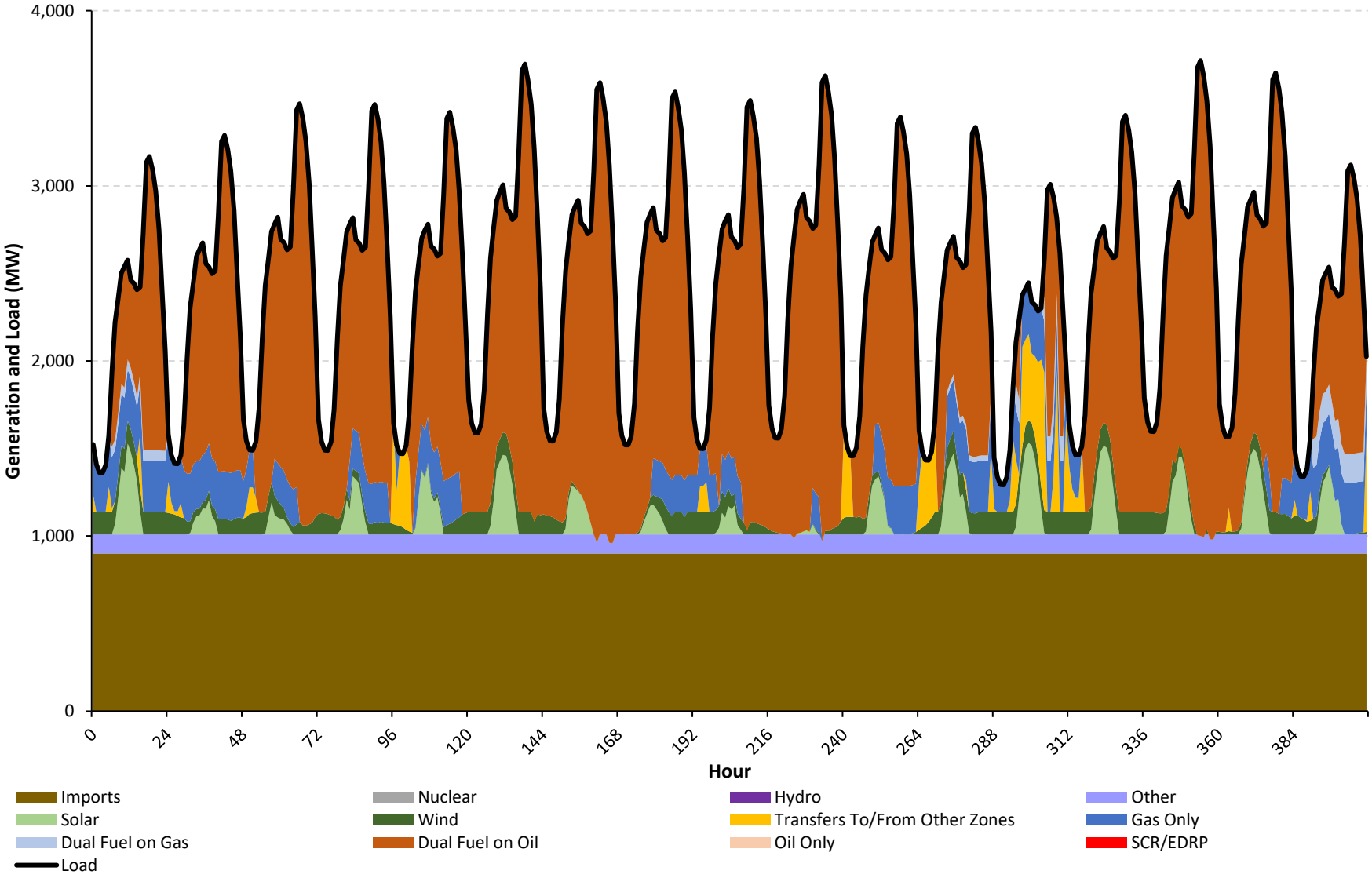





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 1 No Disruptions
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 1 No Disruptions
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

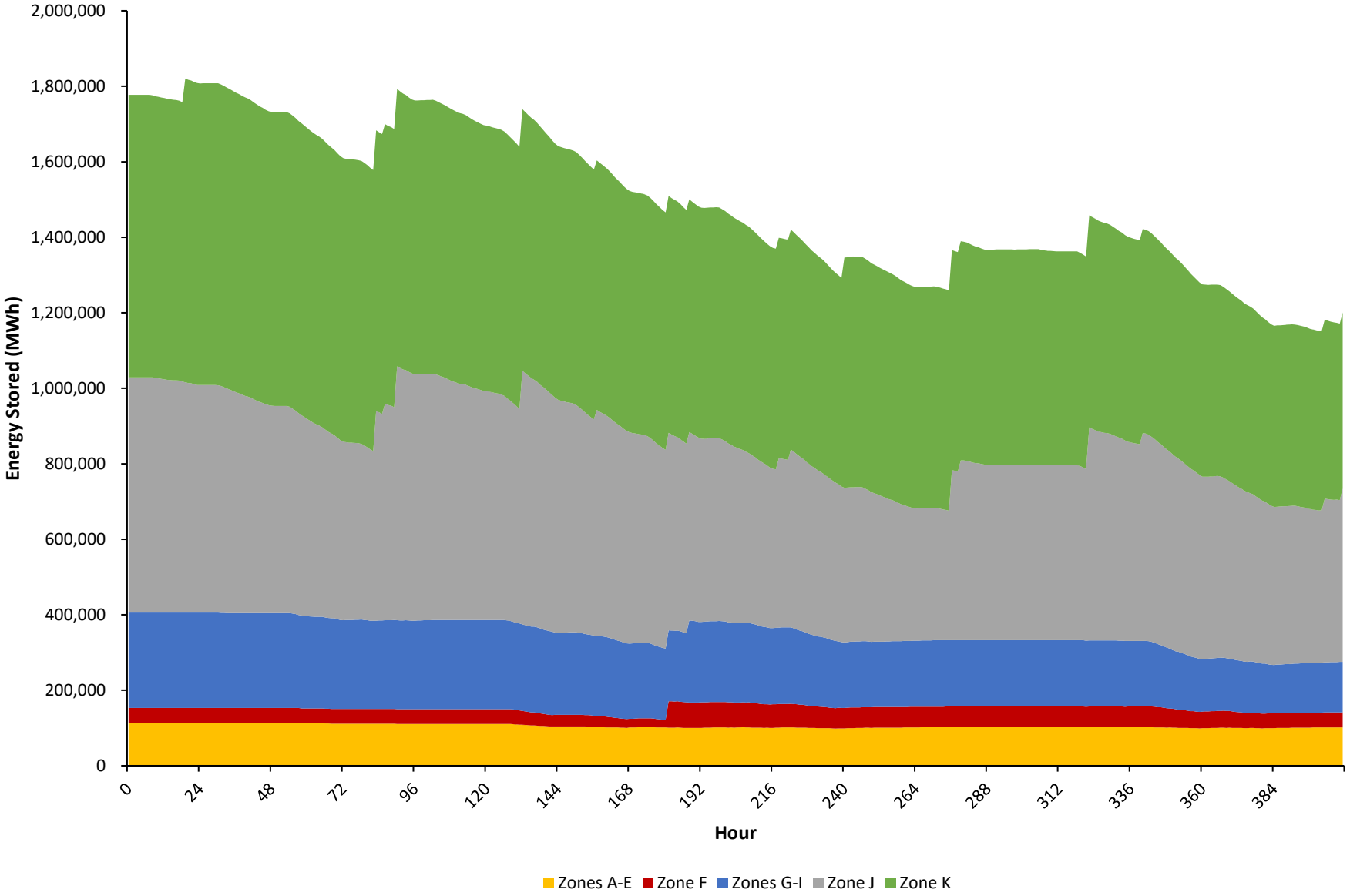
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 1 No Disruptions

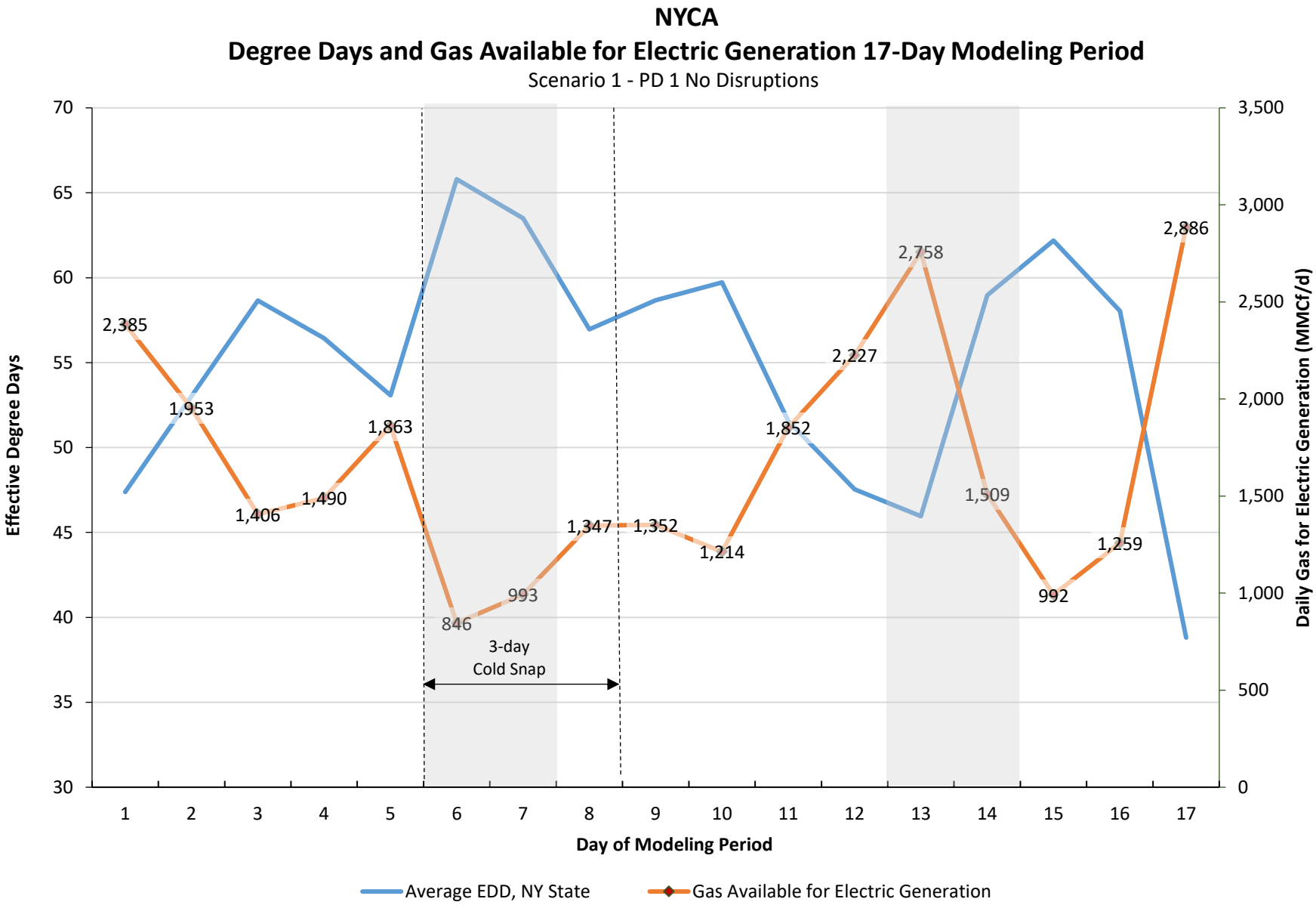


NYCA

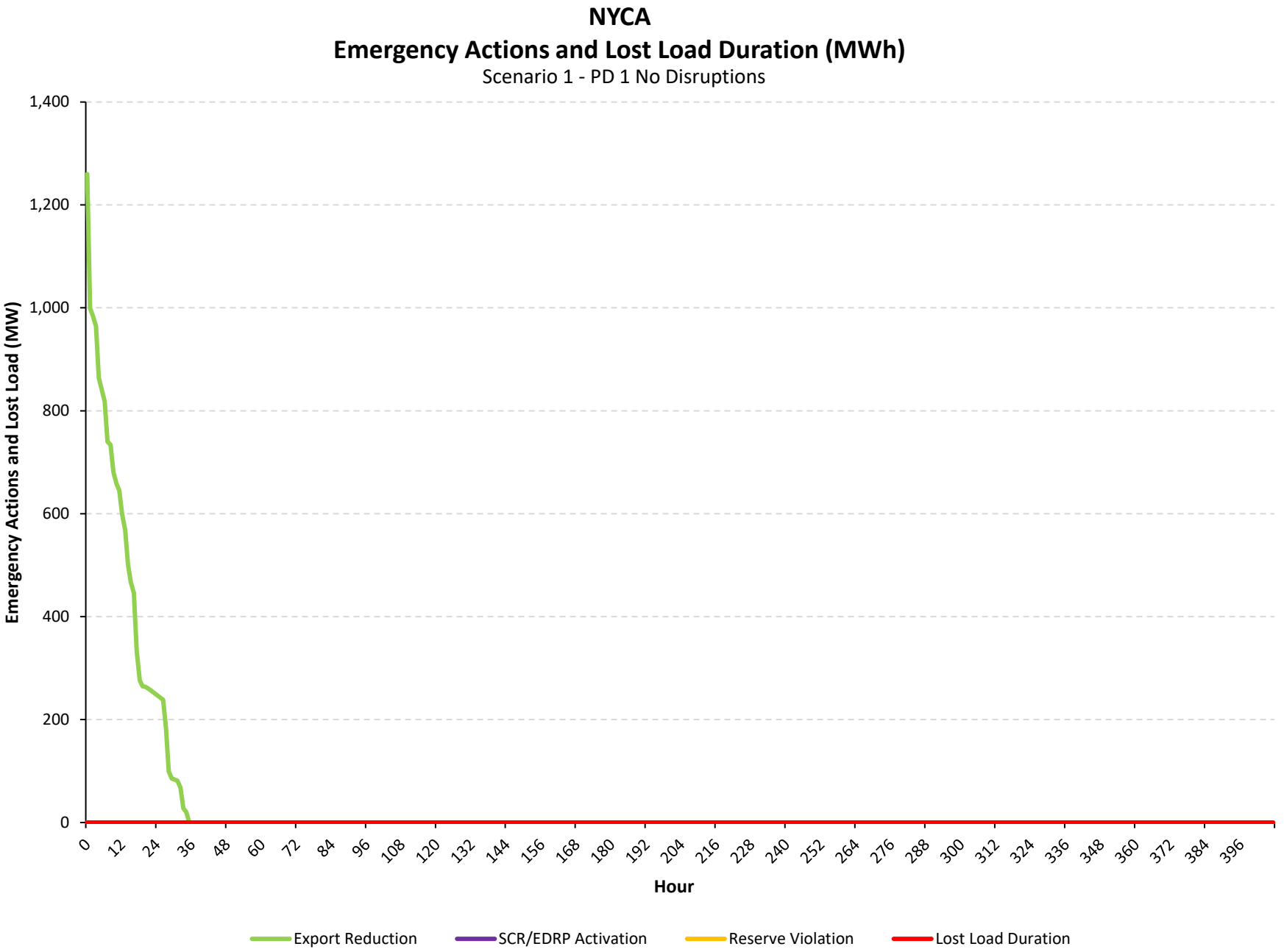
Quantity of Stored Fuel for Oil and Dual Fuel Units

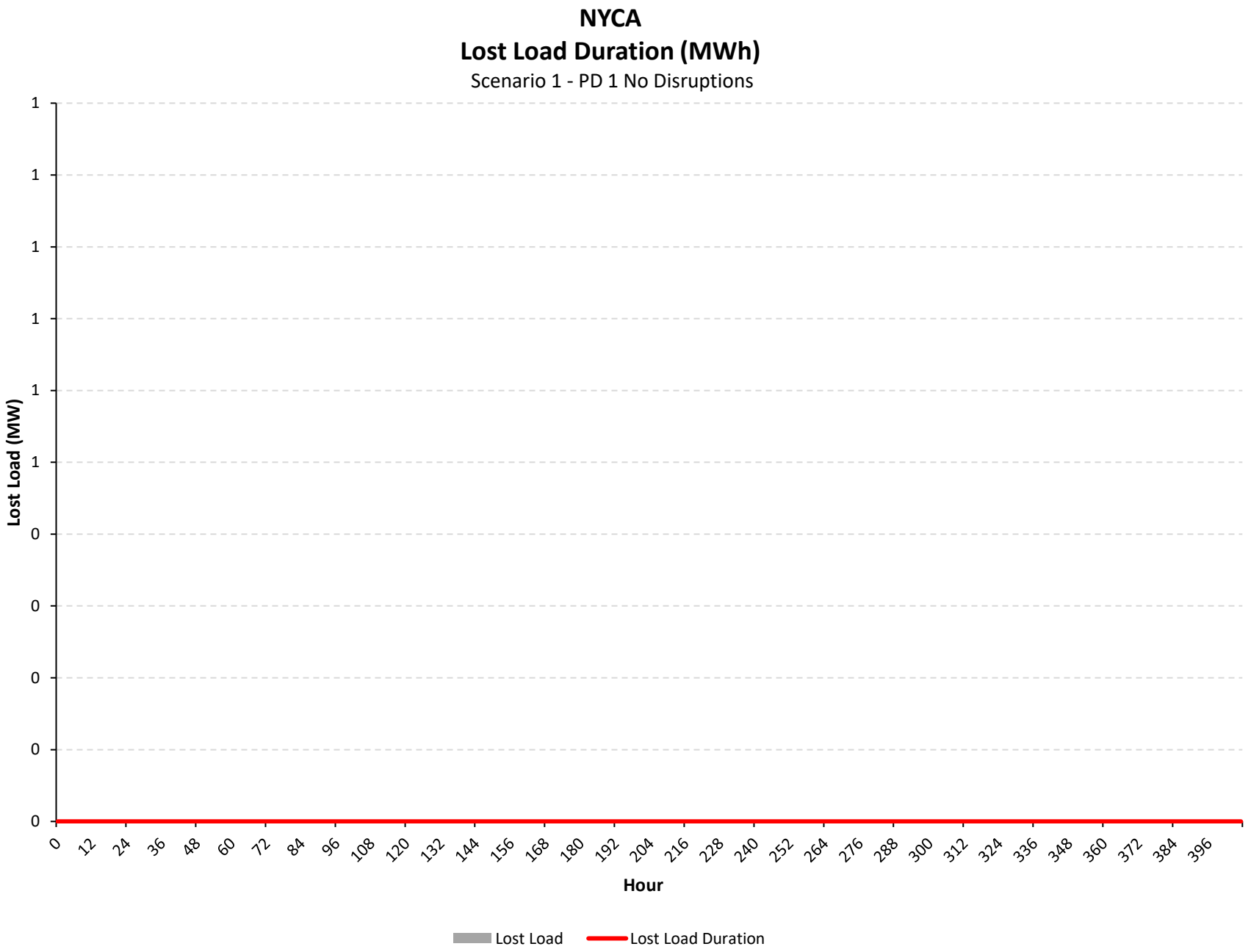
Scenario 1 - PD 1 No Disruptions





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 1 No Disruptions
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 1 No Disruptions
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

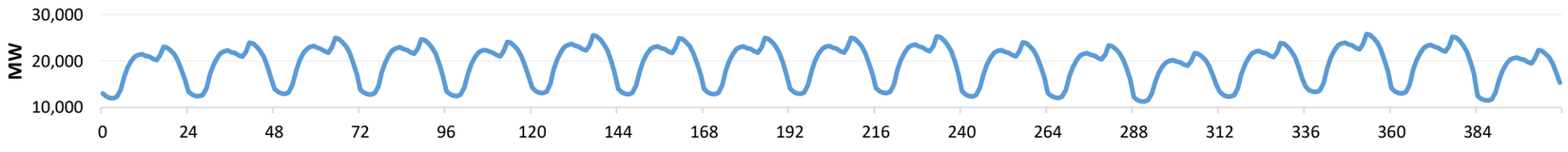
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 1 - PD 2 High Outage (Winter 2023/2024)

Hourly Results Summary

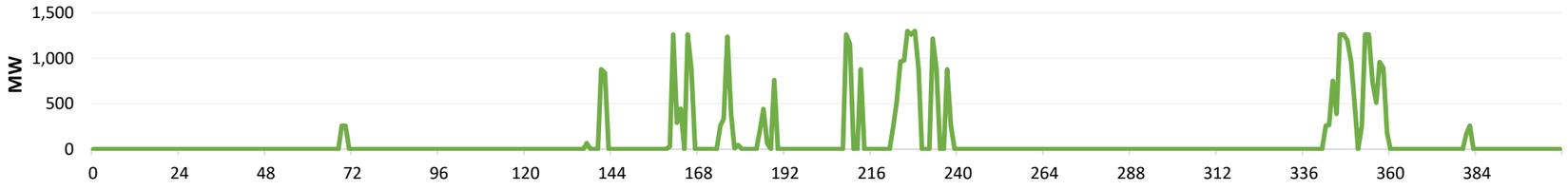
Case Name: Scenario 1 - PD 2 High Outage

Load During Modeling Period



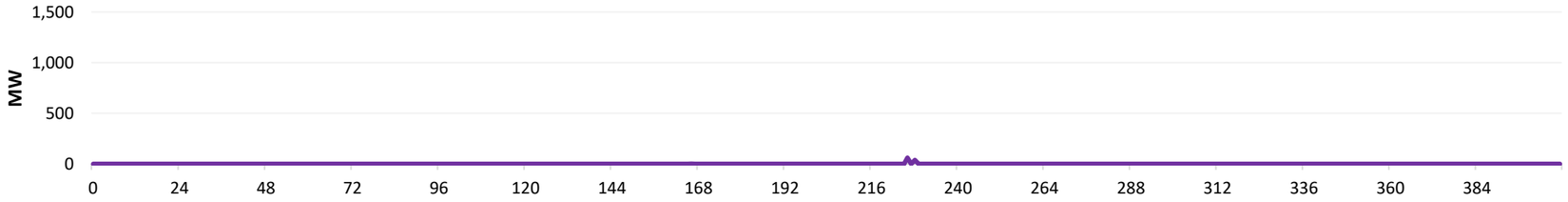
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



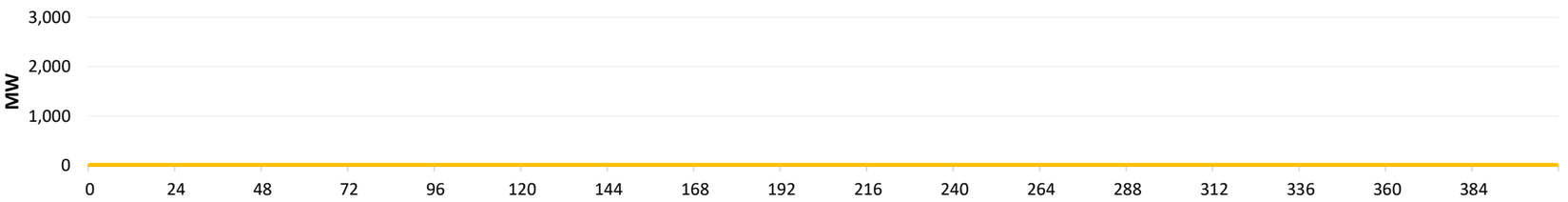
Export Reductions	
Total Hrs.	55
Total MWh	37,561
Avg. MW	92.1

SCR/EDRP Deployed During Modeling Period



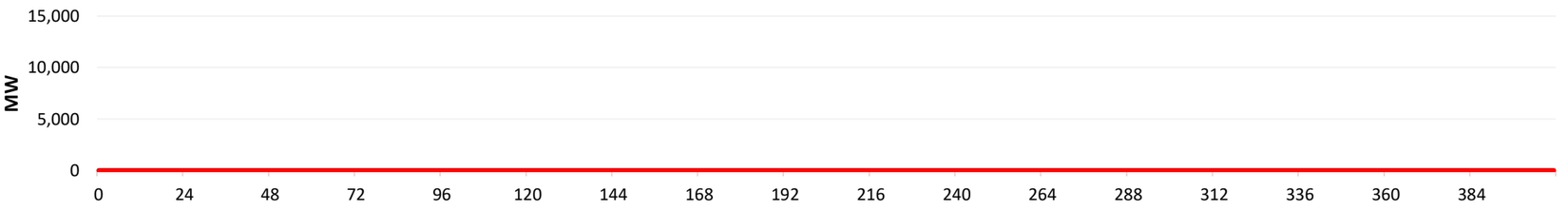
SCR Deployment	
Total Hrs.	2
Total MWh	101
Avg. MW	0.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

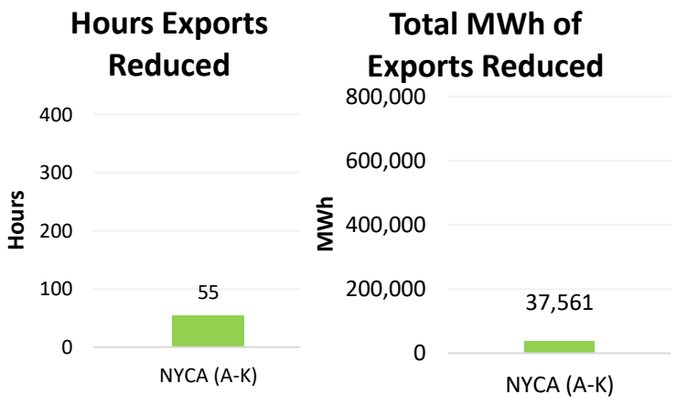


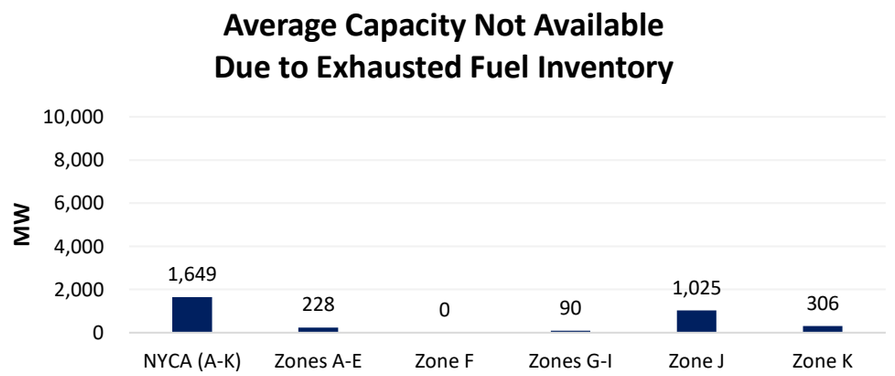
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

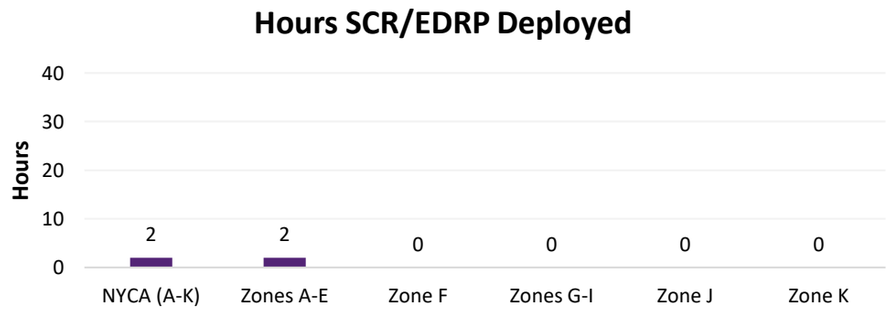
Full Period Results Summary

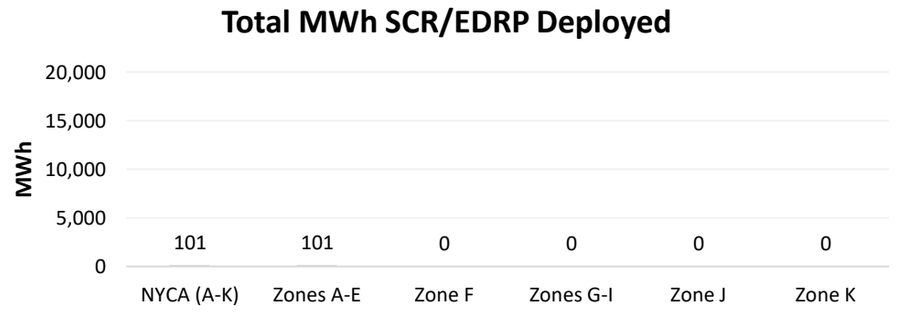
Case Name: Scenario 1 - PD 2 High Outage

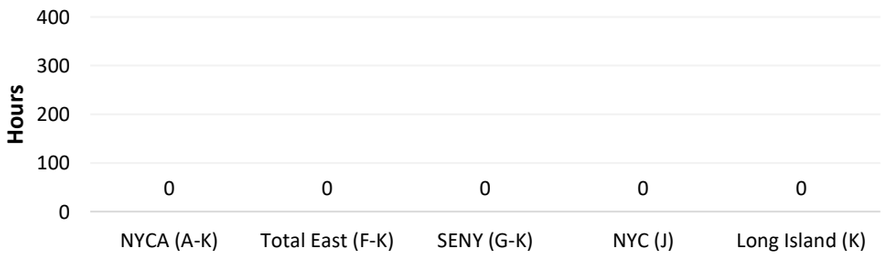
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

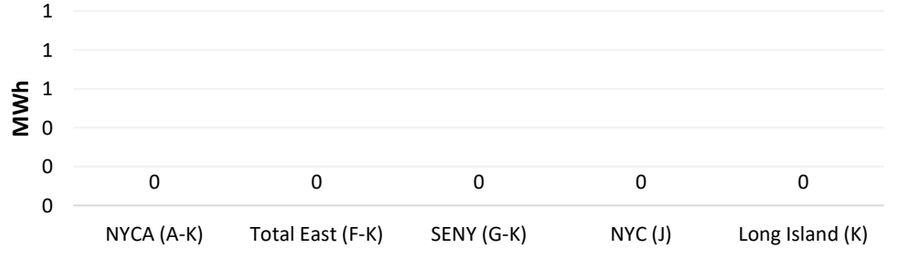


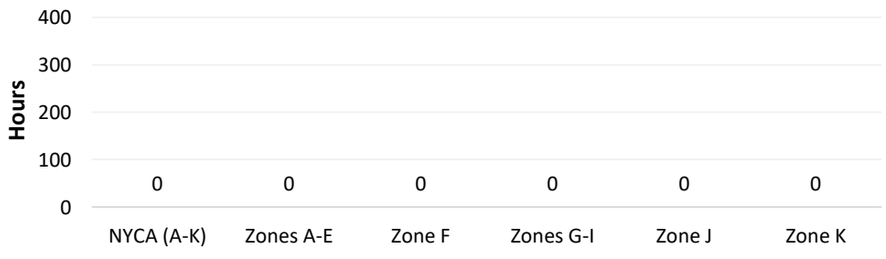


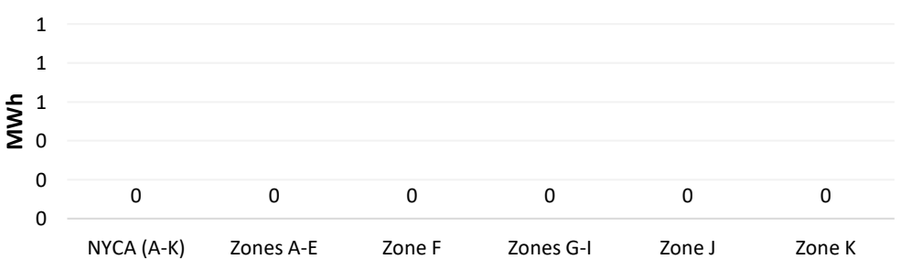


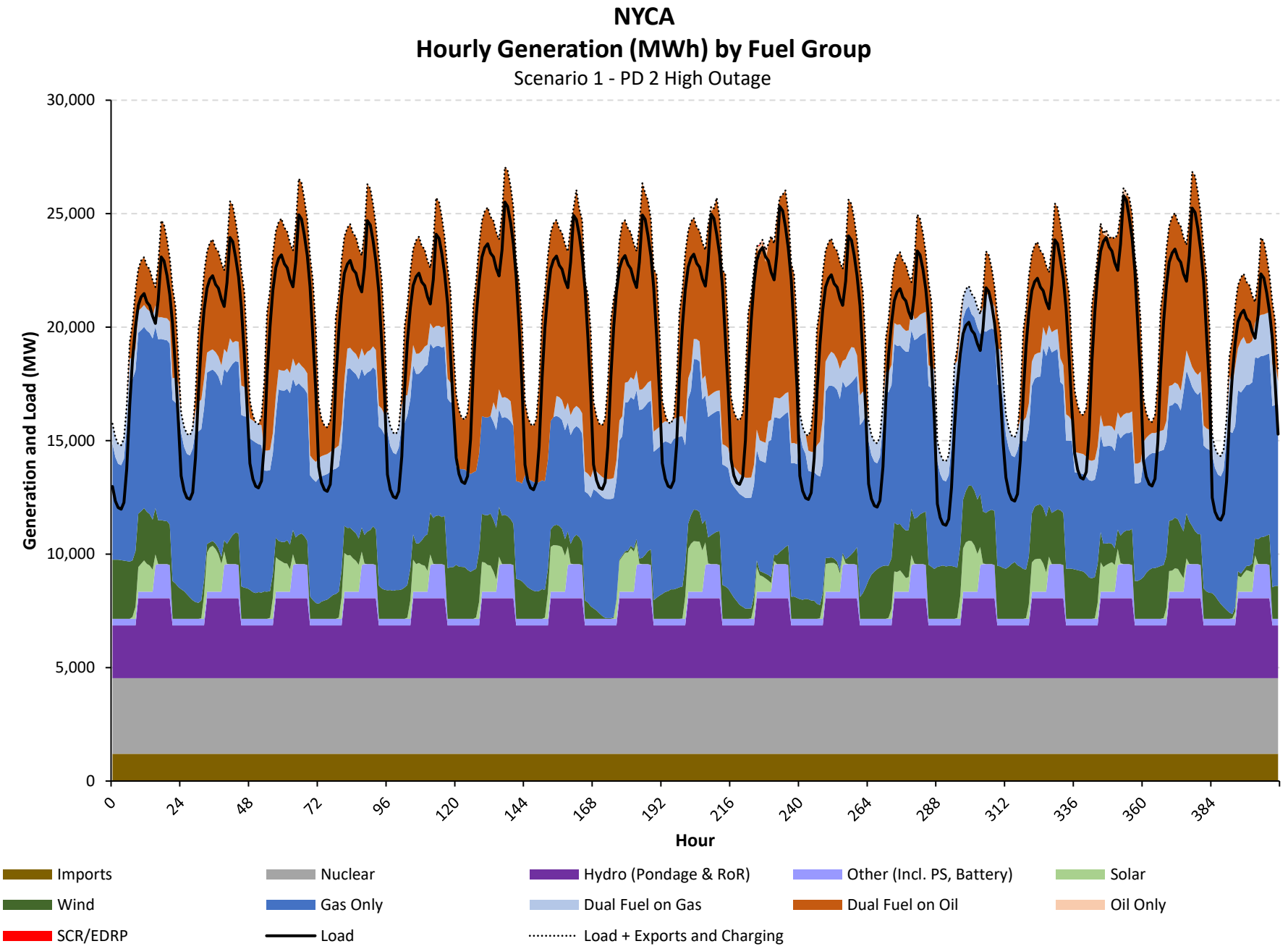


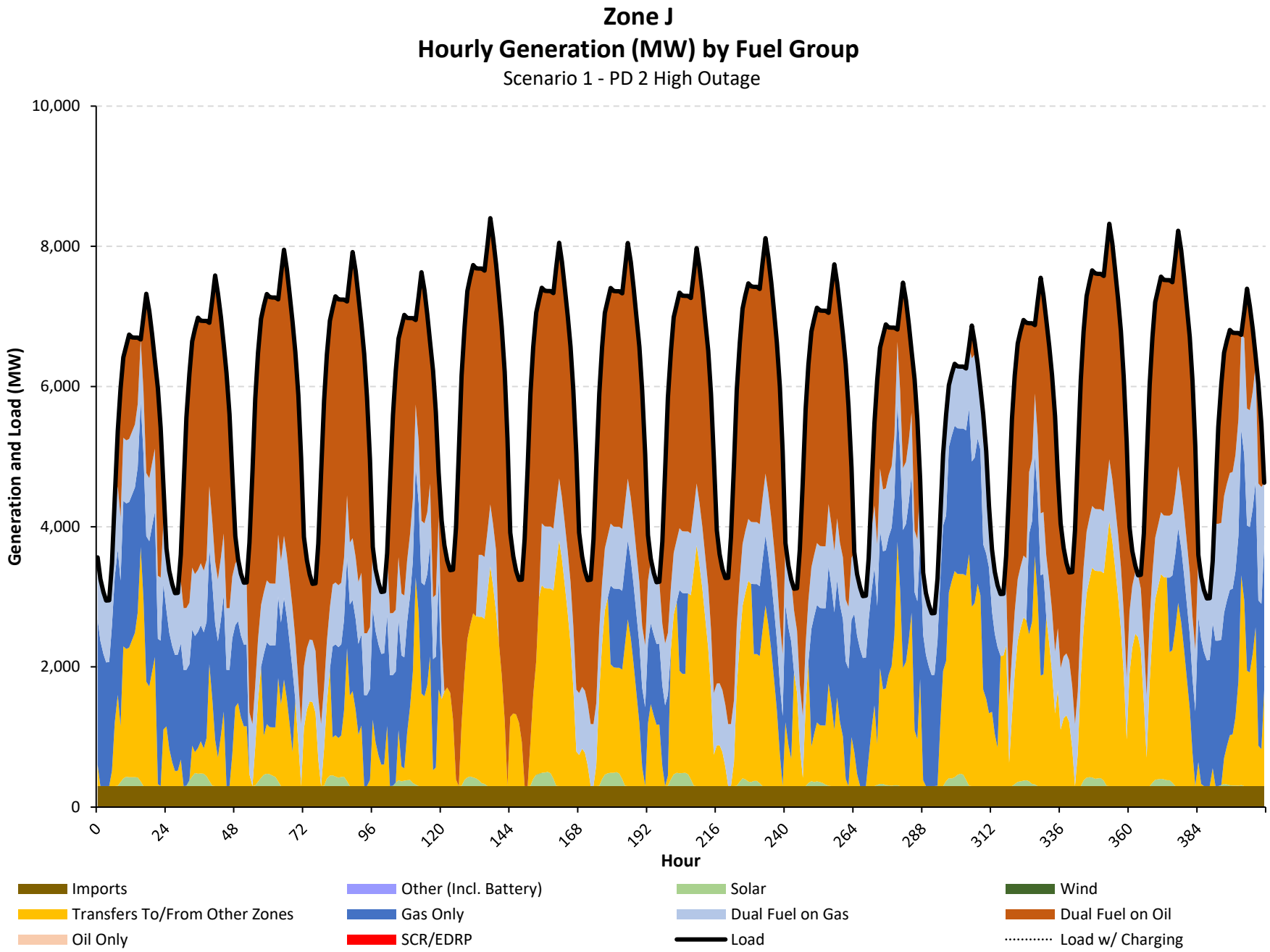




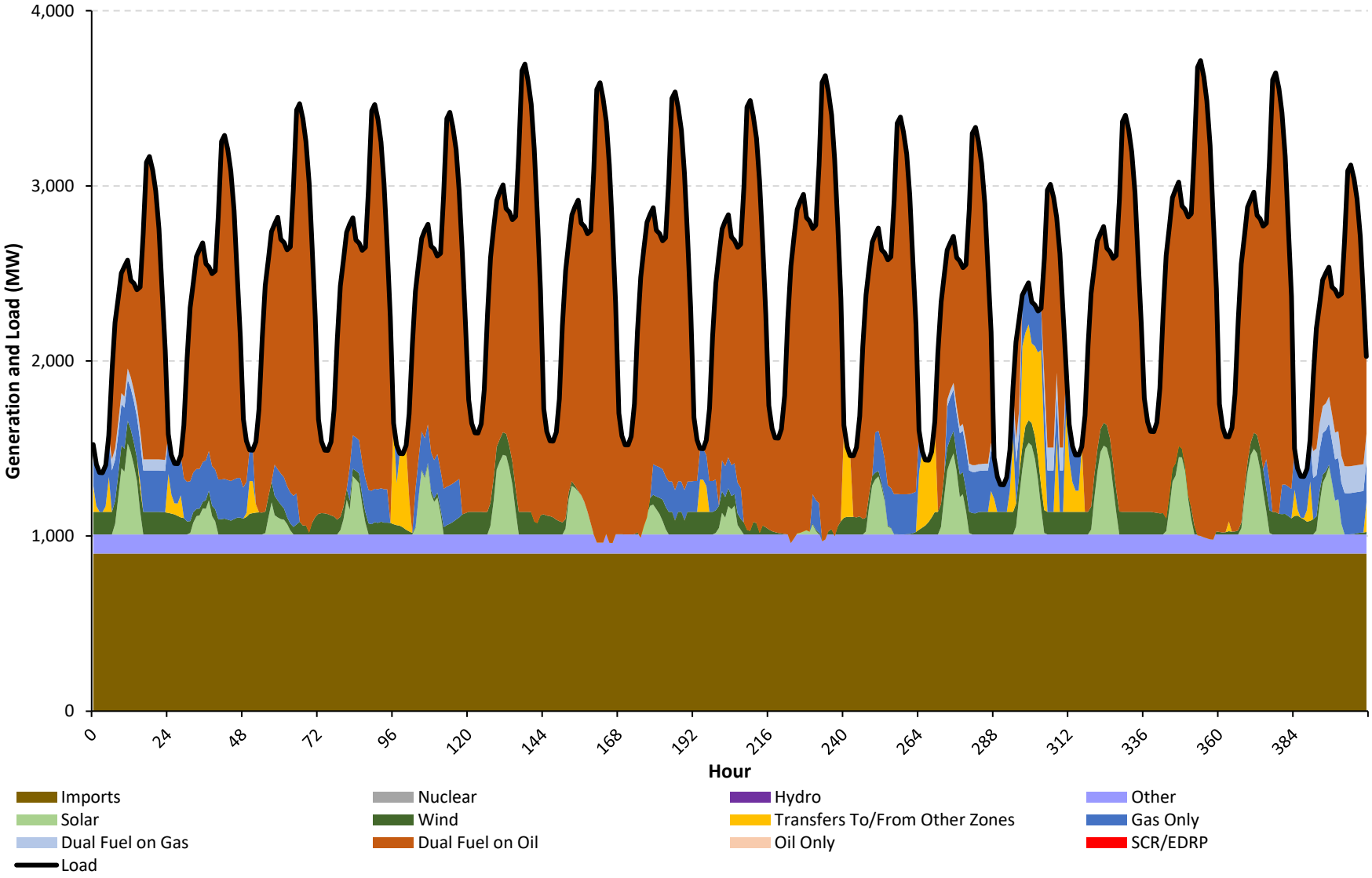





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 2 High Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 2 High Outage
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

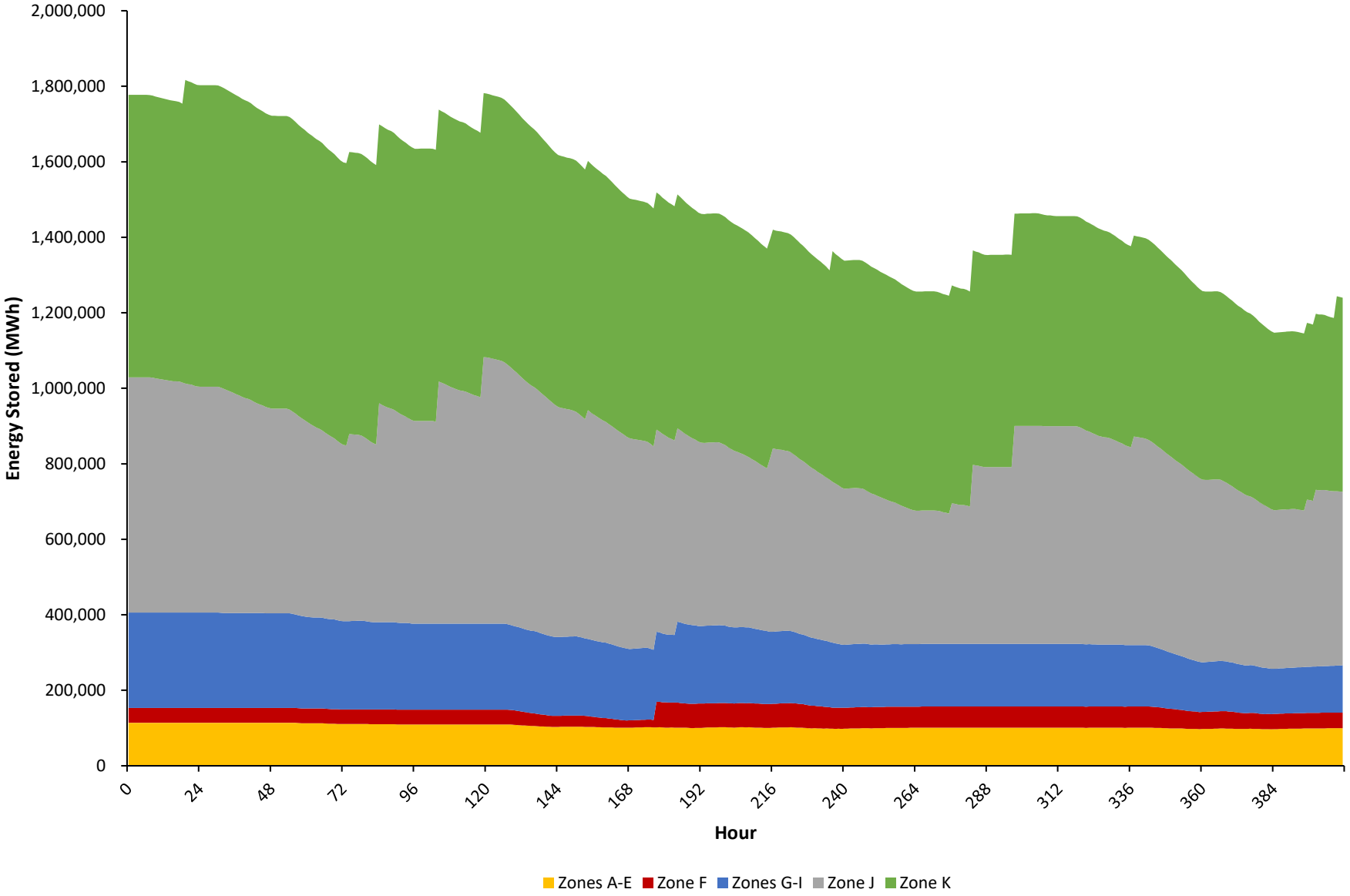
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 2 High Outage



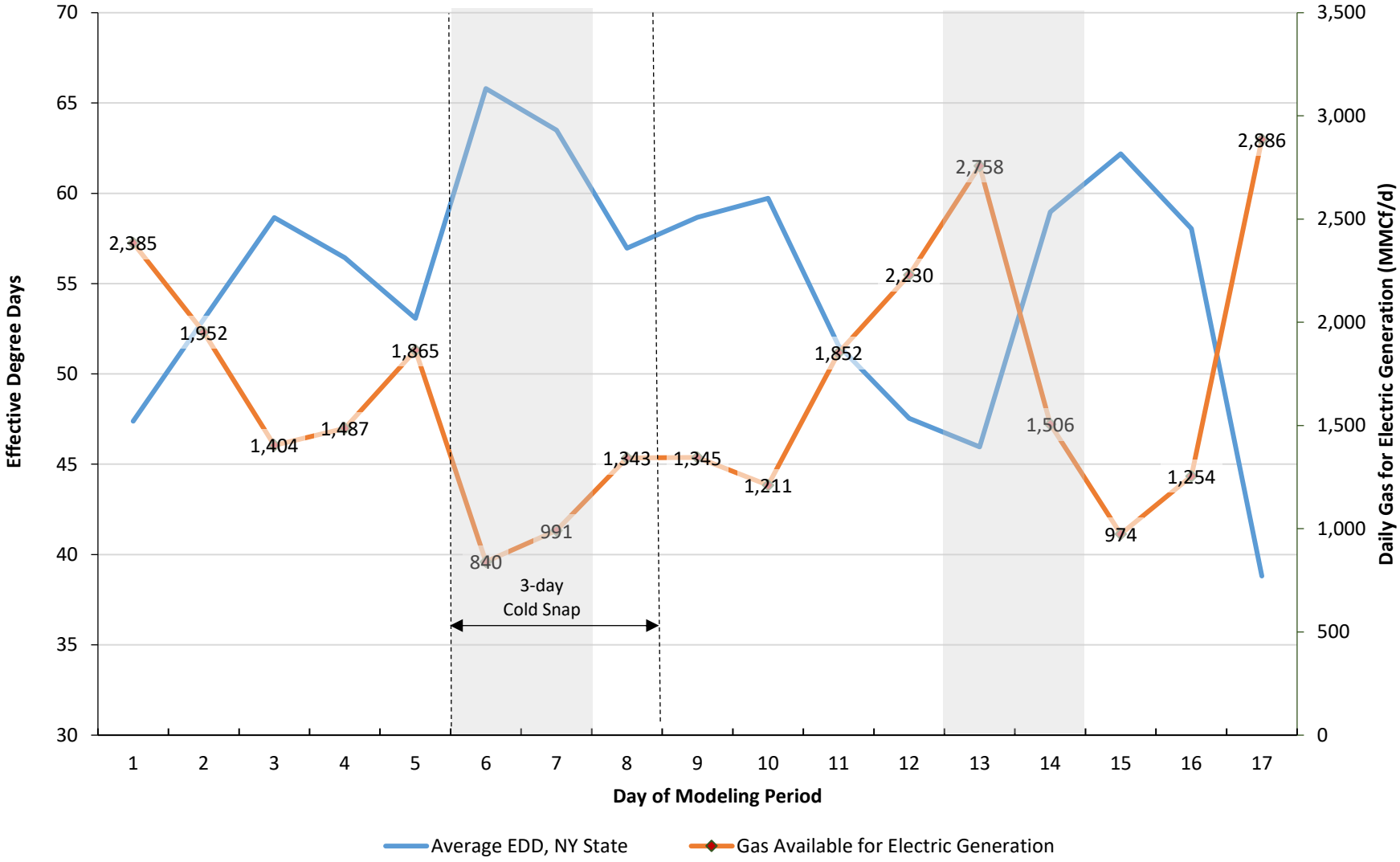
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

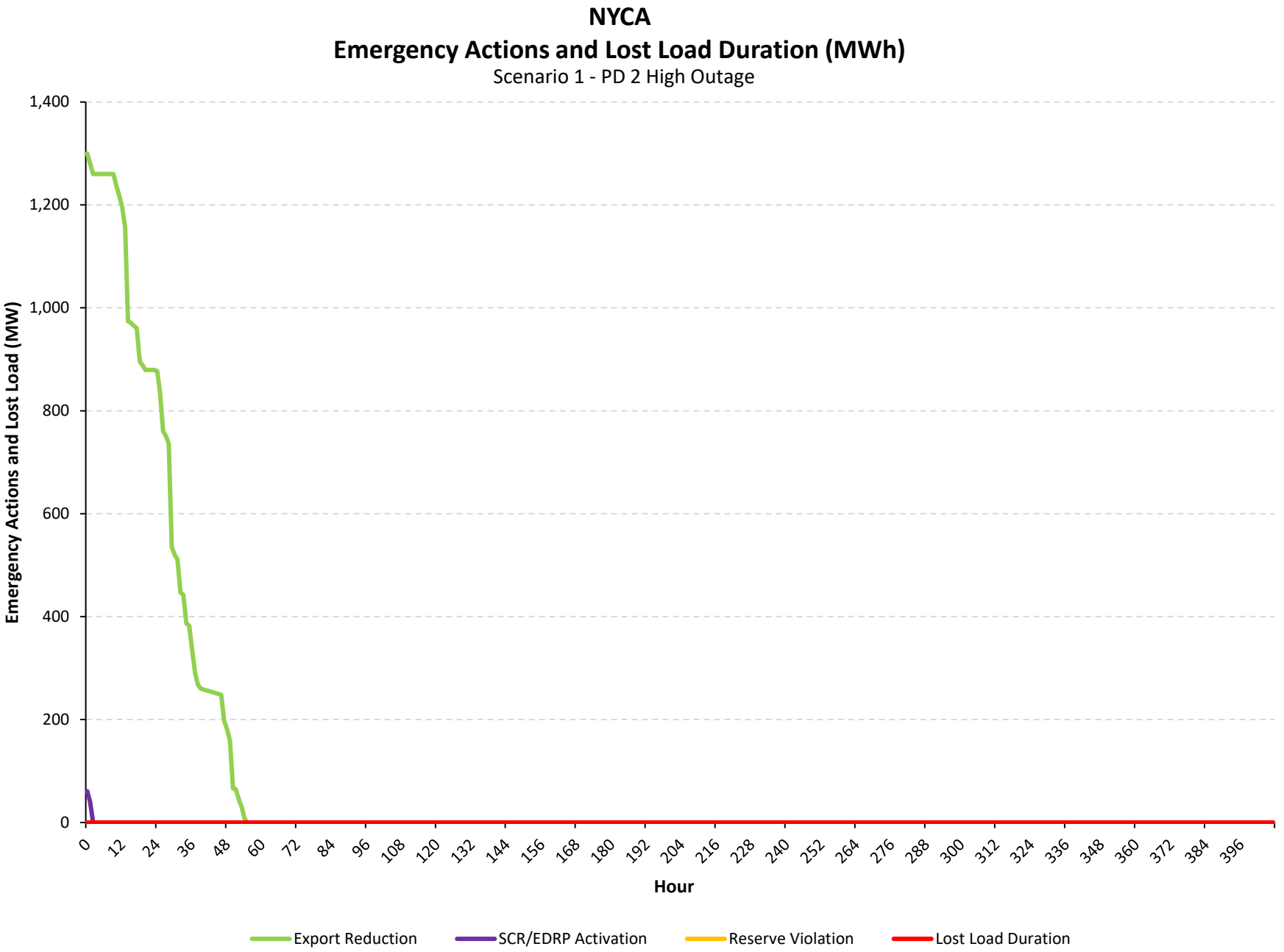
Scenario 1 - PD 2 High Outage

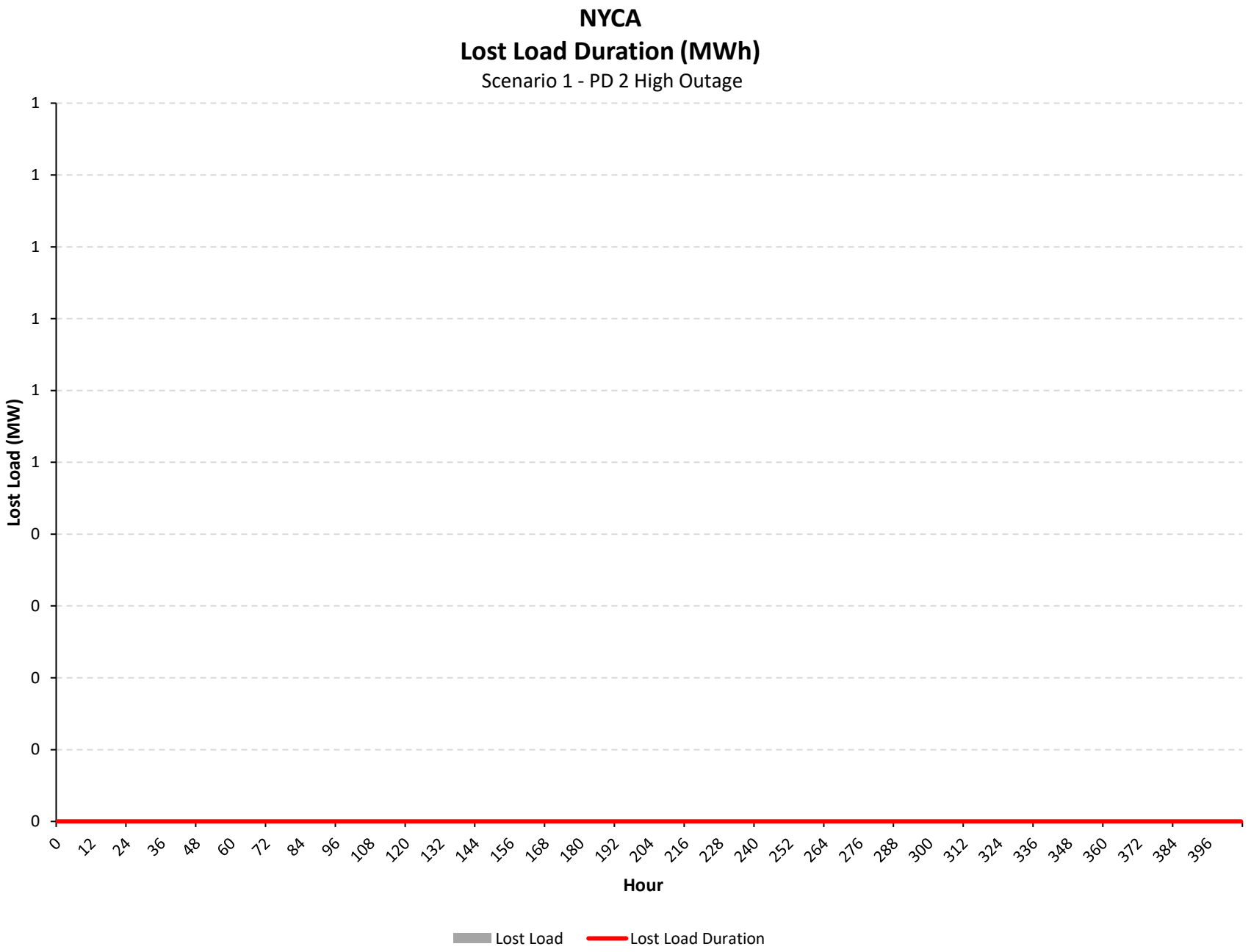


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 1 - PD 2 High Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 2 High Outage
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 2 High Outage
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

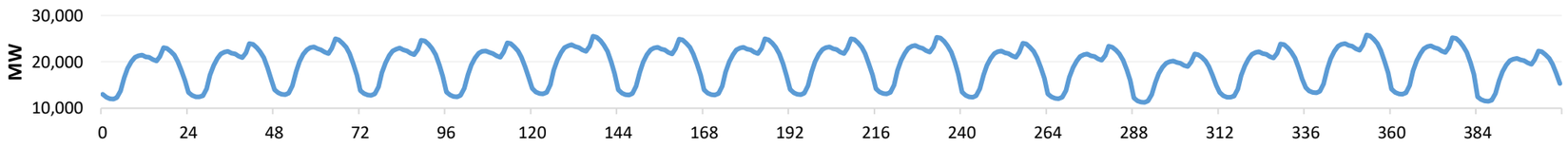
Case: Scenario 1 - PD 3 SENY Deactivation (Winter 2023/2024)

Hourly Results Summary

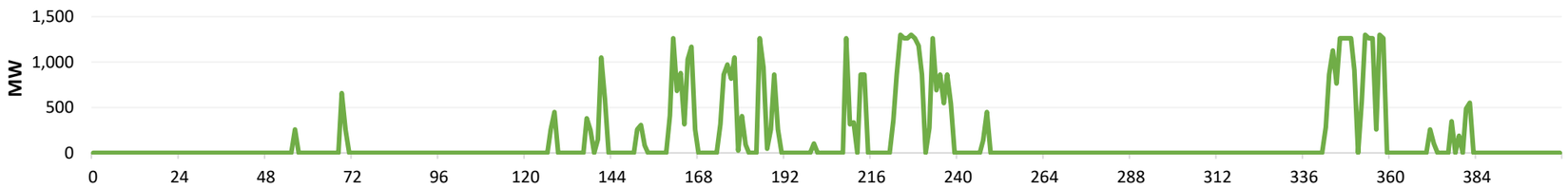
Case Name: Scenario 1 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	All

Load During Modeling Period

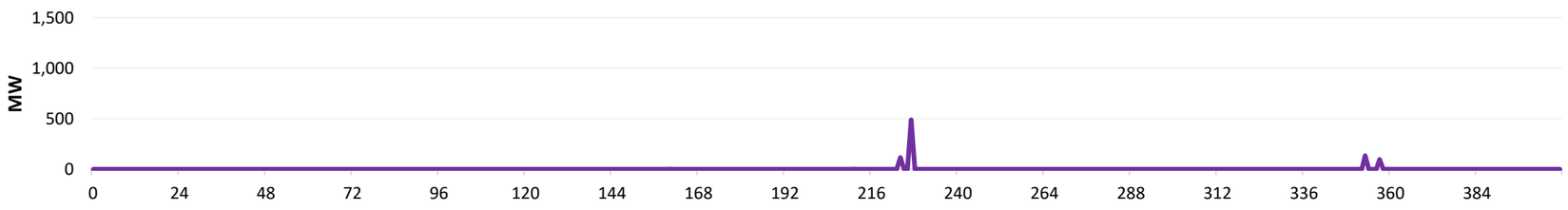


Export to ISO-NE Reduction During Modeling Period



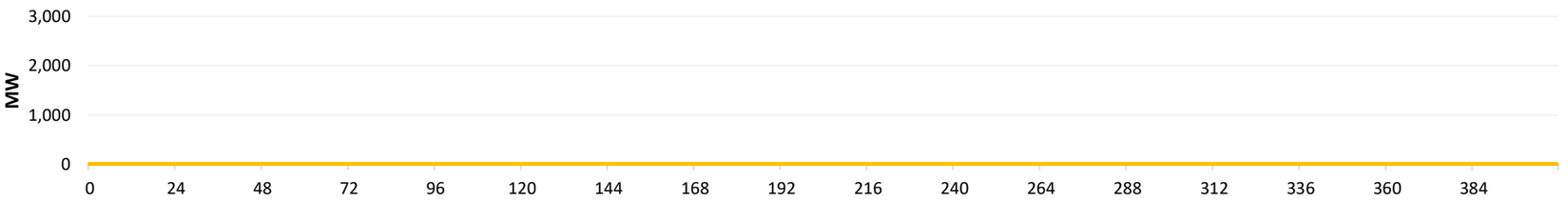
Export Reductions	
Total Hrs.	81
Total MWh	56,296
Avg. MW	138.0

SCR/EDRP Deployed During Modeling Period



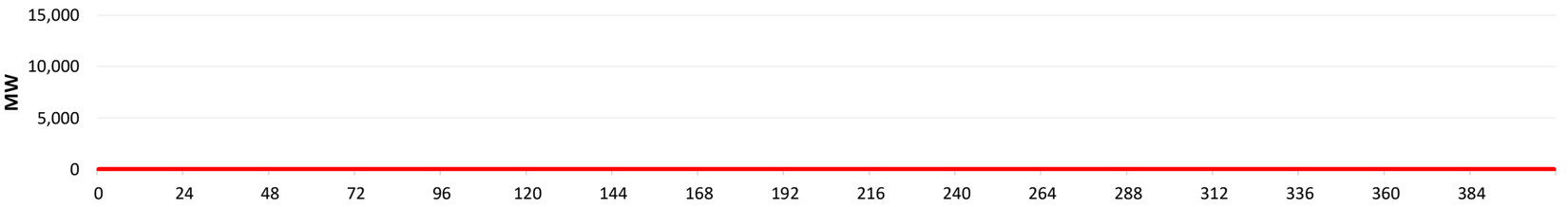
SCR Deployment	
Total Hrs.	4
Total MWh	836
Avg. MW	2.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period



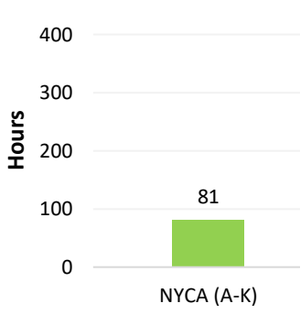
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

Full Period Results Summary

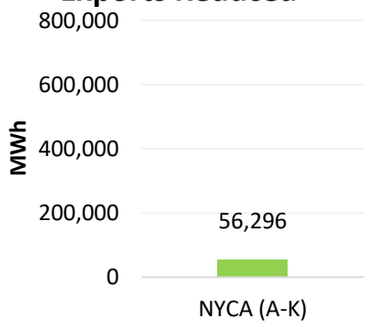
Case Name: Scenario 1 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	All

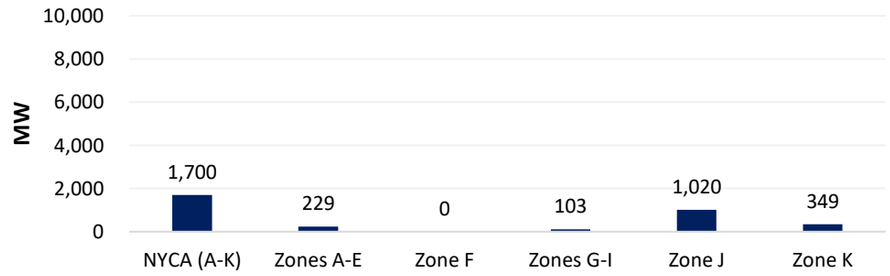
Hours Exports Reduced



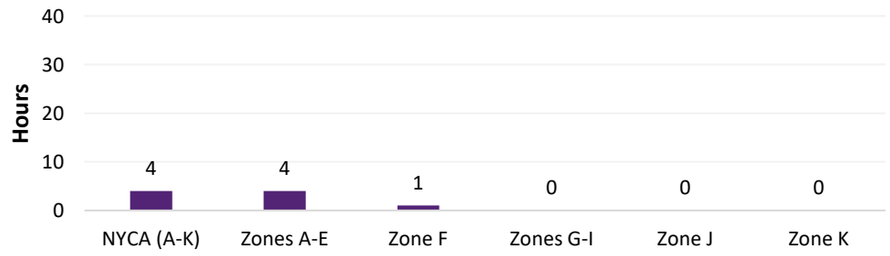
Total MWh of Exports Reduced



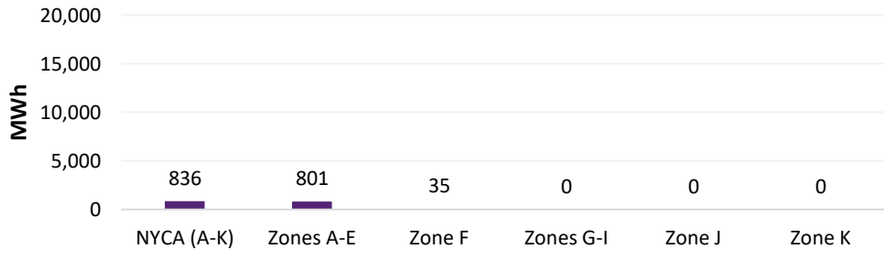
Average Capacity Not Available Due to Exhausted Fuel Inventory



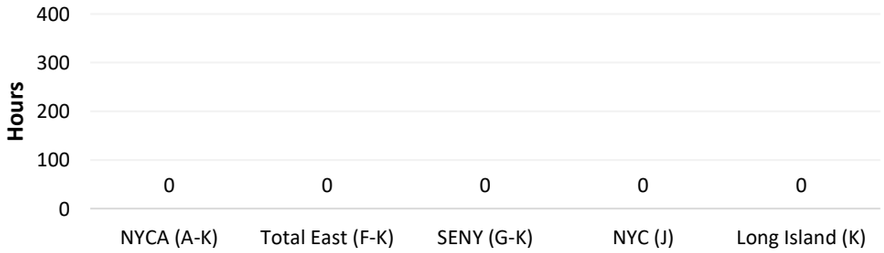
Hours SCR/EDRP Deployed



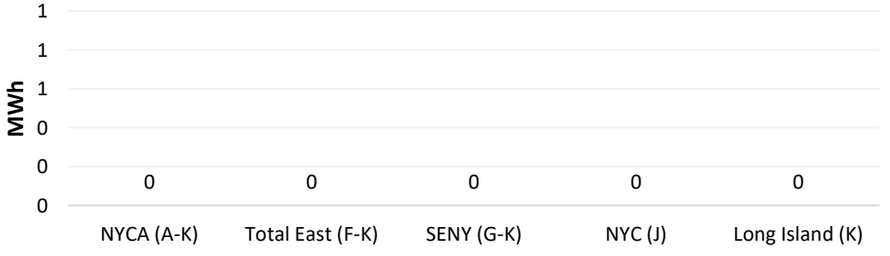
Total MWh SCR/EDRP Deployed



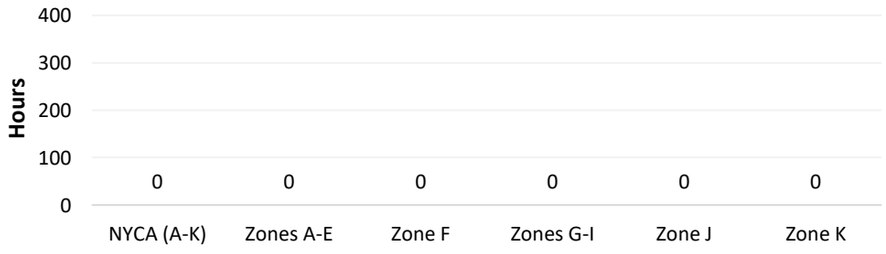
Hours with Reserve Violations



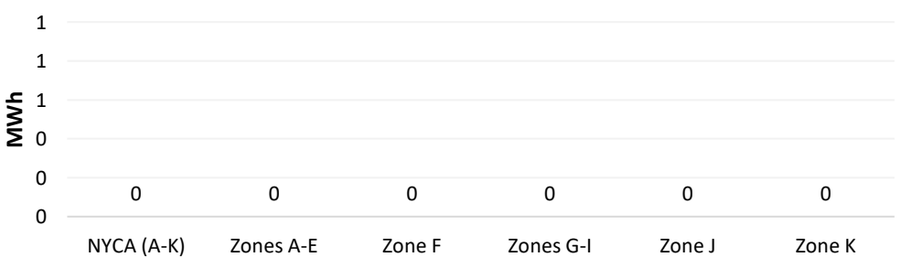
Total MWh of Reserve Violations

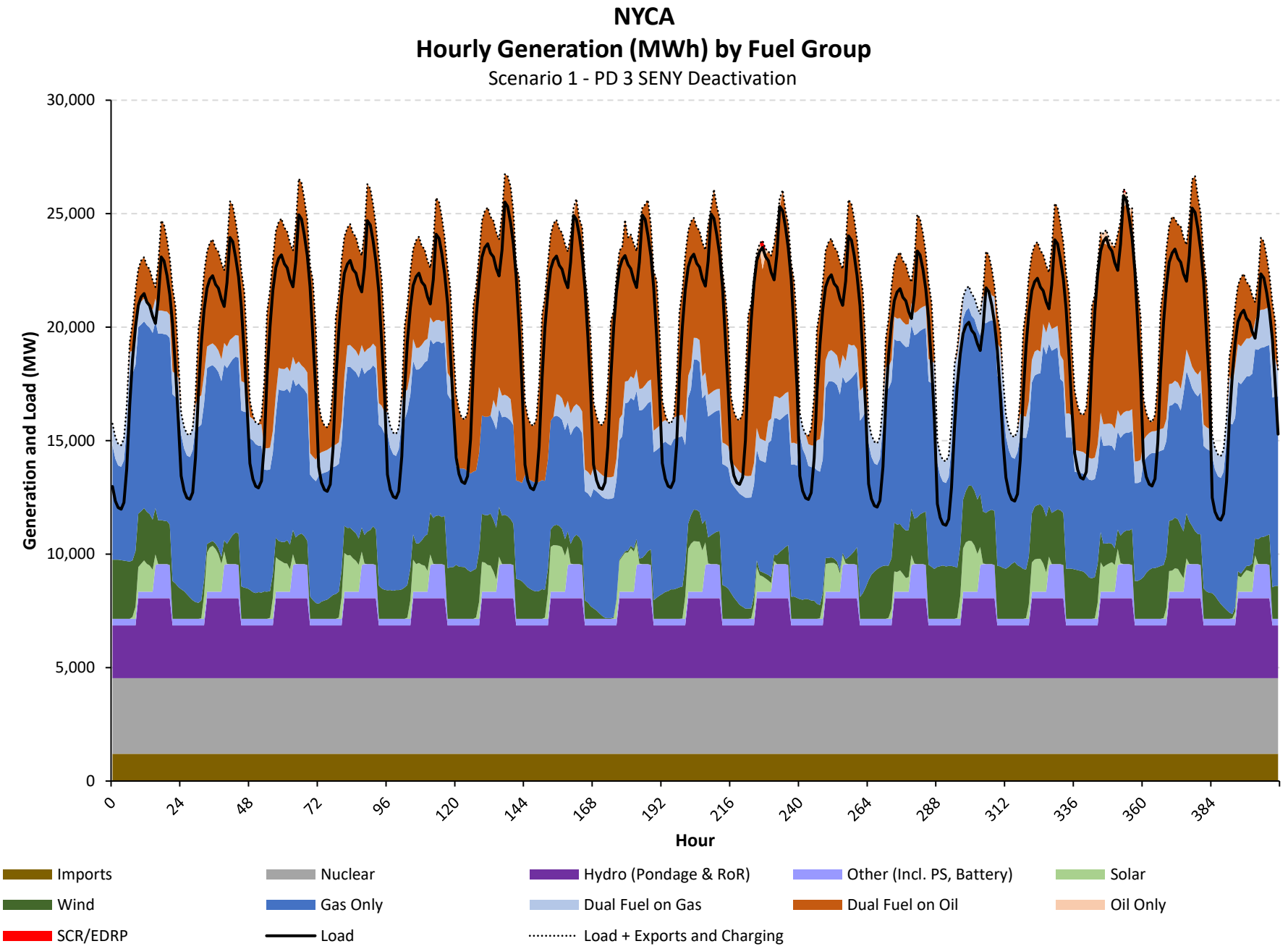


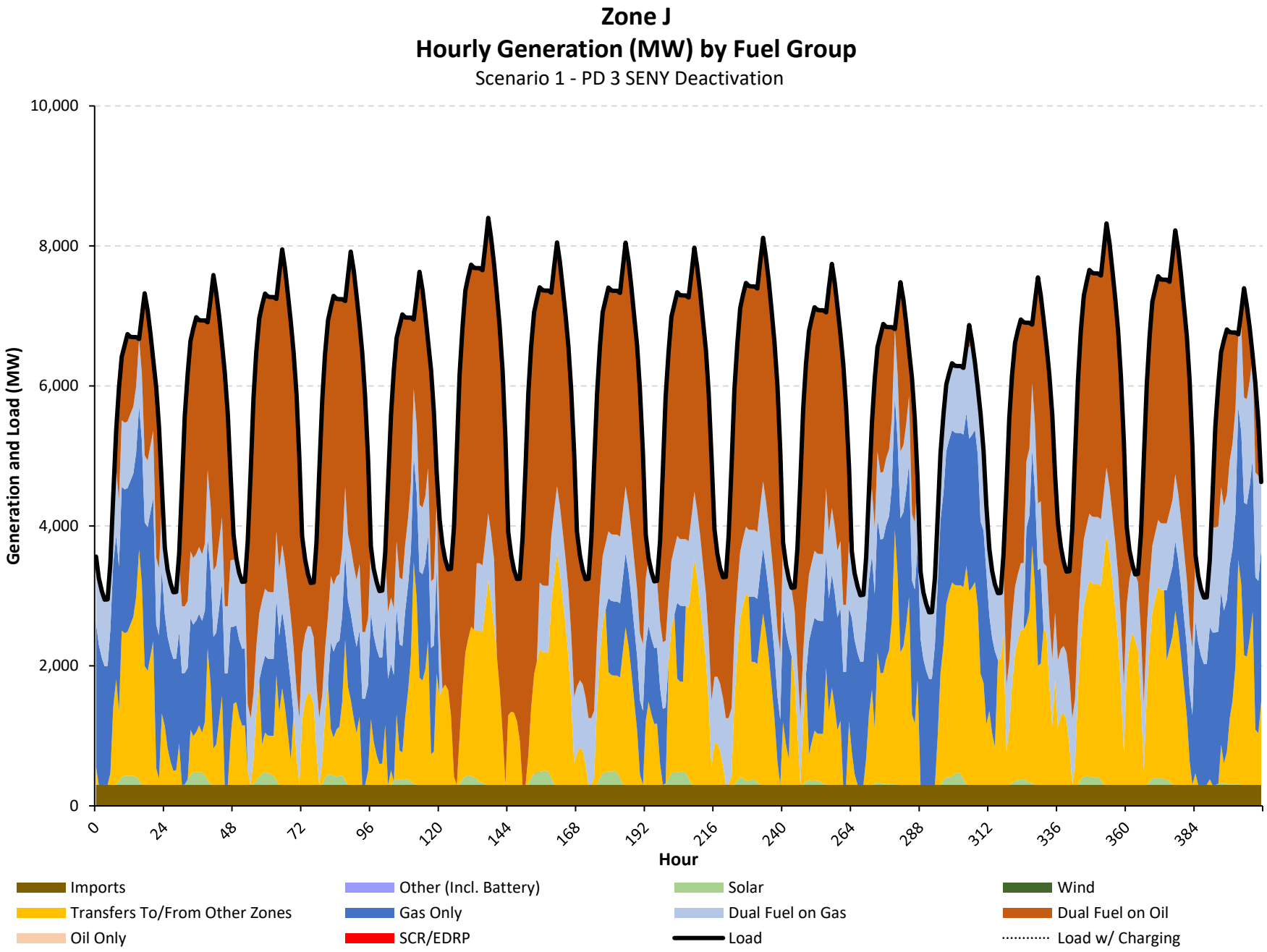
Hours with Loss of Load



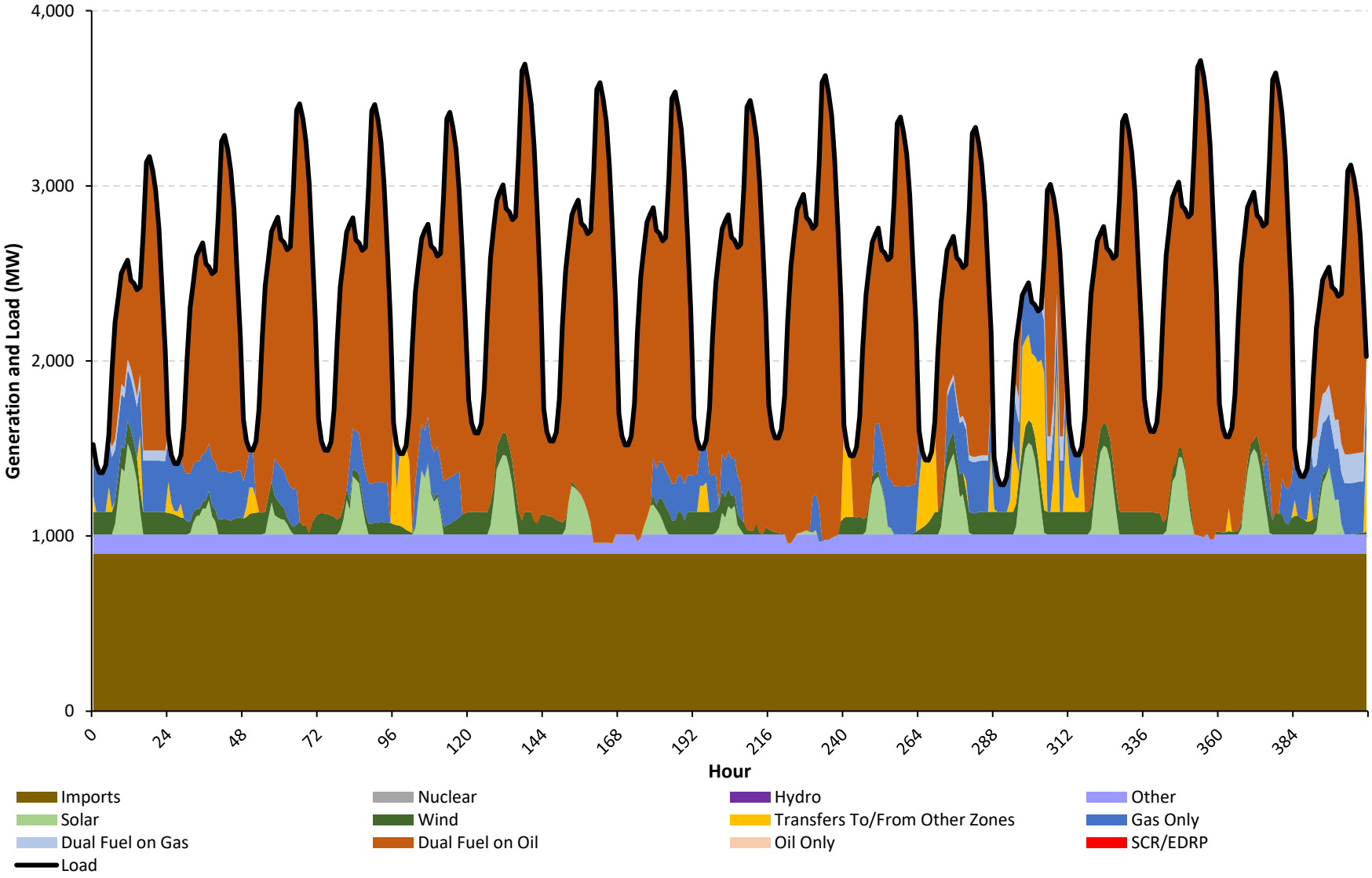
Total MWh of Lost Load




NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 3 SENY Deactivation
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 3 SENY Deactivation
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

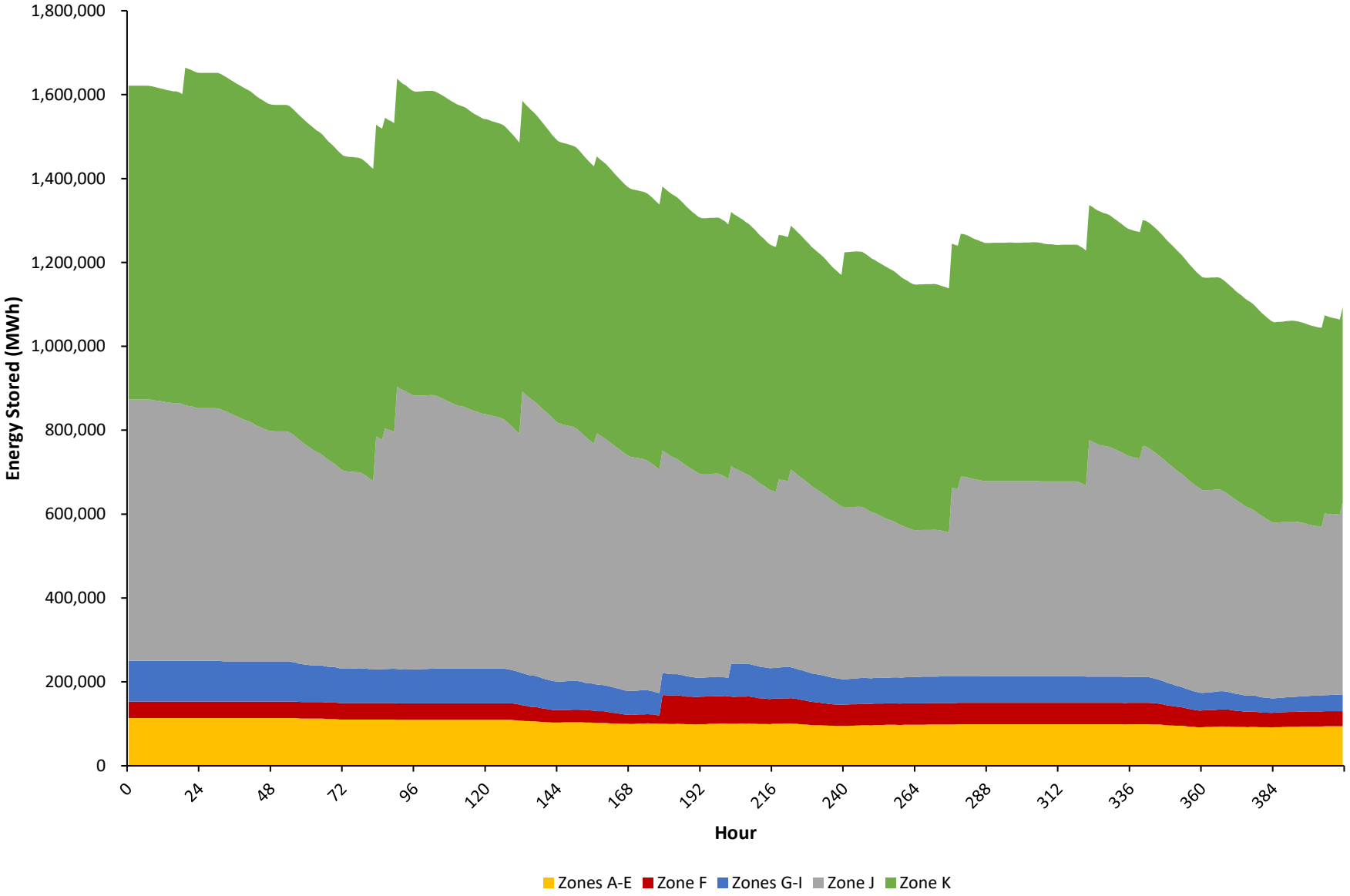
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 3 SENY Deactivation



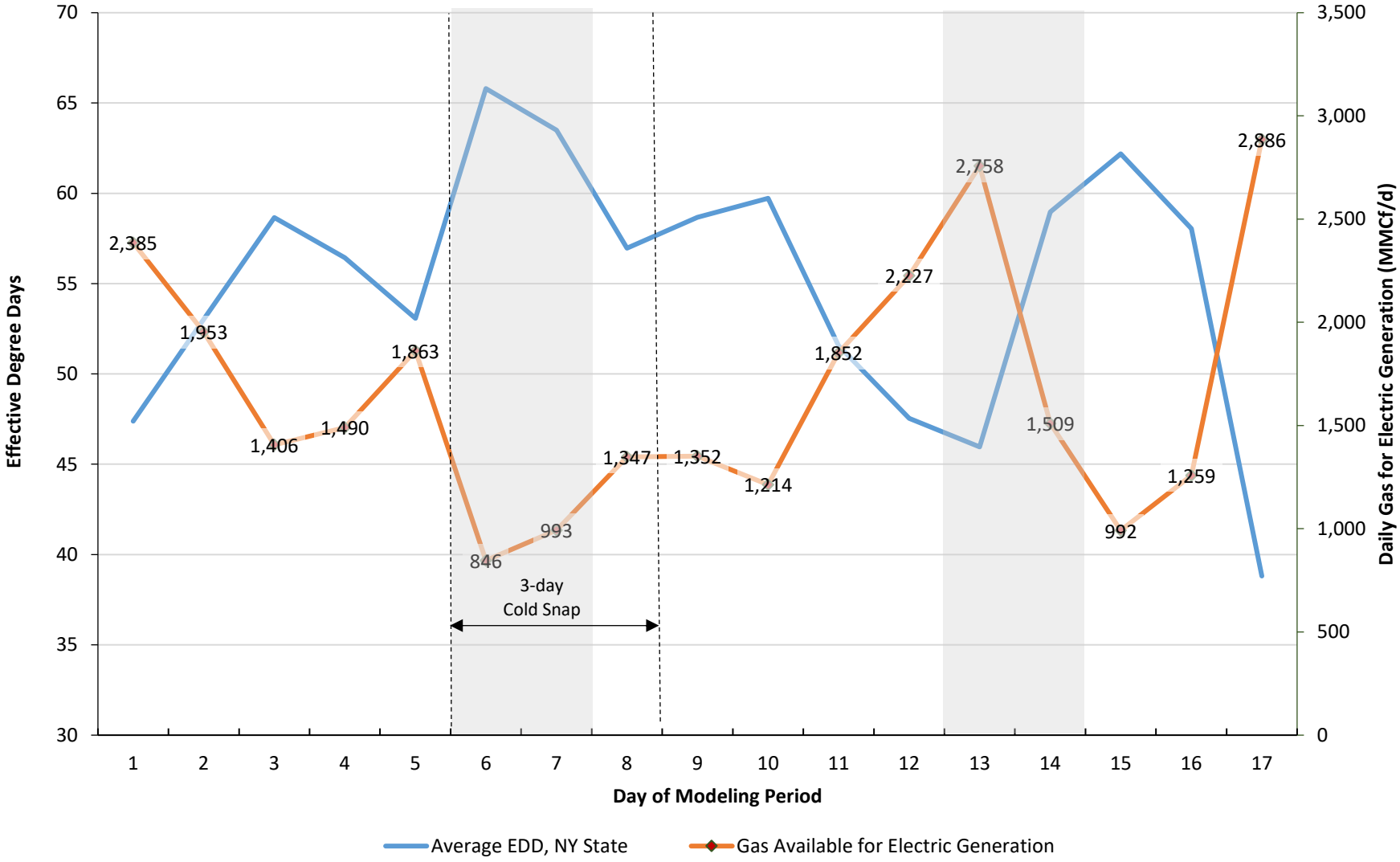
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

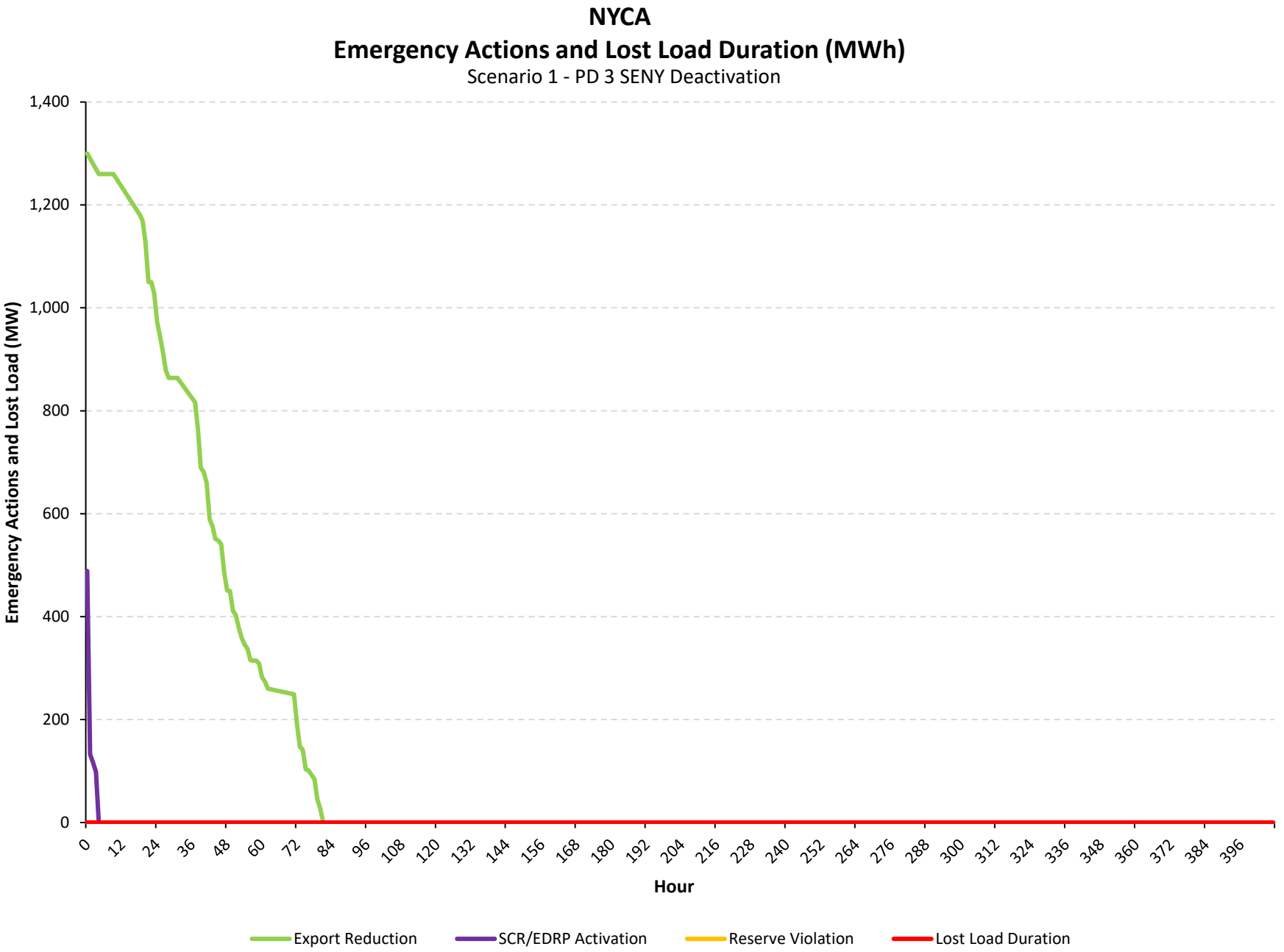
Scenario 1 - PD 3 SENY Deactivation

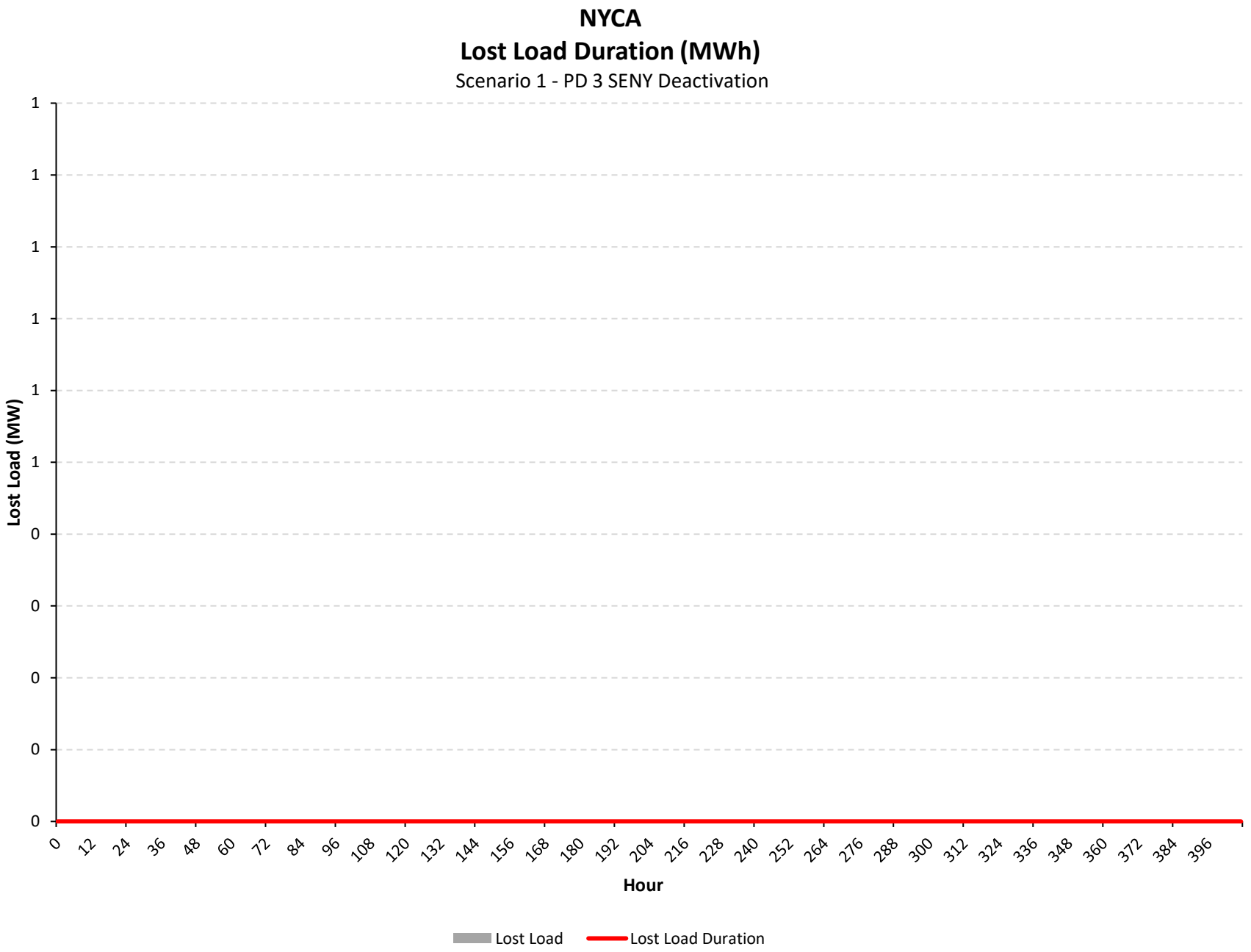


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 1 - PD 3 SENY Deactivation



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 3 SENY Deactivation
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 3 SENY Deactivation
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

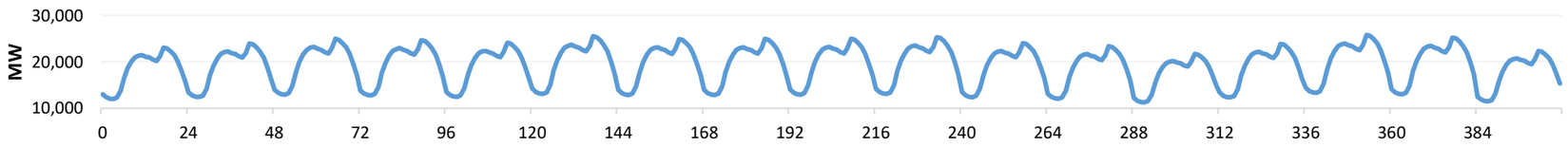
Case: Scenario 1 - PD 4 Nuclear Station Outage (Winter 2023/2024)

Hourly Results Summary

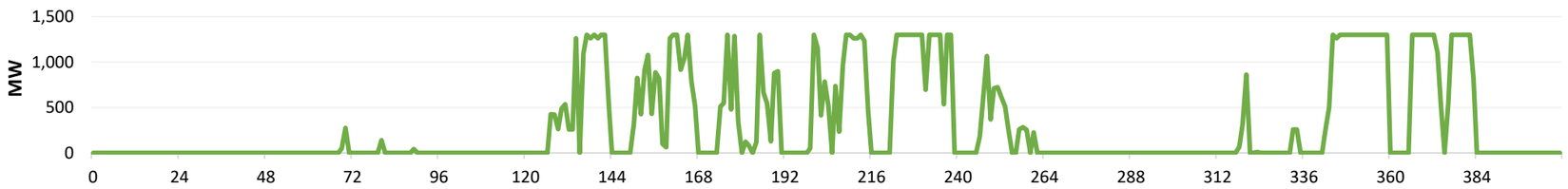
Case Name: Scenario 1 - PD 4 Nuclear Station Outage

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

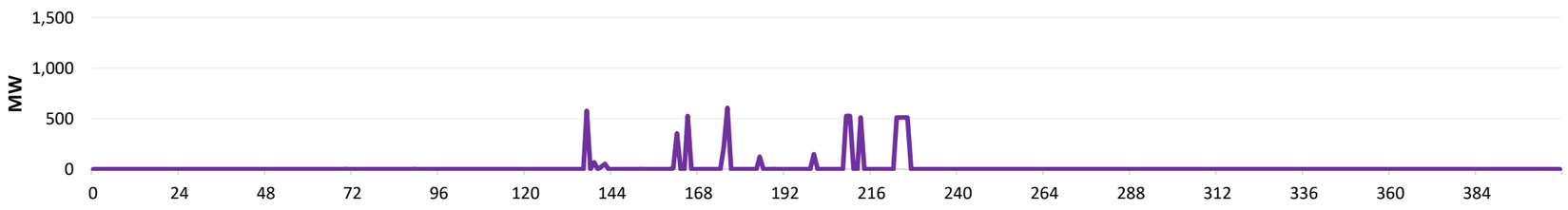


Export to ISO-NE Reduction During Modeling Period



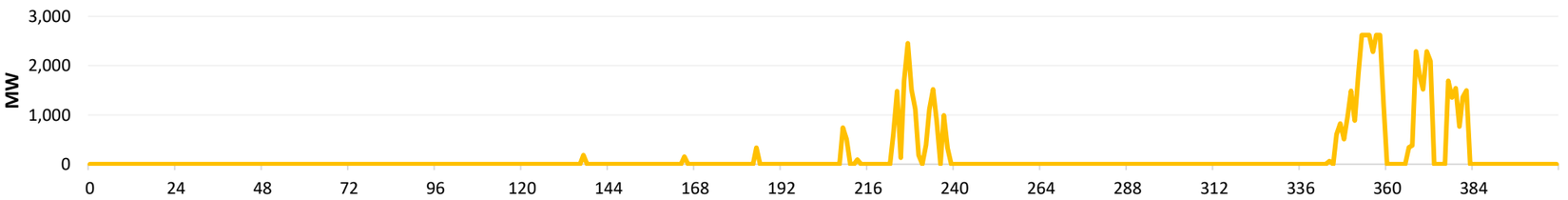
Export Reductions	
Total Hrs.	140
Total MWh	121,231
Avg. MW	297.1

SCR/EDRP Deployed During Modeling Period



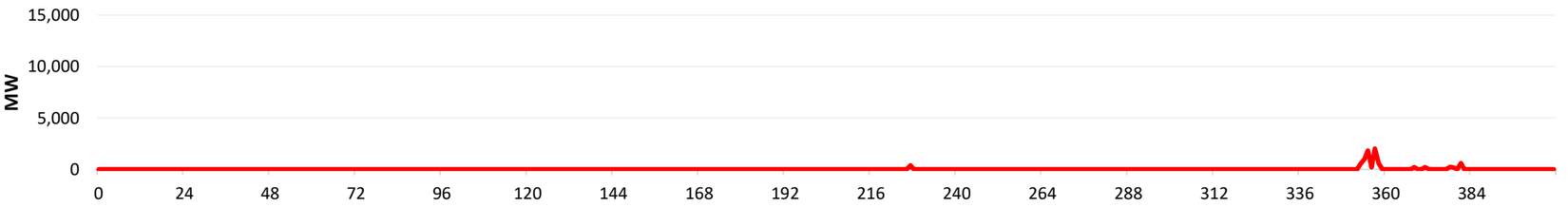
SCR Deployment	
Total Hrs.	18
Total MWh	6,314
Avg. MW	15.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	48
Total MWh	59,083
Avg. MW	144.8
First Hour with Viol.	137

Loss of Load During Modeling Period

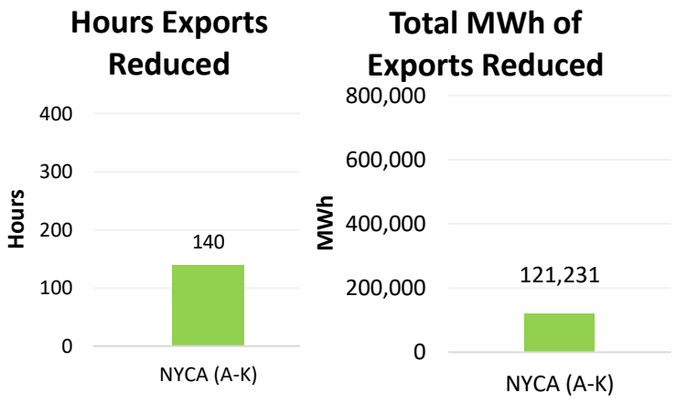


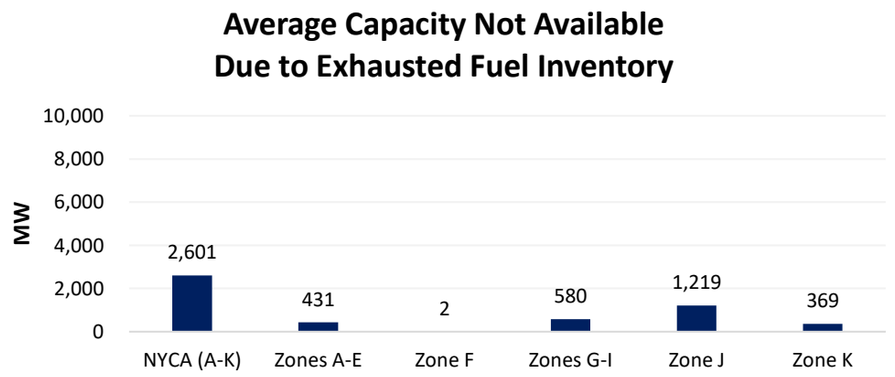
Loss of Load	
Total Hrs.	14
Total MWh	7,966
Avg. MW	19.5
First Hour with Losses	227

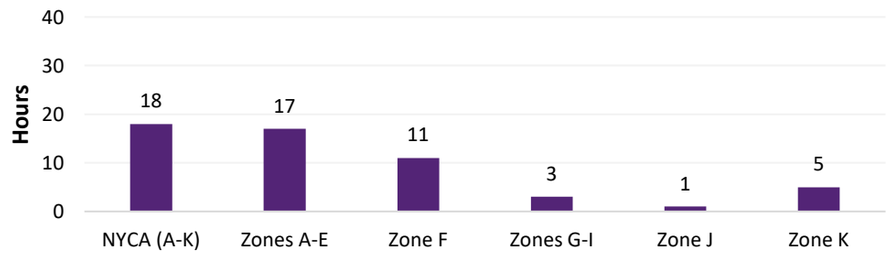
Full Period Results Summary

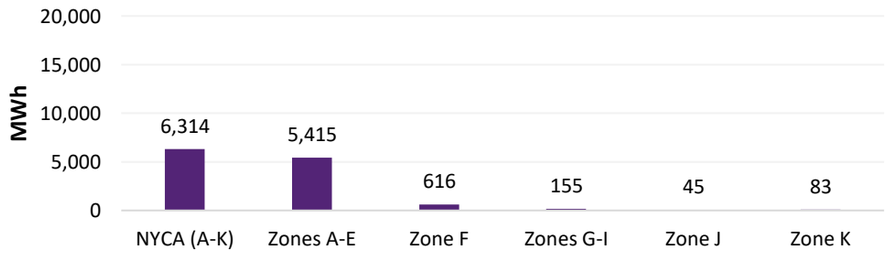
Case Name: Scenario 1 - PD 4 Nuclear Station Outage

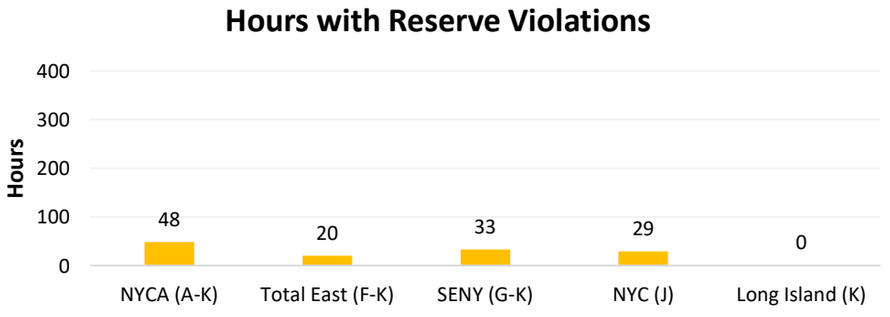
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	All

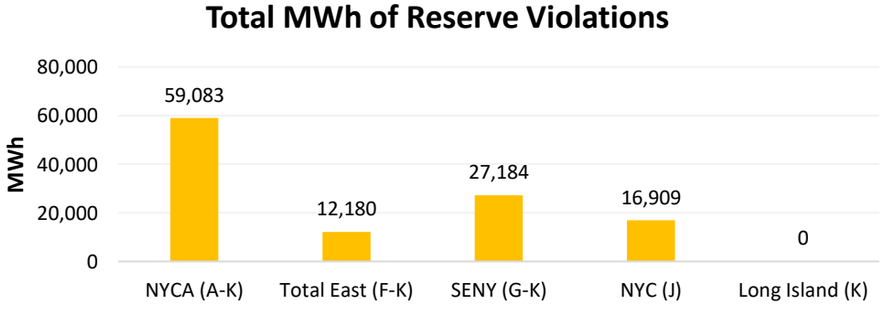


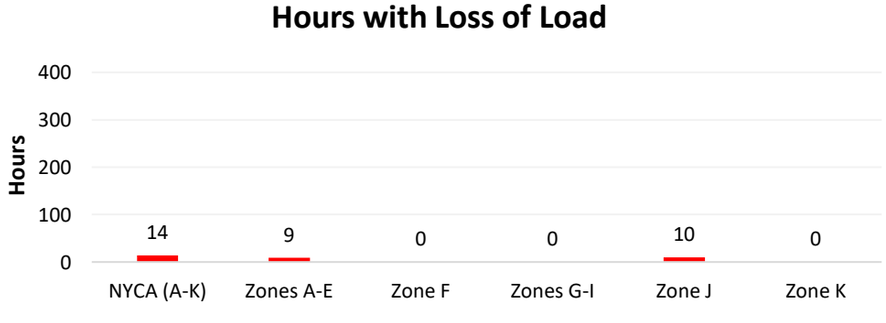


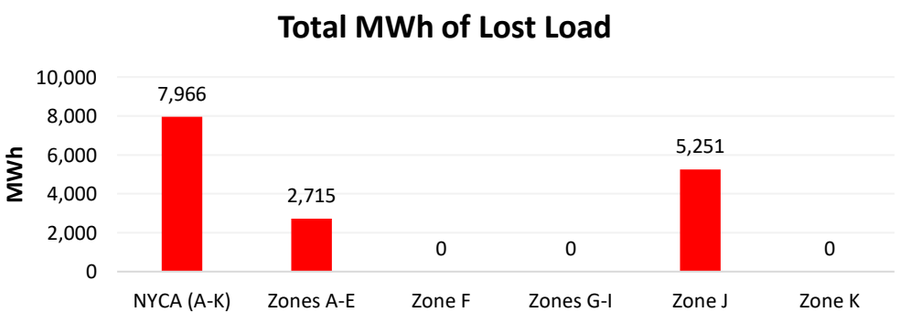


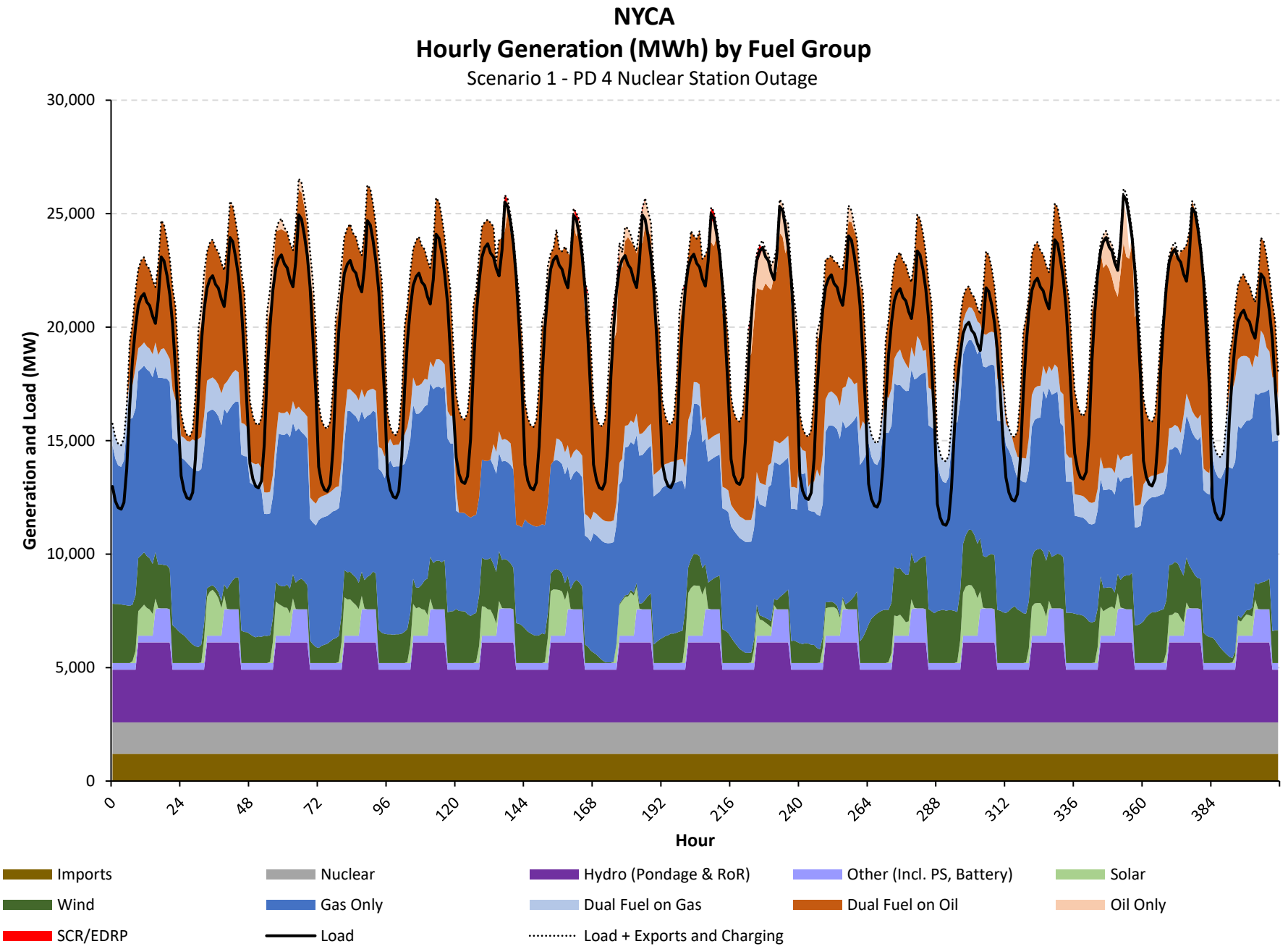




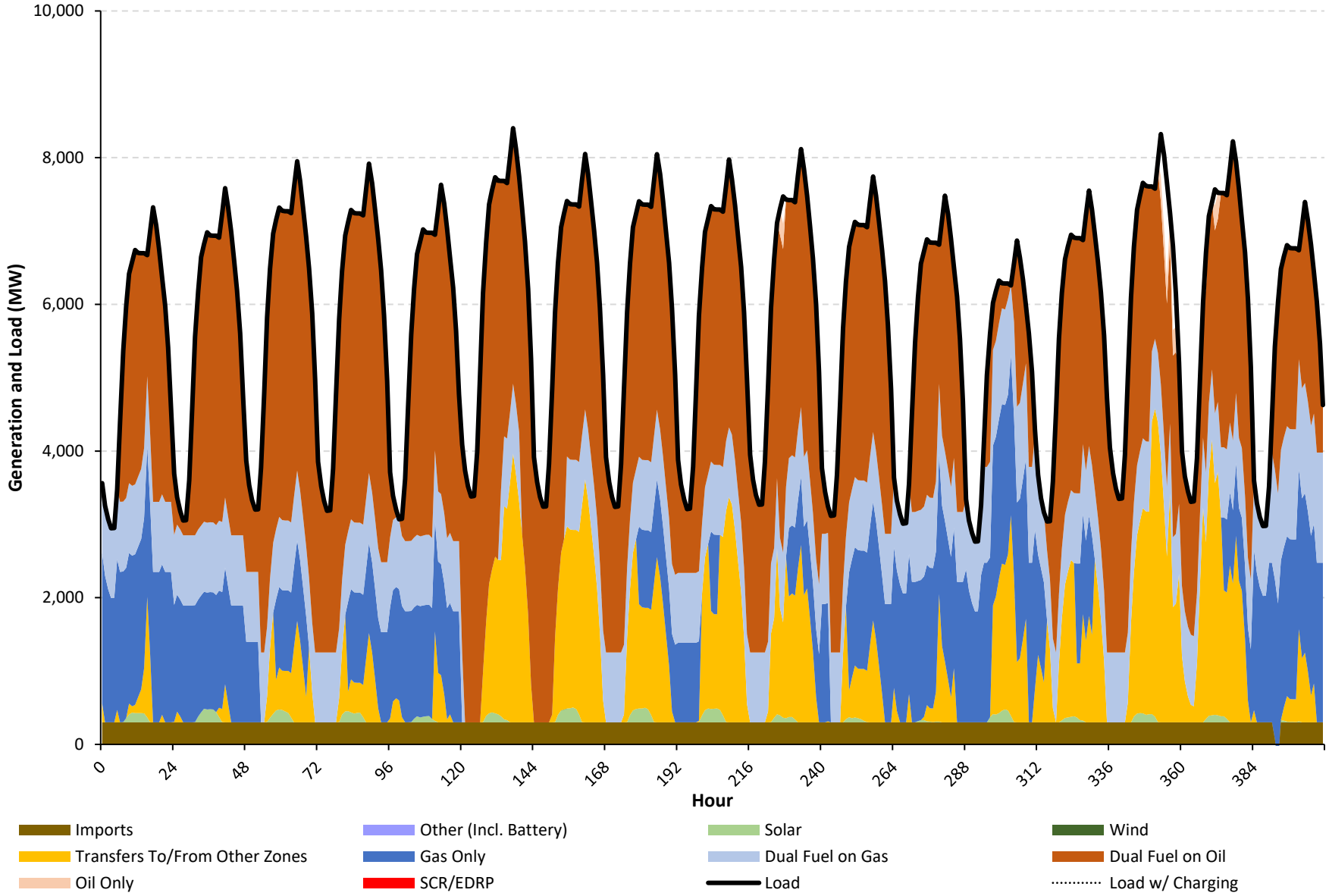




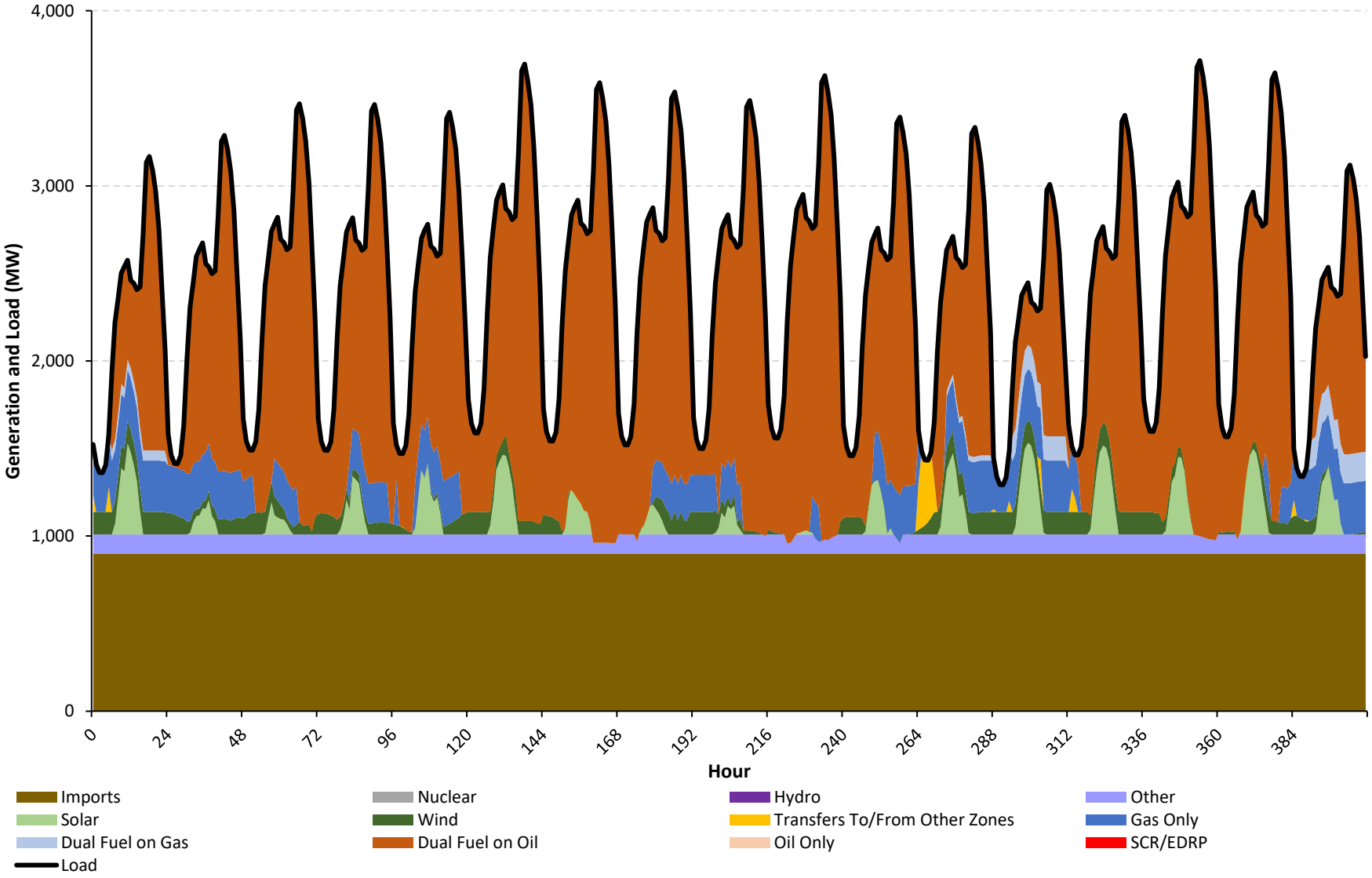



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 4 Nuclear Station Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 4 Nuclear Station Outage



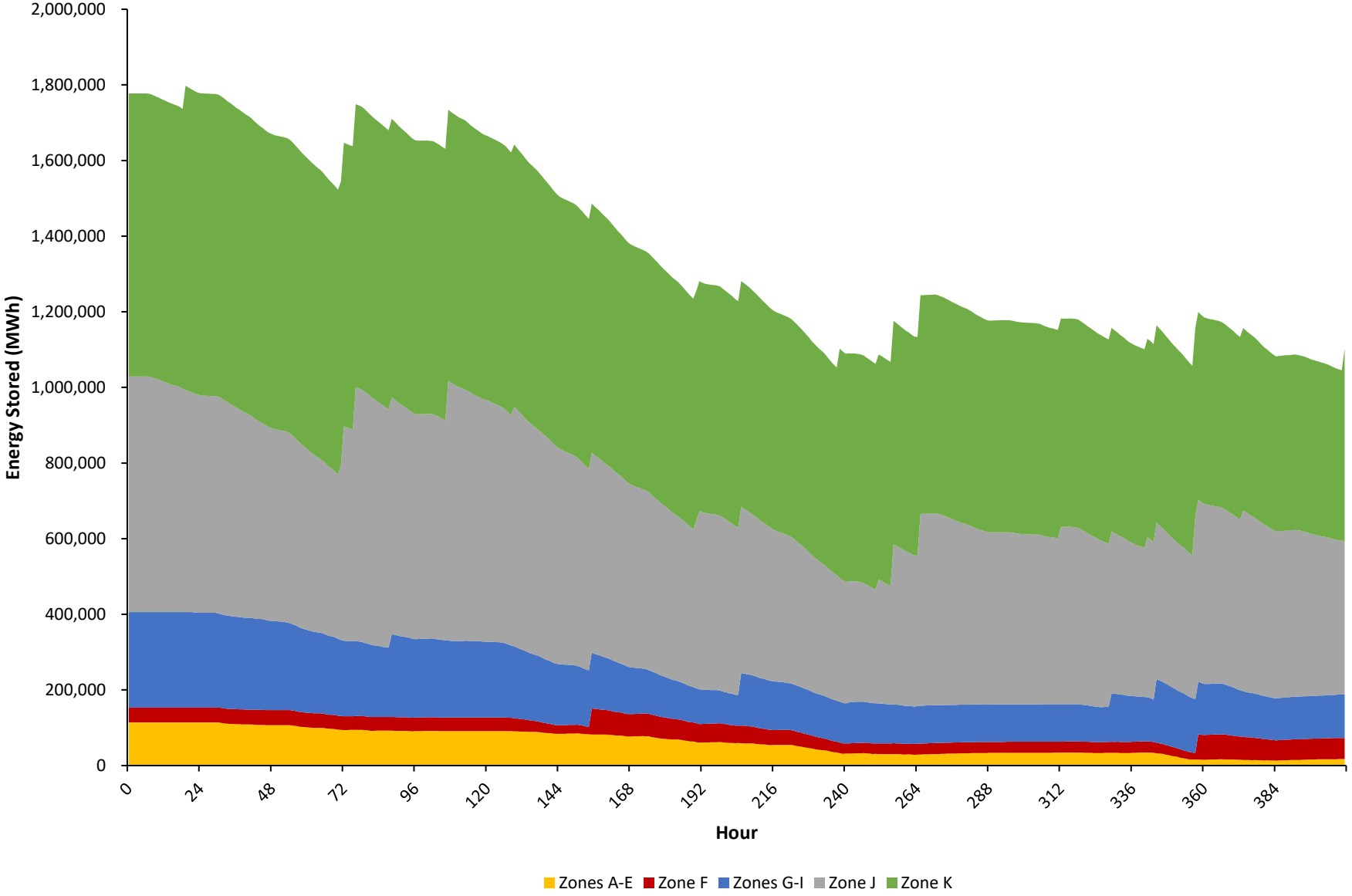
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 4 Nuclear Station Outage



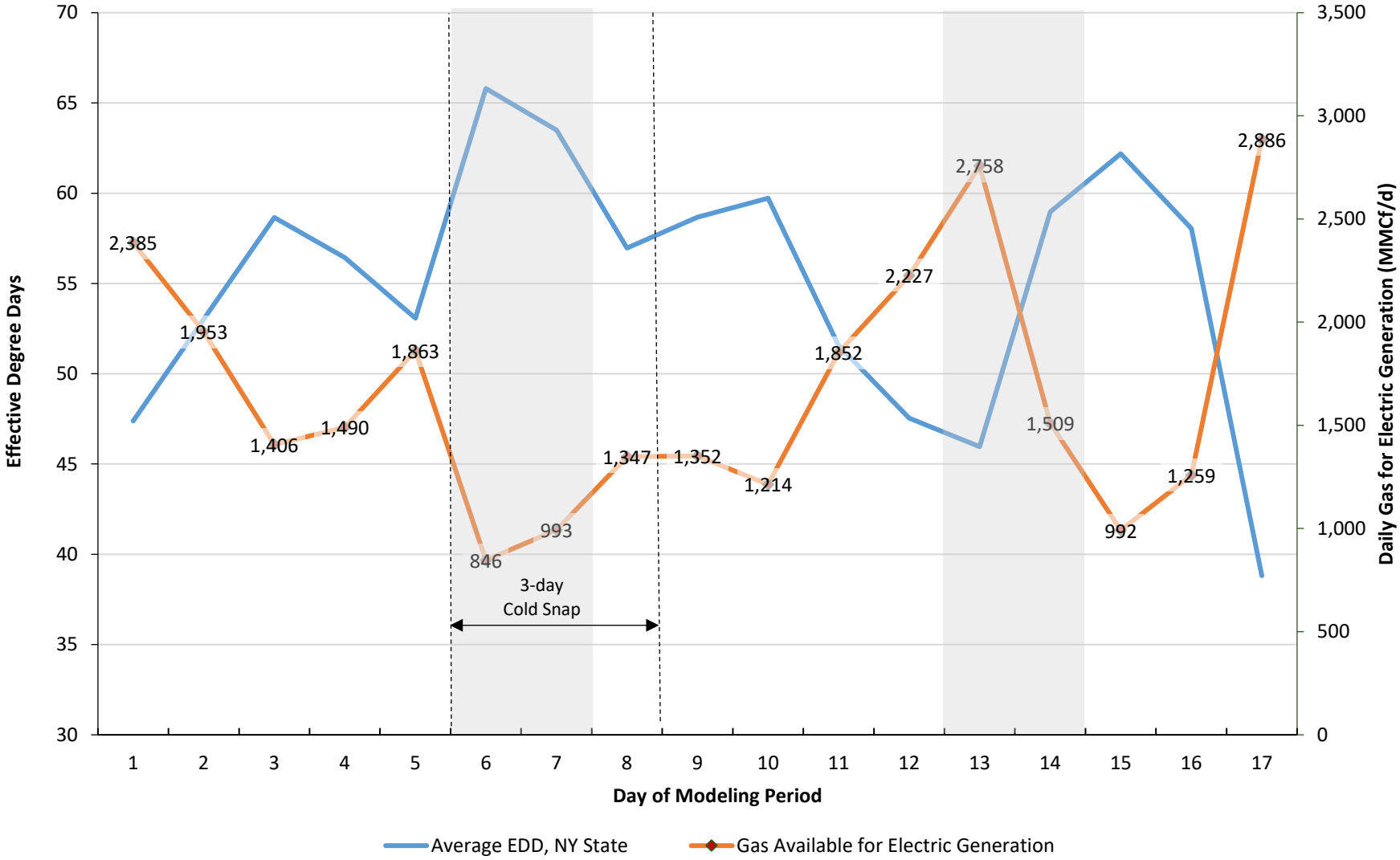
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

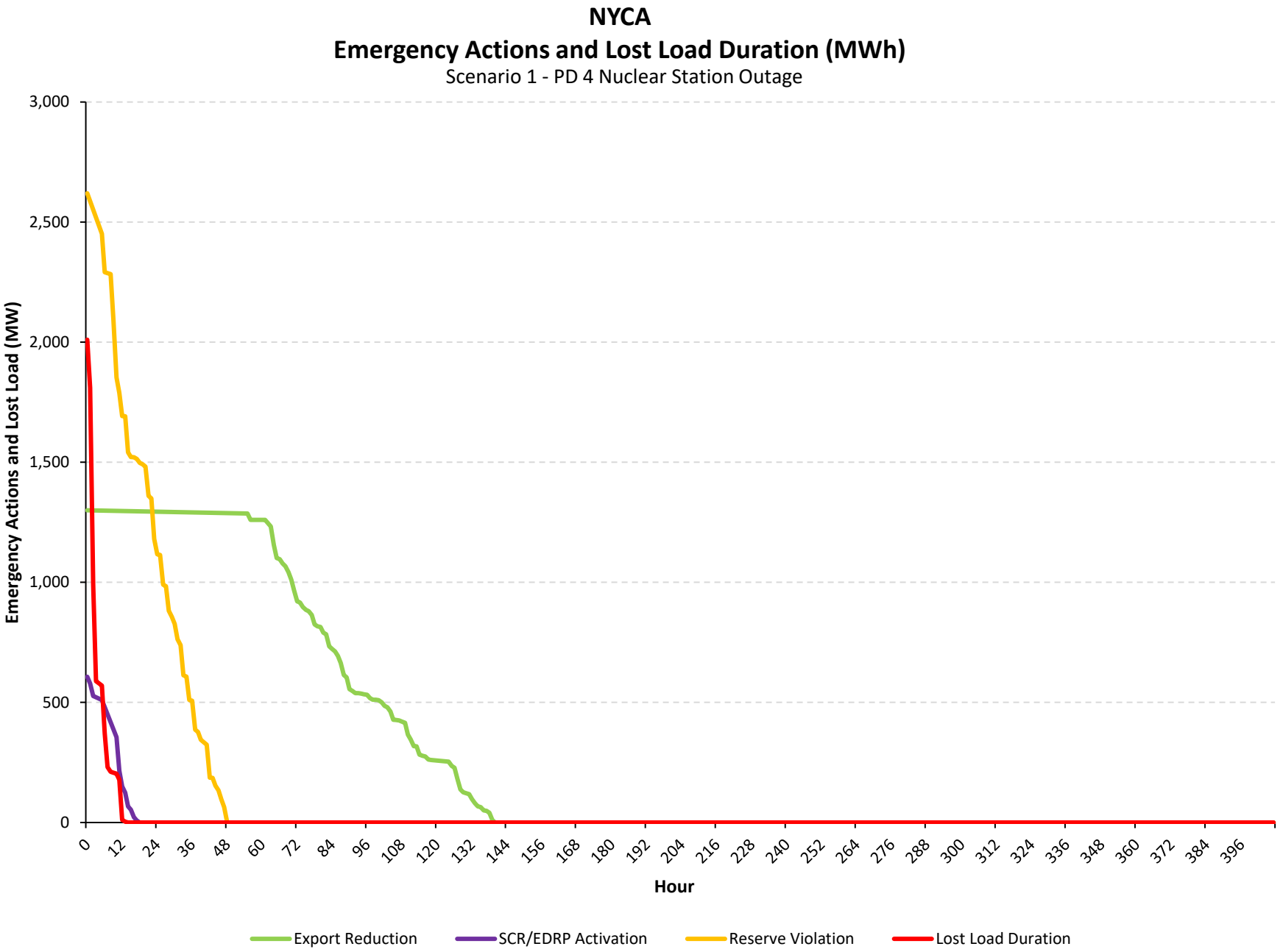
Scenario 1 - PD 4 Nuclear Station Outage

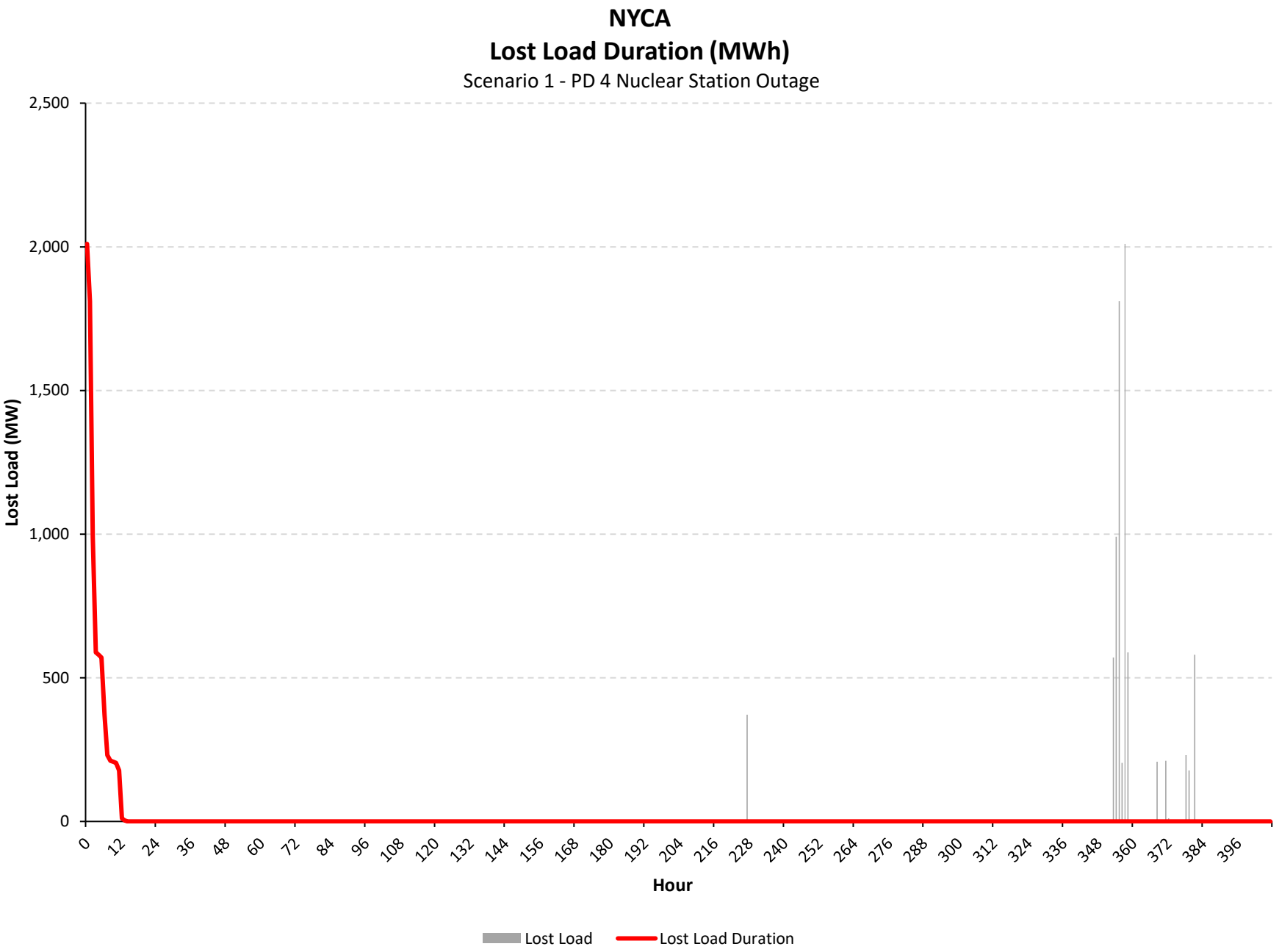


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 1 - PD 4 Nuclear Station Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 4 Nuclear Station Outage
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 4 Nuclear Station Outage
Lost Load (MW)
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

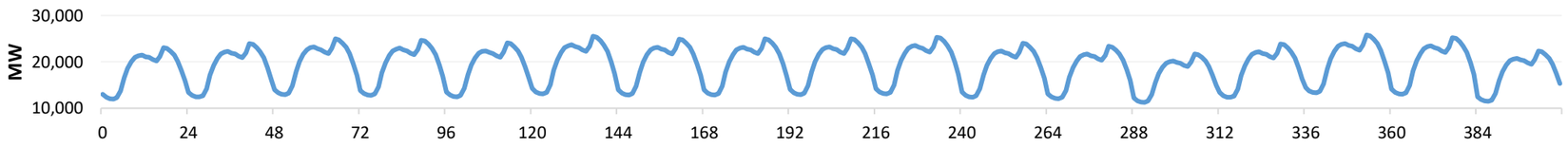
Case: Scenario 1 - PD 5 No Truck Refill (Winter 2023/2024)

Hourly Results Summary

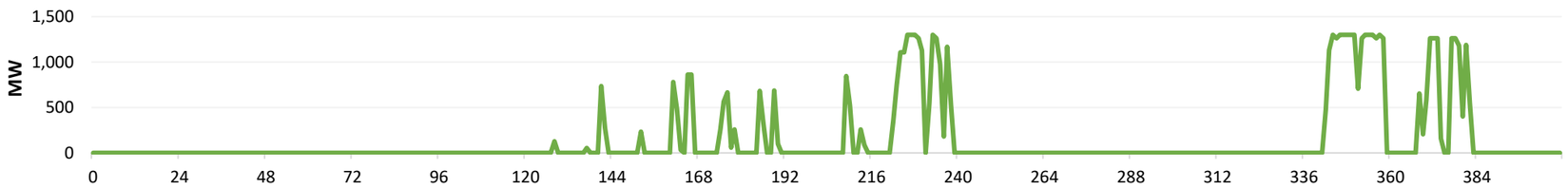
Case Name: Scenario 1 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

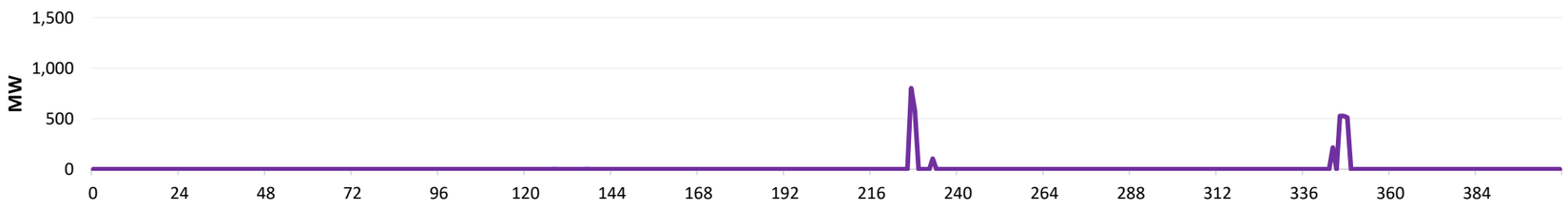


Export to ISO-NE Reduction During Modeling Period



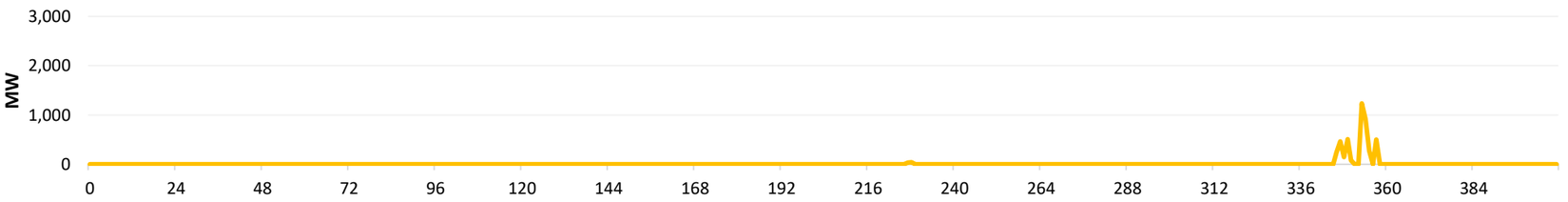
Export Reductions	
Total Hrs.	69
Total MWh	56,914
Avg. MW	139.5

SCR/EDRP Deployed During Modeling Period



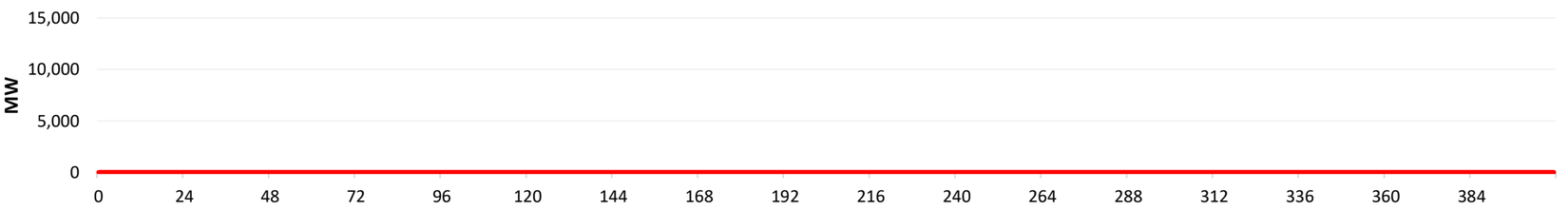
SCR Deployment	
Total Hrs.	8
Total MWh	3,264
Avg. MW	8.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	11
Total MWh	4,444
Avg. MW	10.9
First Hour with Viol.	227

Loss of Load During Modeling Period



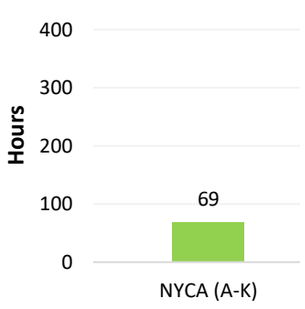
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

Full Period Results Summary

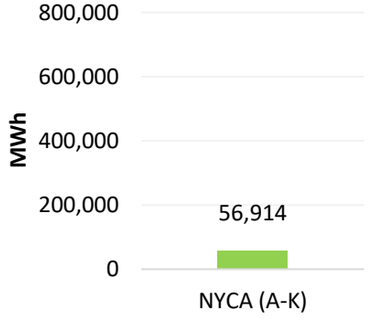
Case Name: Scenario 1 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

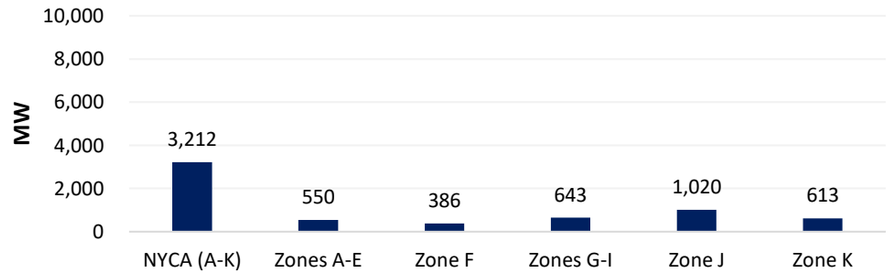
Hours Exports Reduced



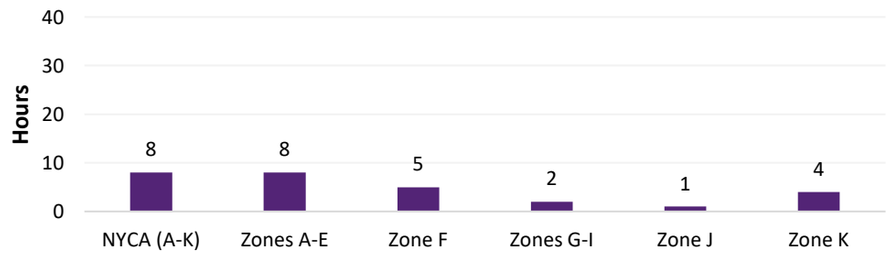
Total MWh of Exports Reduced



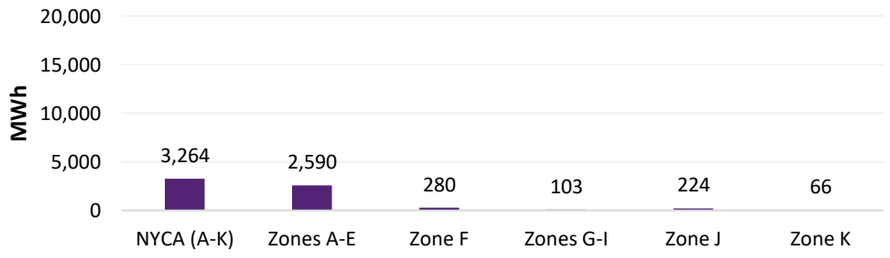
Average Capacity Not Available Due to Exhausted Fuel Inventory



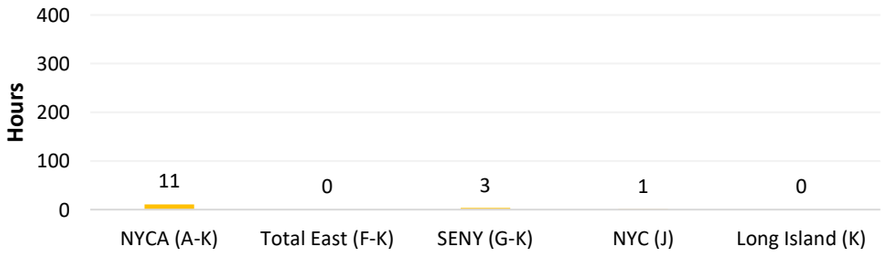
Hours SCR/EDRP Deployed



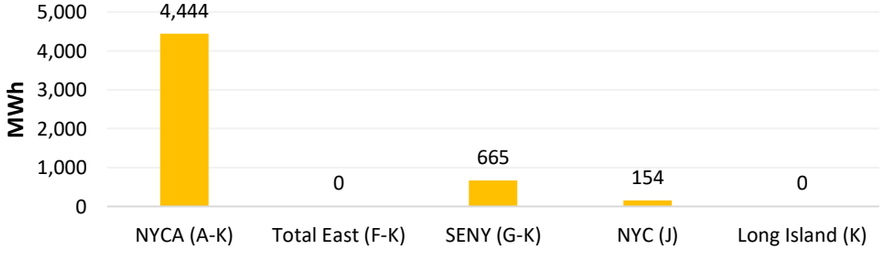
Total MWh SCR/EDRP Deployed



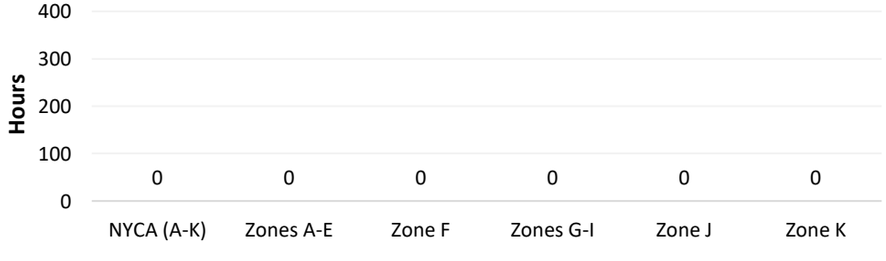
Hours with Reserve Violations



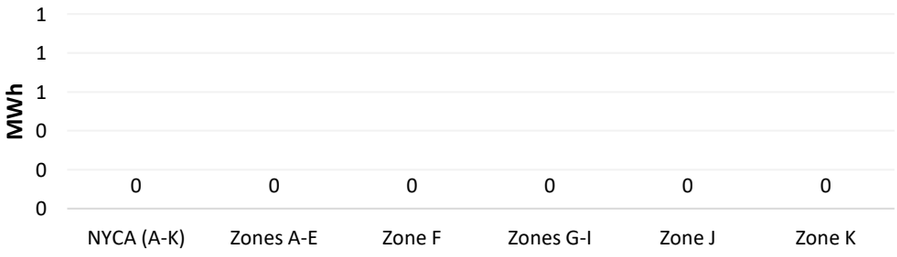
Total MWh of Reserve Violations

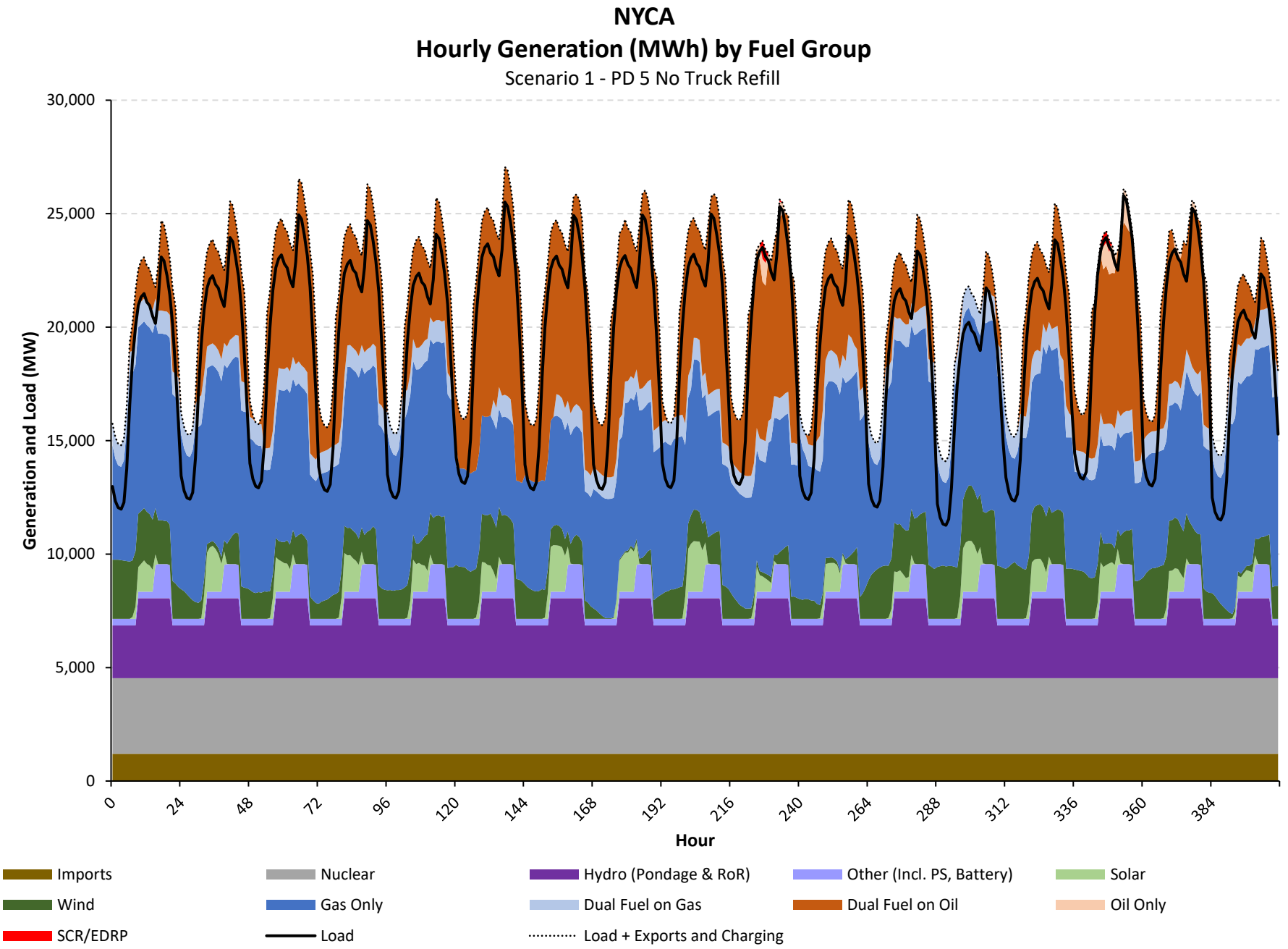


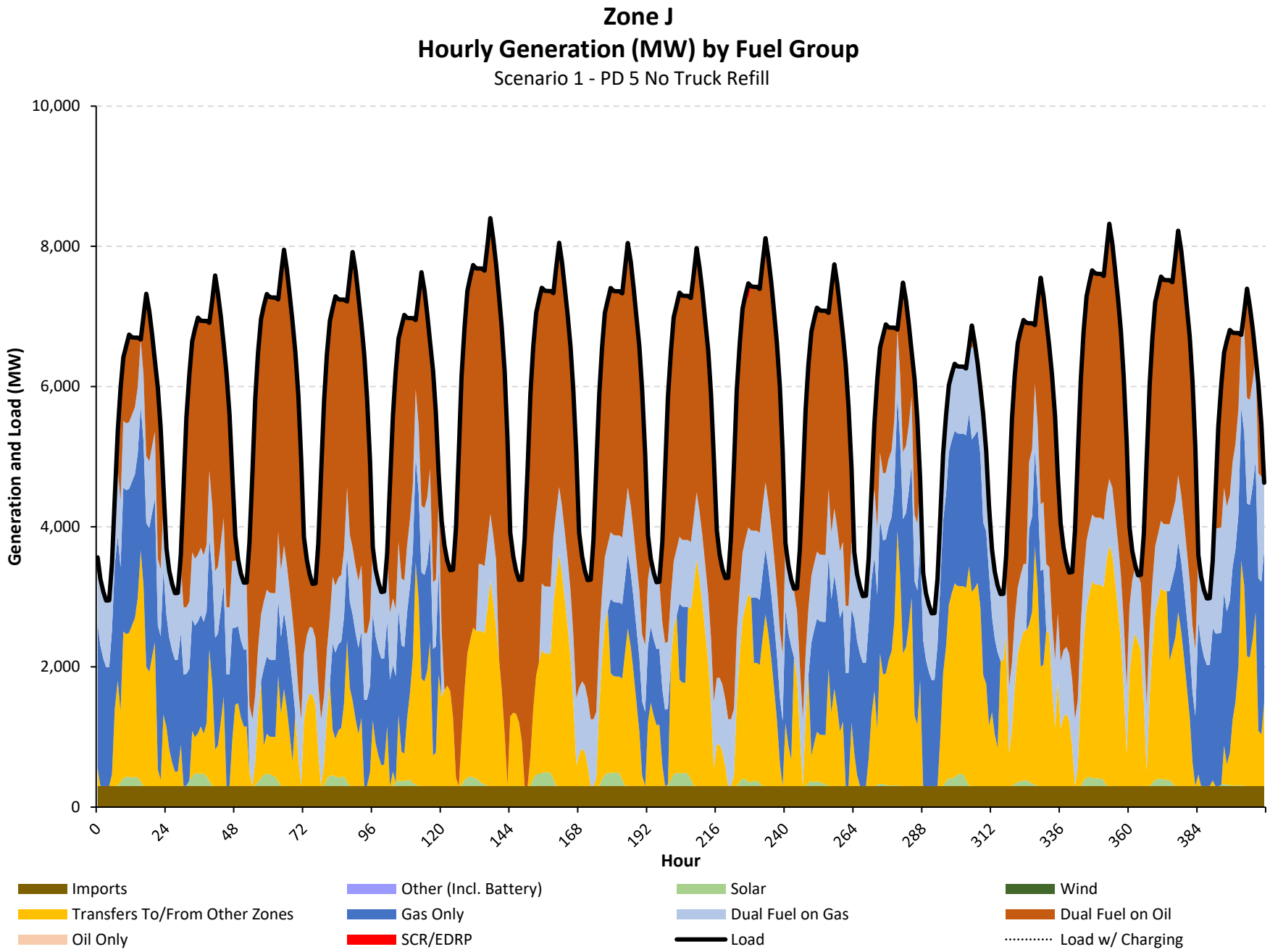
Hours with Loss of Load



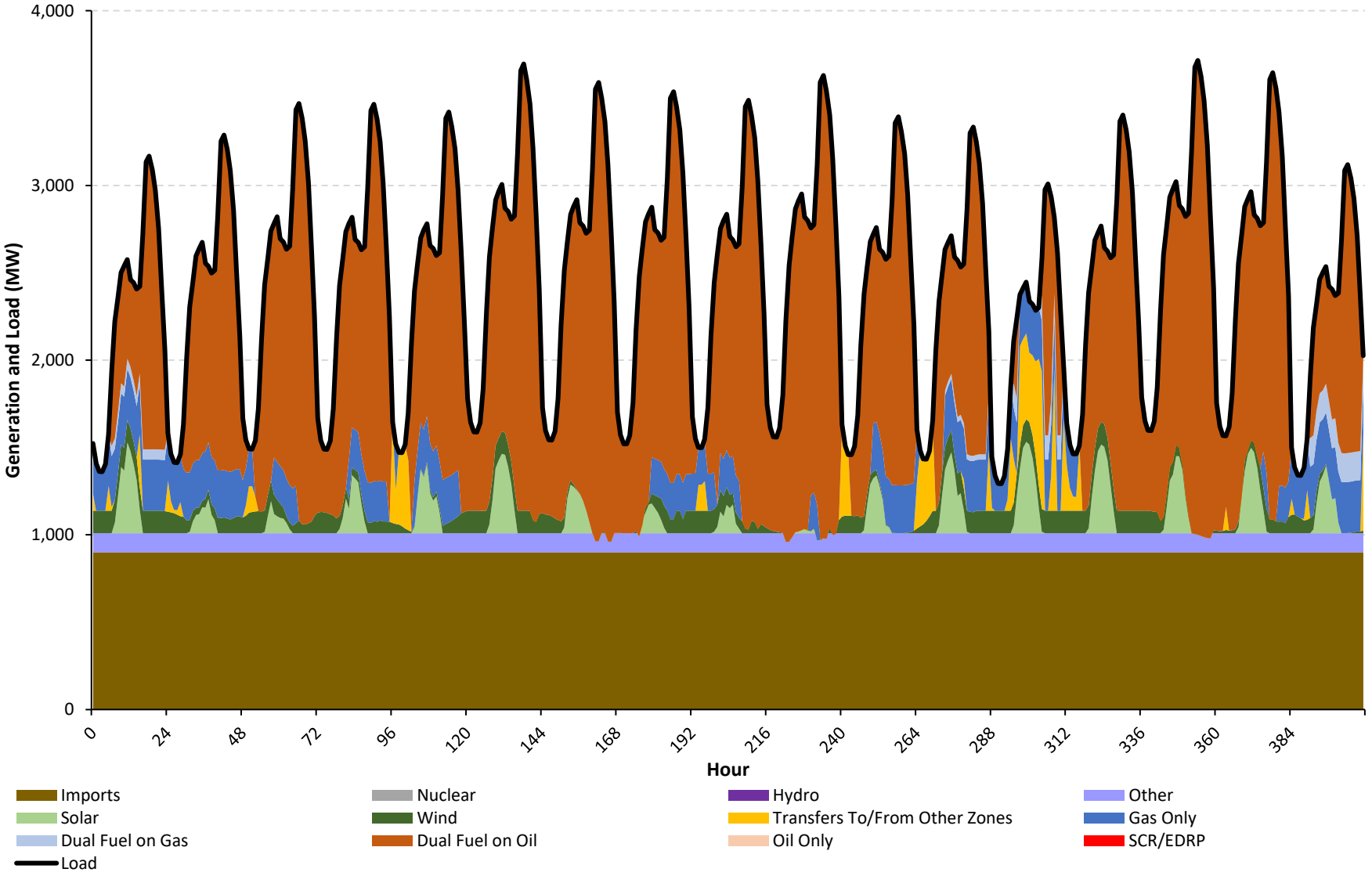
Total MWh of Lost Load




NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 5 No Truck Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 5 No Truck Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

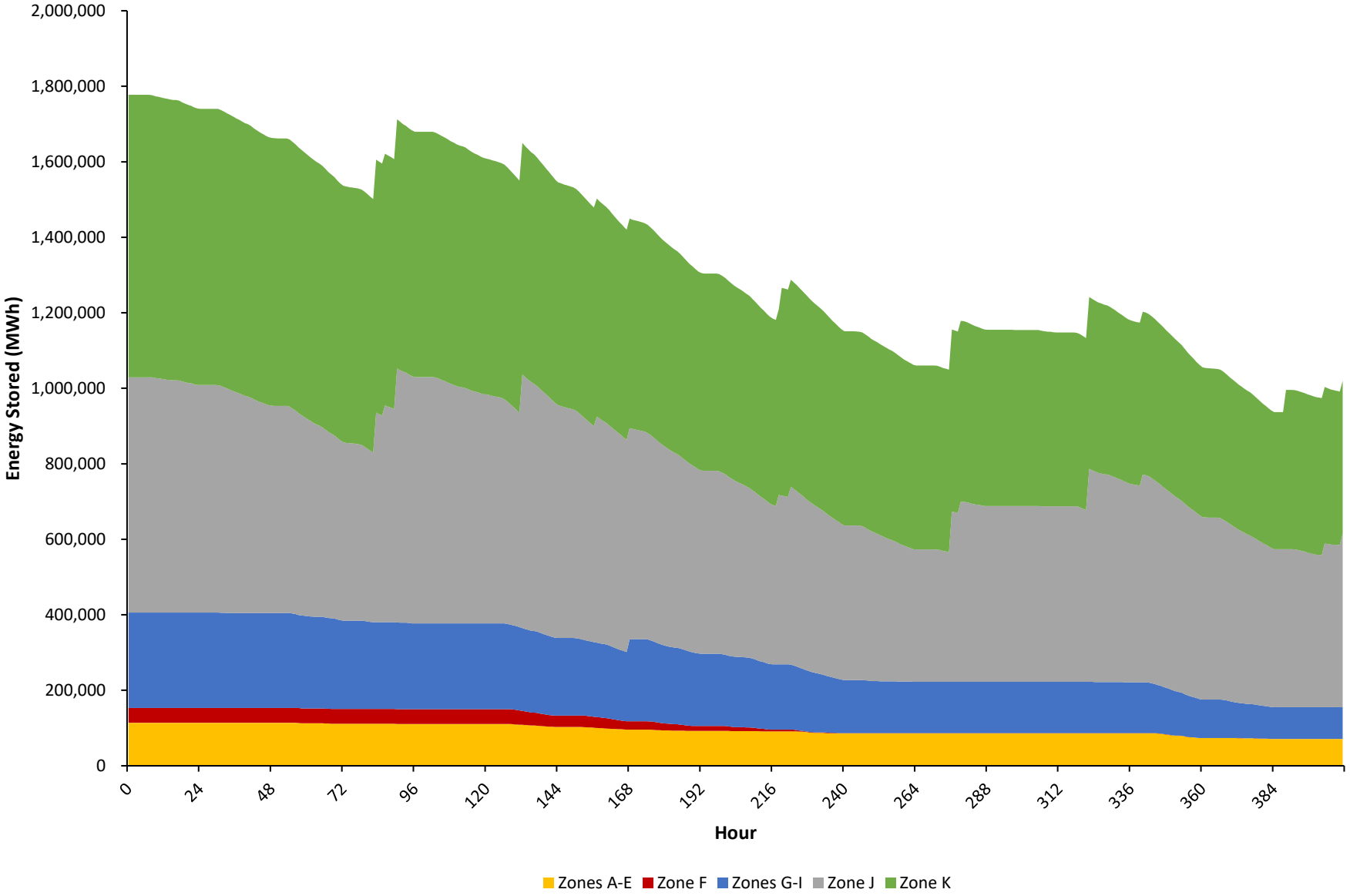
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 5 No Truck Refill

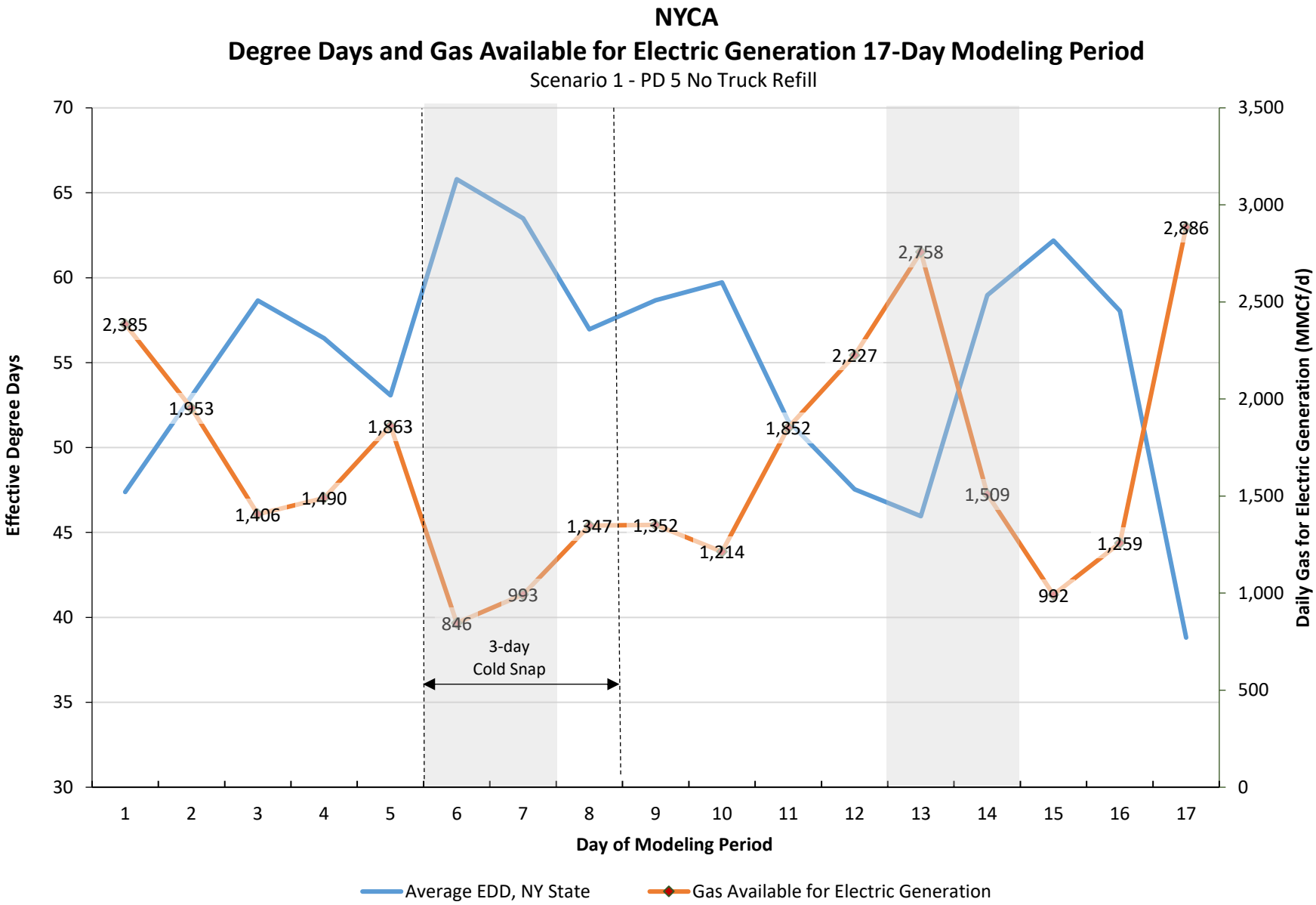


NYCA

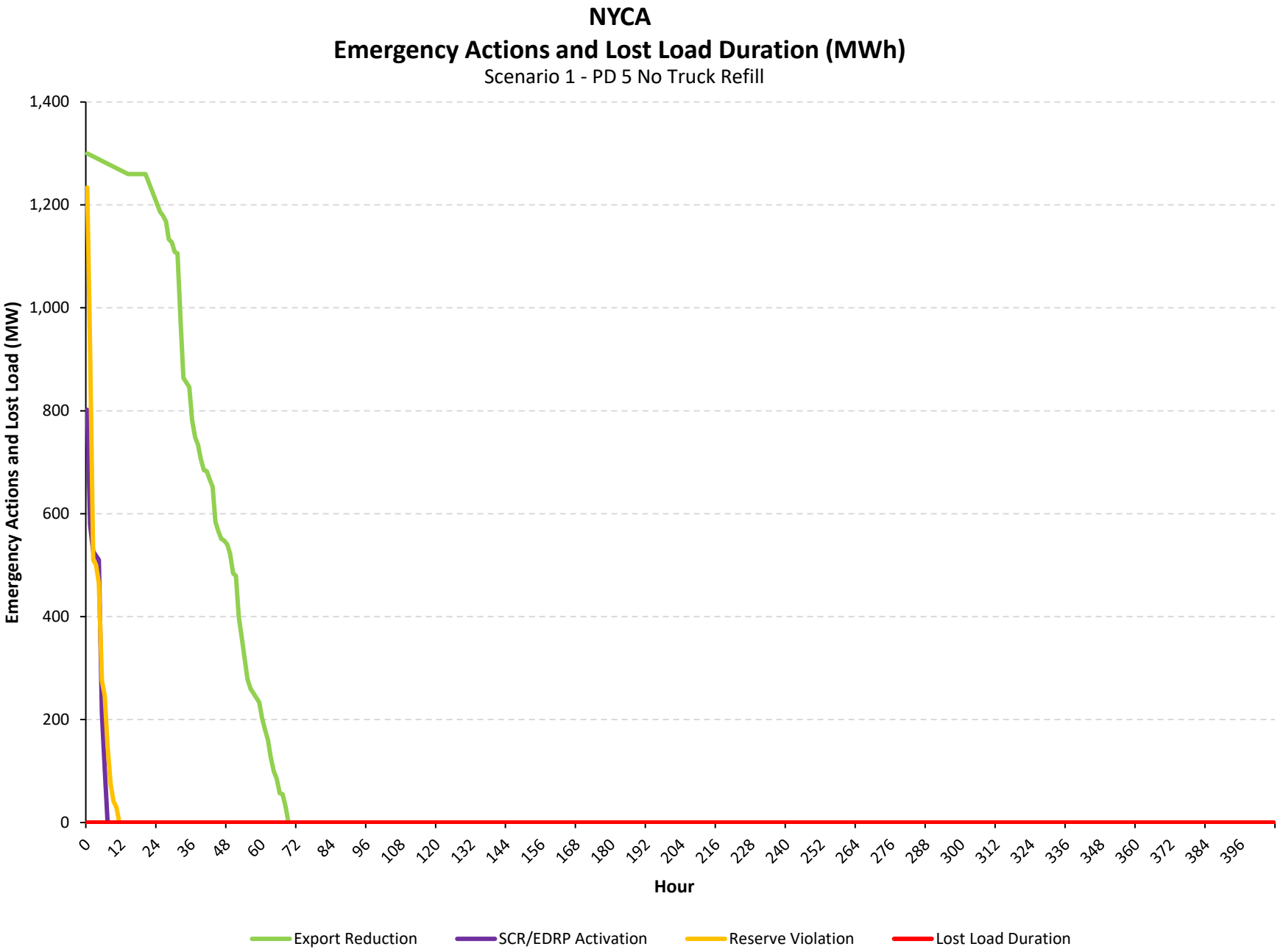
Quantity of Stored Fuel for Oil and Dual Fuel Units

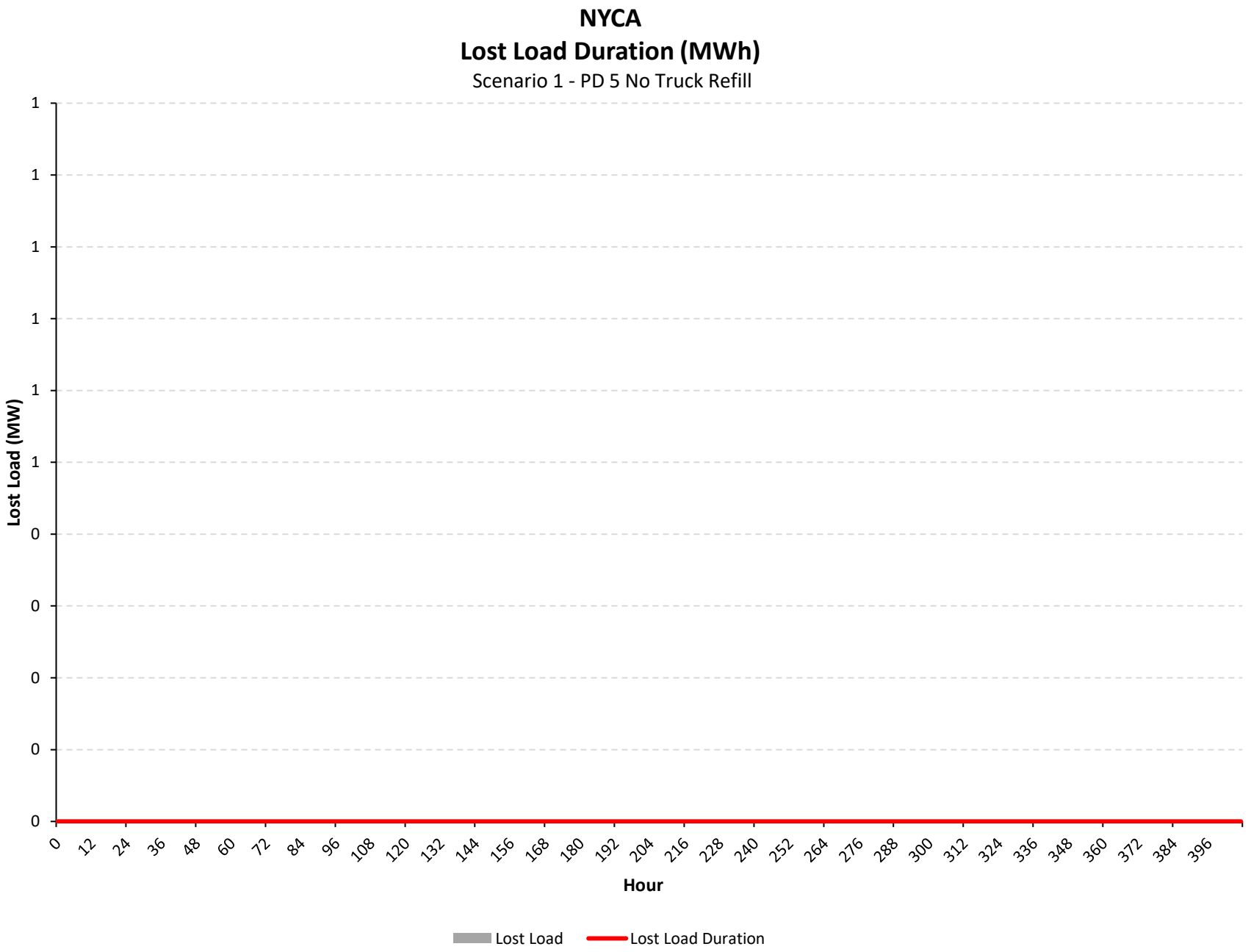
Scenario 1 - PD 5 No Truck Refill





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 5 No Truck Refill
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 5 No Truck Refill
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

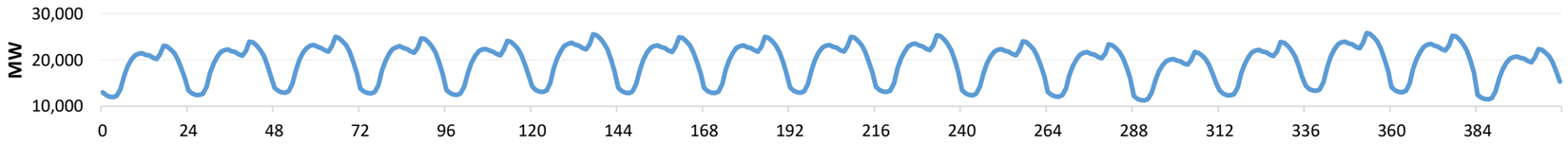
Case: Scenario 1 - PD 6 No Barge Refill (Winter 2023/2024)

Hourly Results Summary

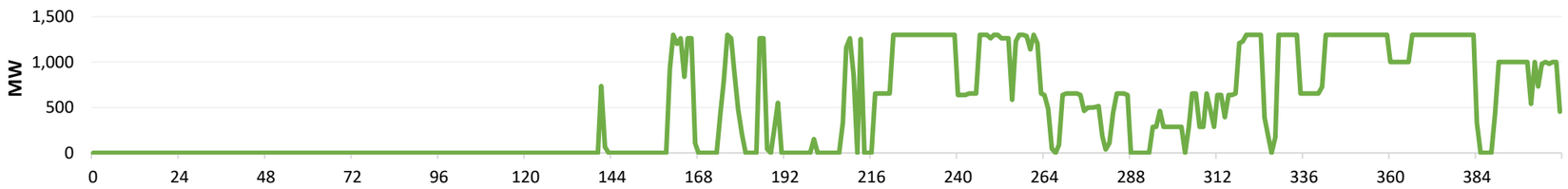
Case Name: Scenario 1 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

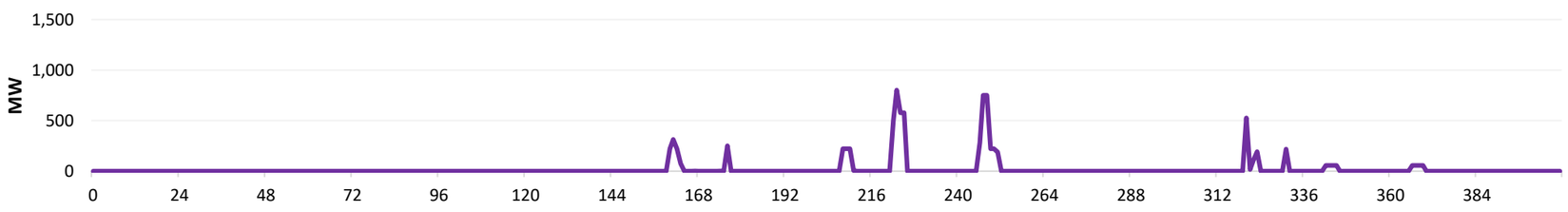


Export to ISO-NE Reduction During Modeling Period



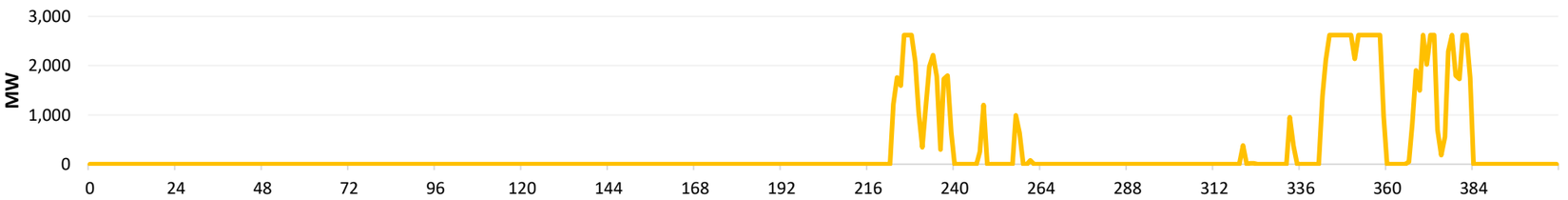
Export Reductions	
Total Hrs.	206
Total MWh	188,106
Avg. MW	461.0

SCR/EDRP Deployed During Modeling Period



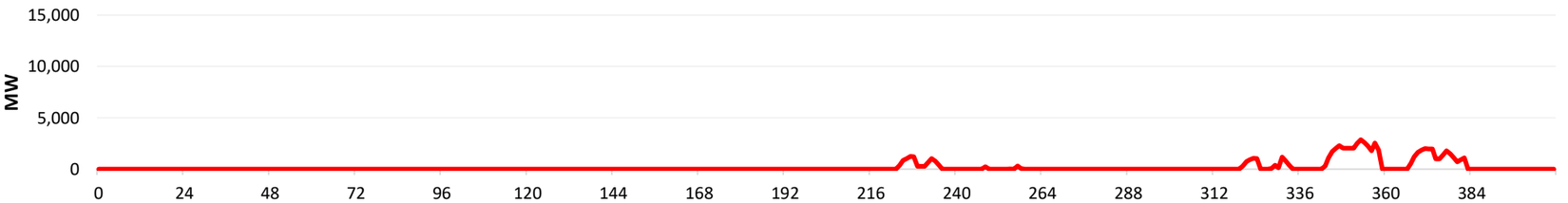
SCR Deployment	
Total Hrs.	32
Total MWh	8,150
Avg. MW	20.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	63
Total MWh	106,758
Avg. MW	261.7
First Hour with Viol.	160

Loss of Load During Modeling Period



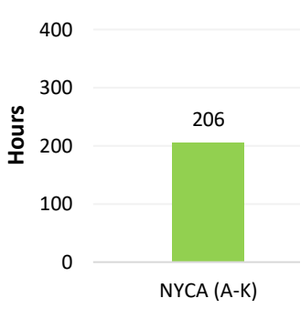
Loss of Load	
Total Hrs.	59
Total MWh	69,513
Avg. MW	170.4
First Hour with Losses	224

Full Period Results Summary

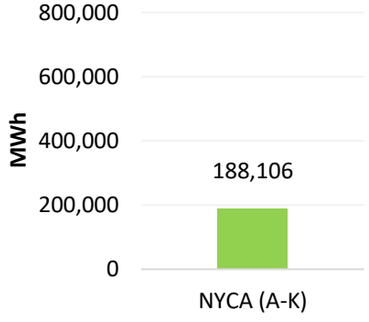
Case Name: Scenario 1 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

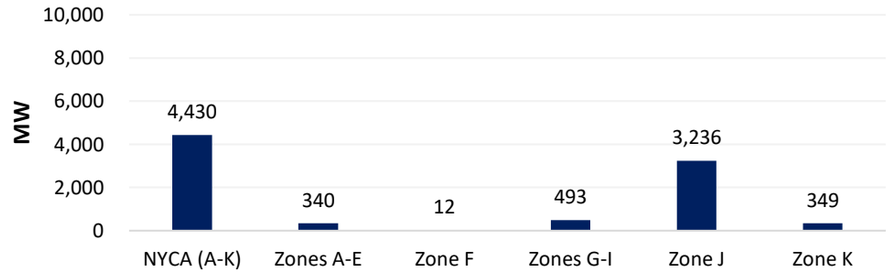
Hours Exports Reduced



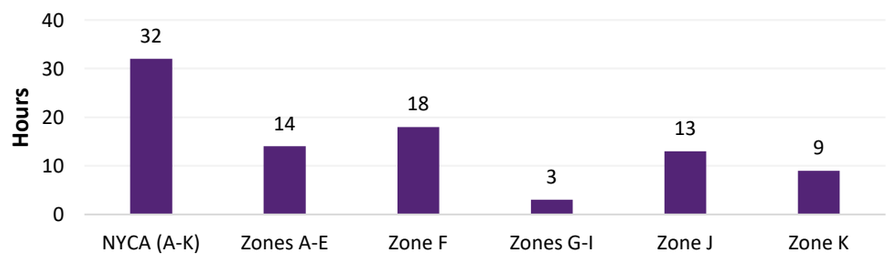
Total MWh of Exports Reduced



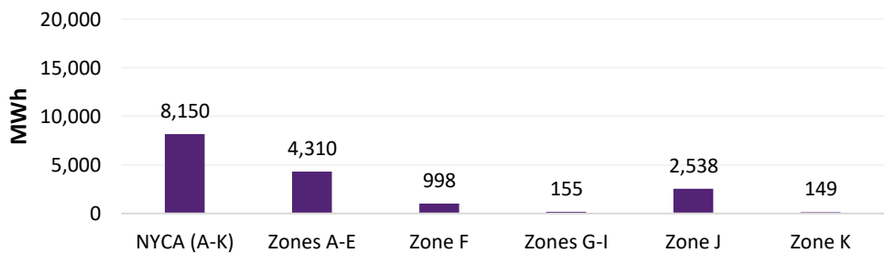
Average Capacity Not Available Due to Exhausted Fuel Inventory



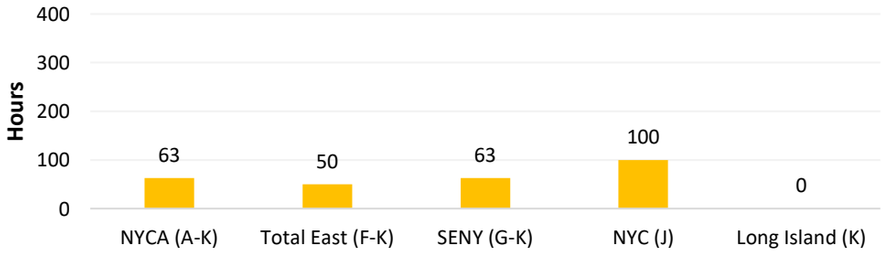
Hours SCR/EDRP Deployed



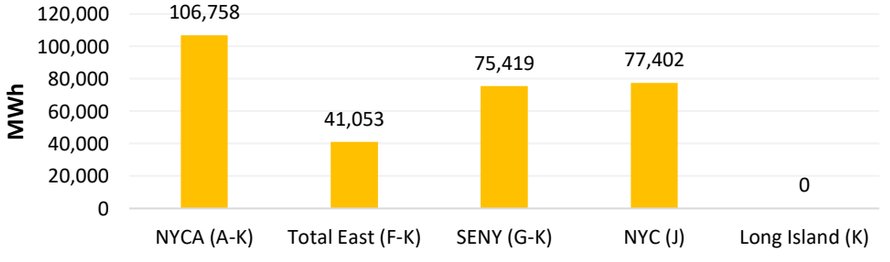
Total MWh SCR/EDRP Deployed



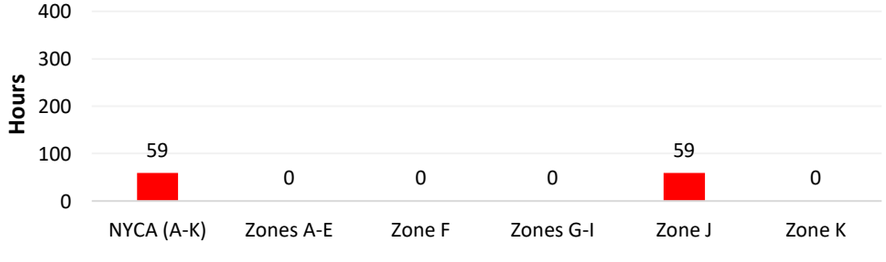
Hours with Reserve Violations



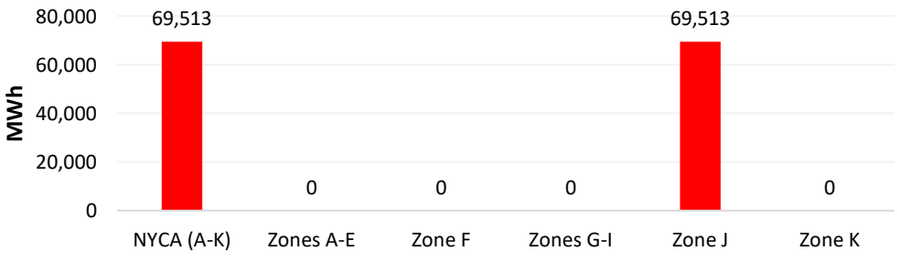
Total MWh of Reserve Violations

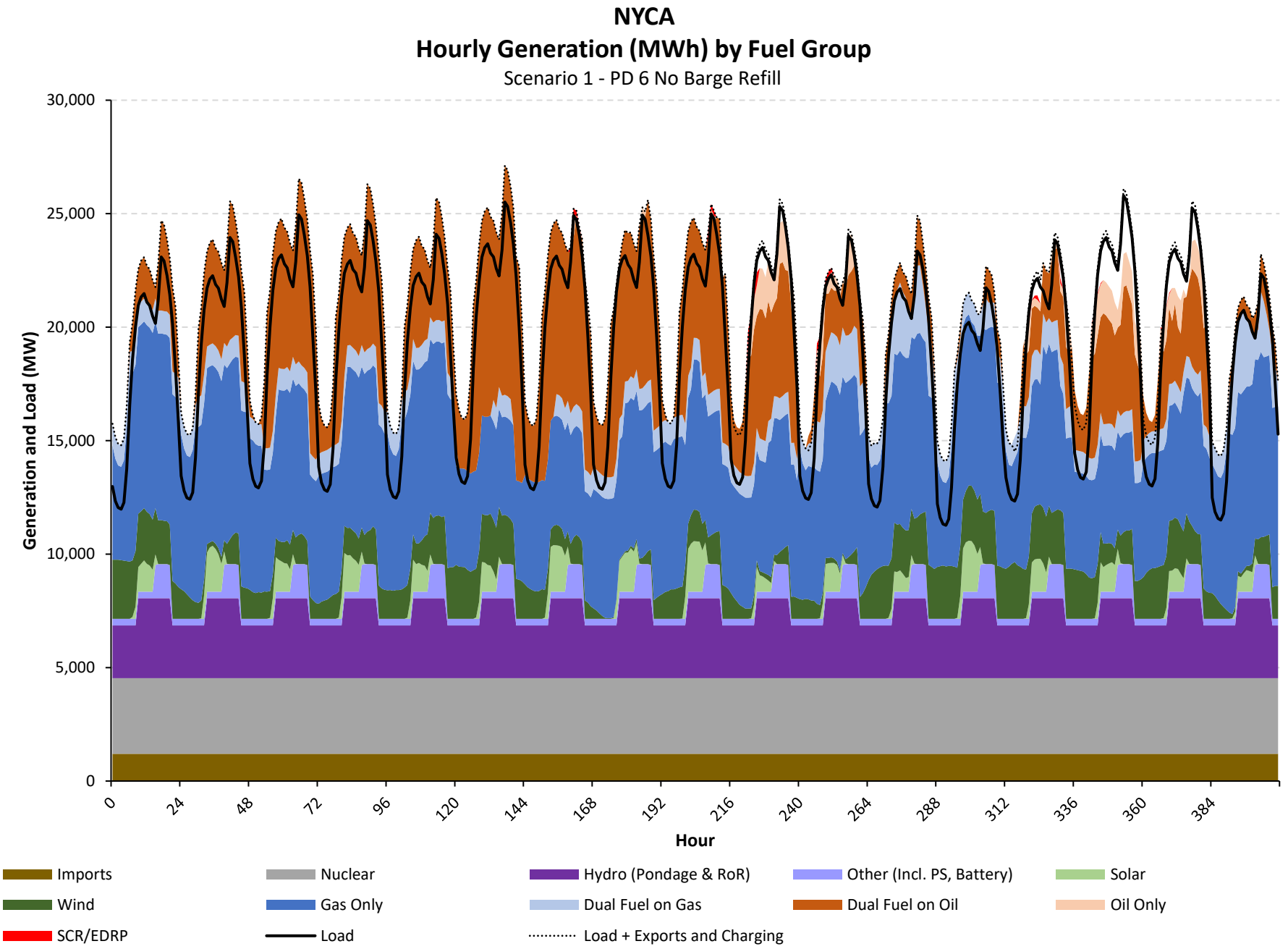


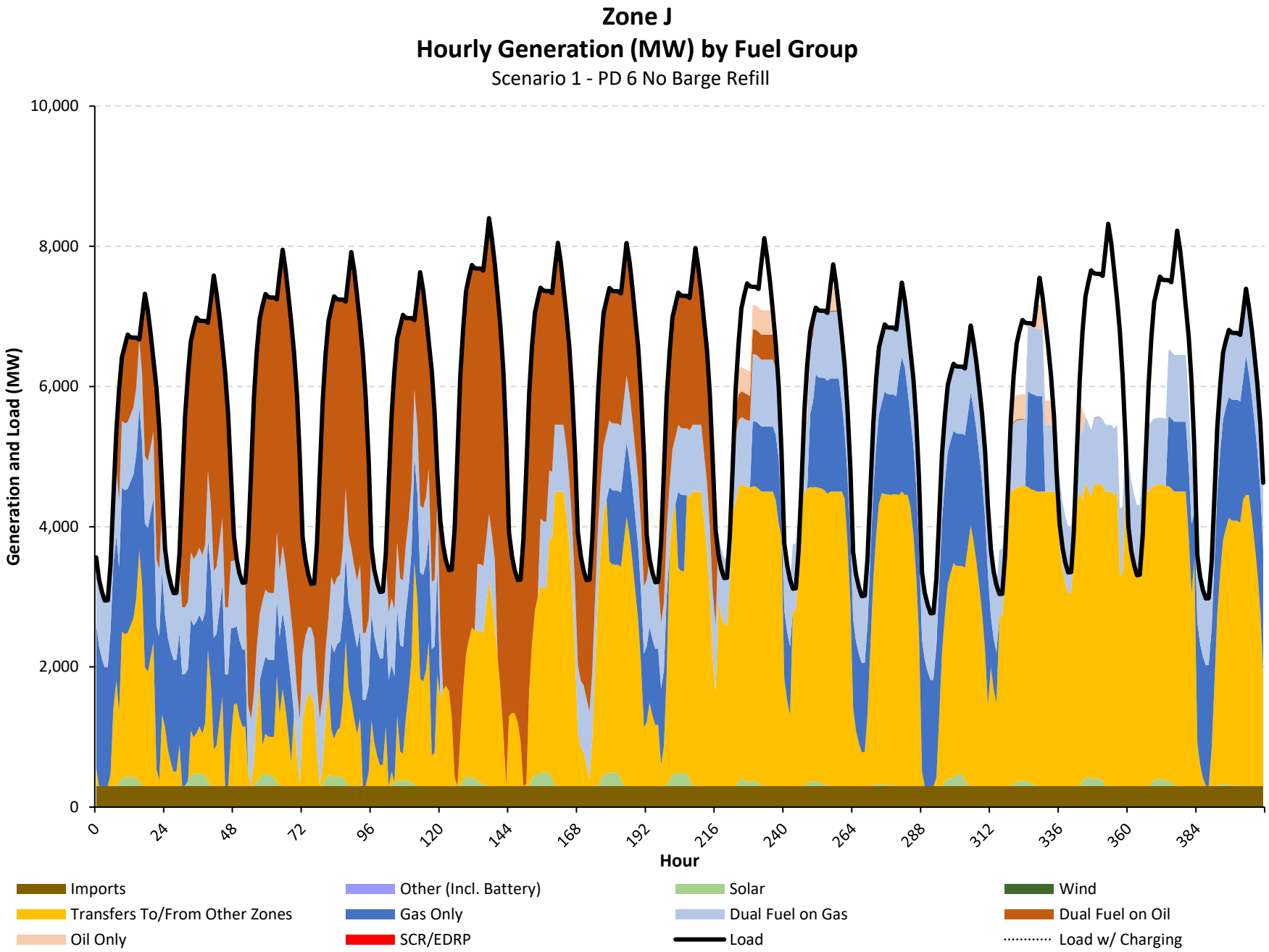
Hours with Loss of Load



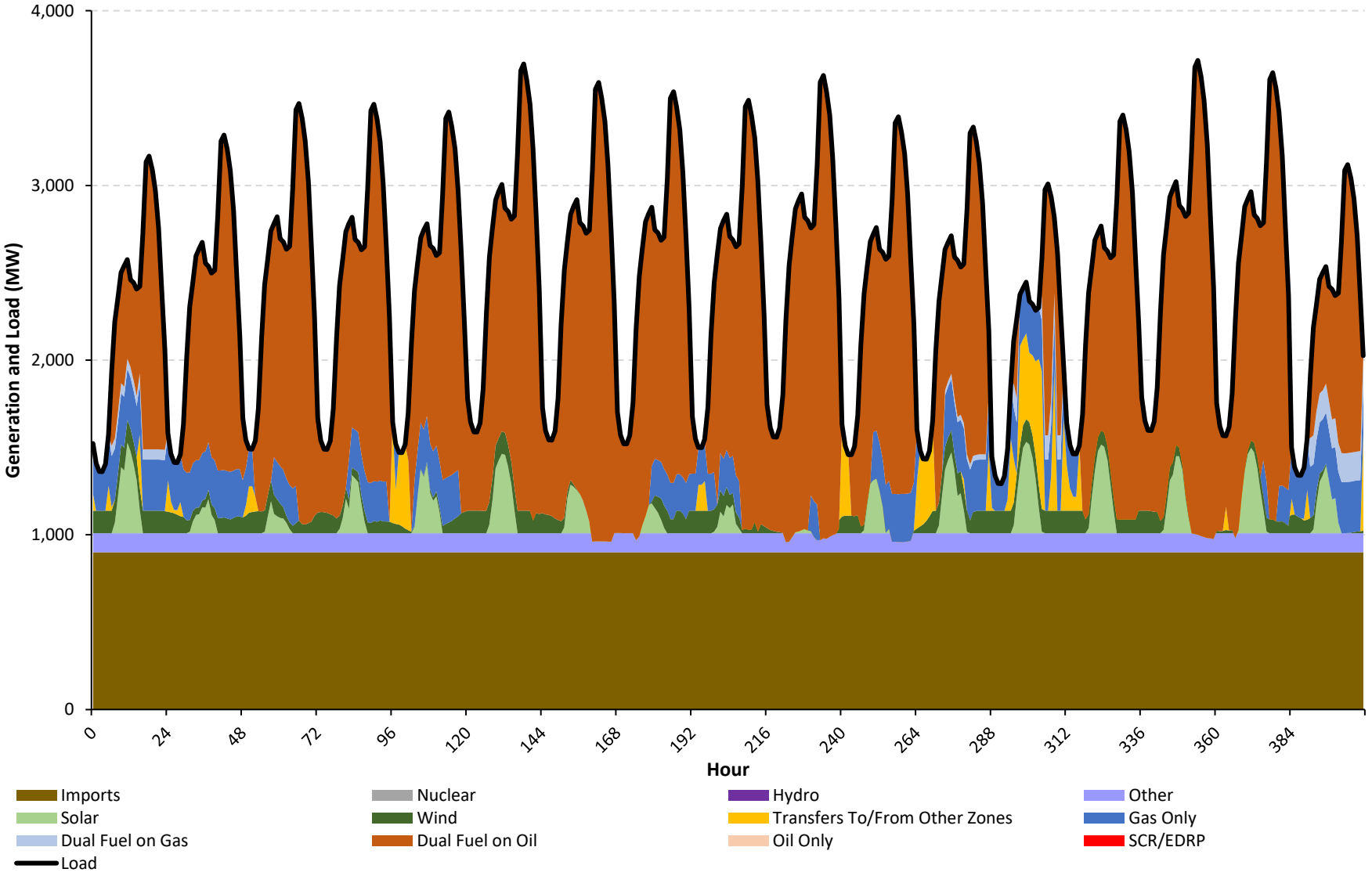
Total MWh of Lost Load




NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 6 No Barge Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 6 No Barge Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

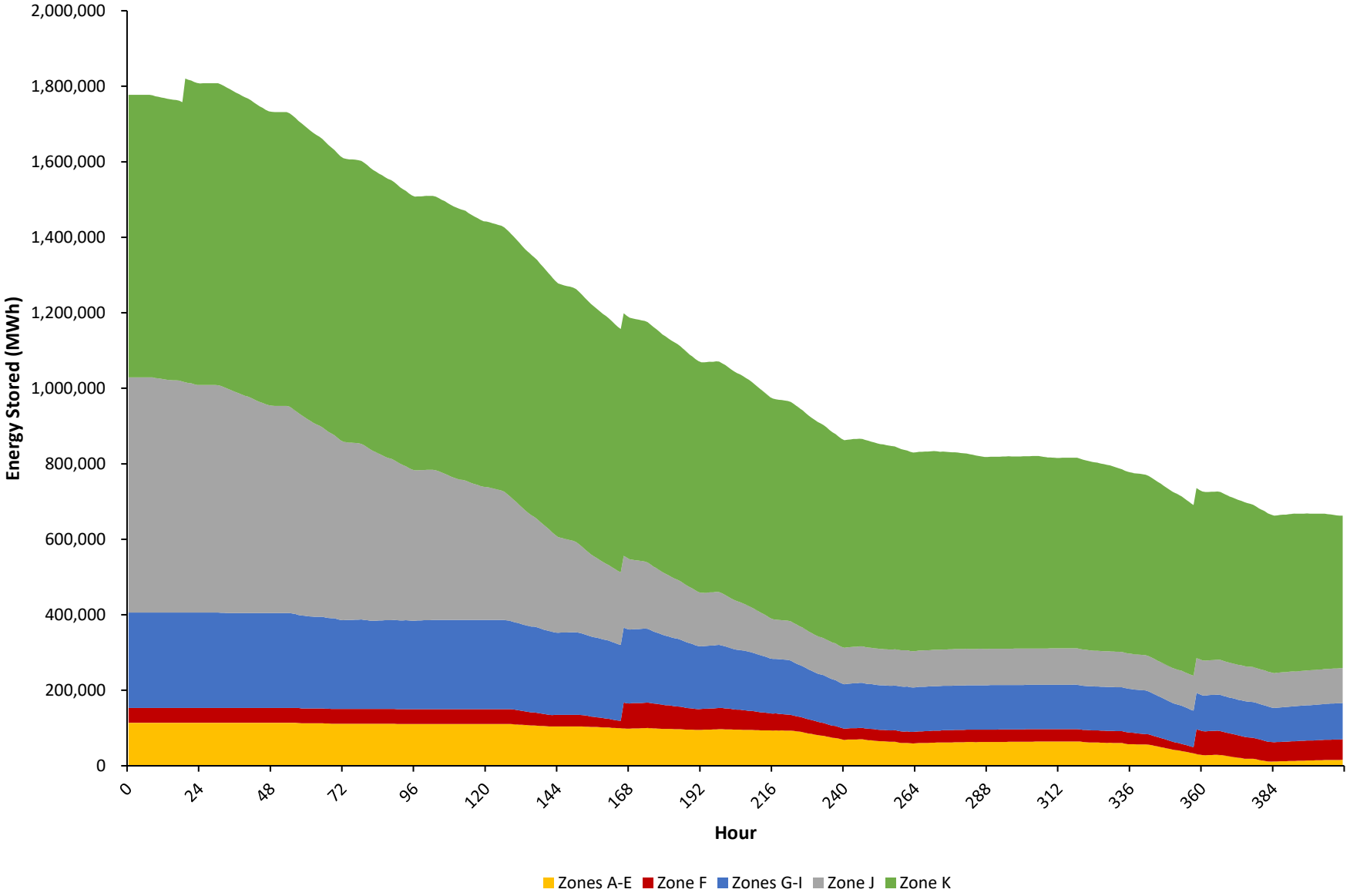
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 6 No Barge Refill

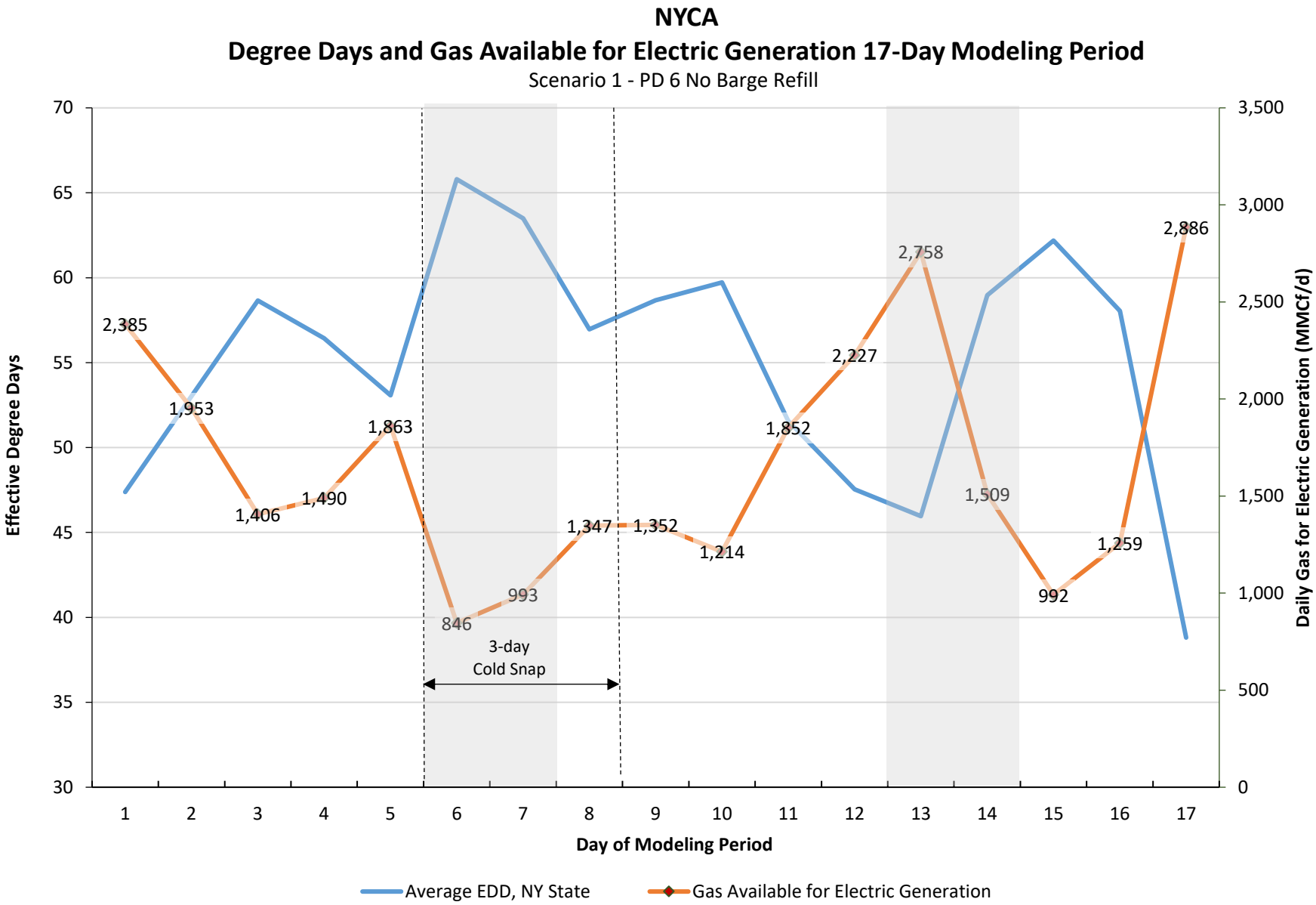


NYCA

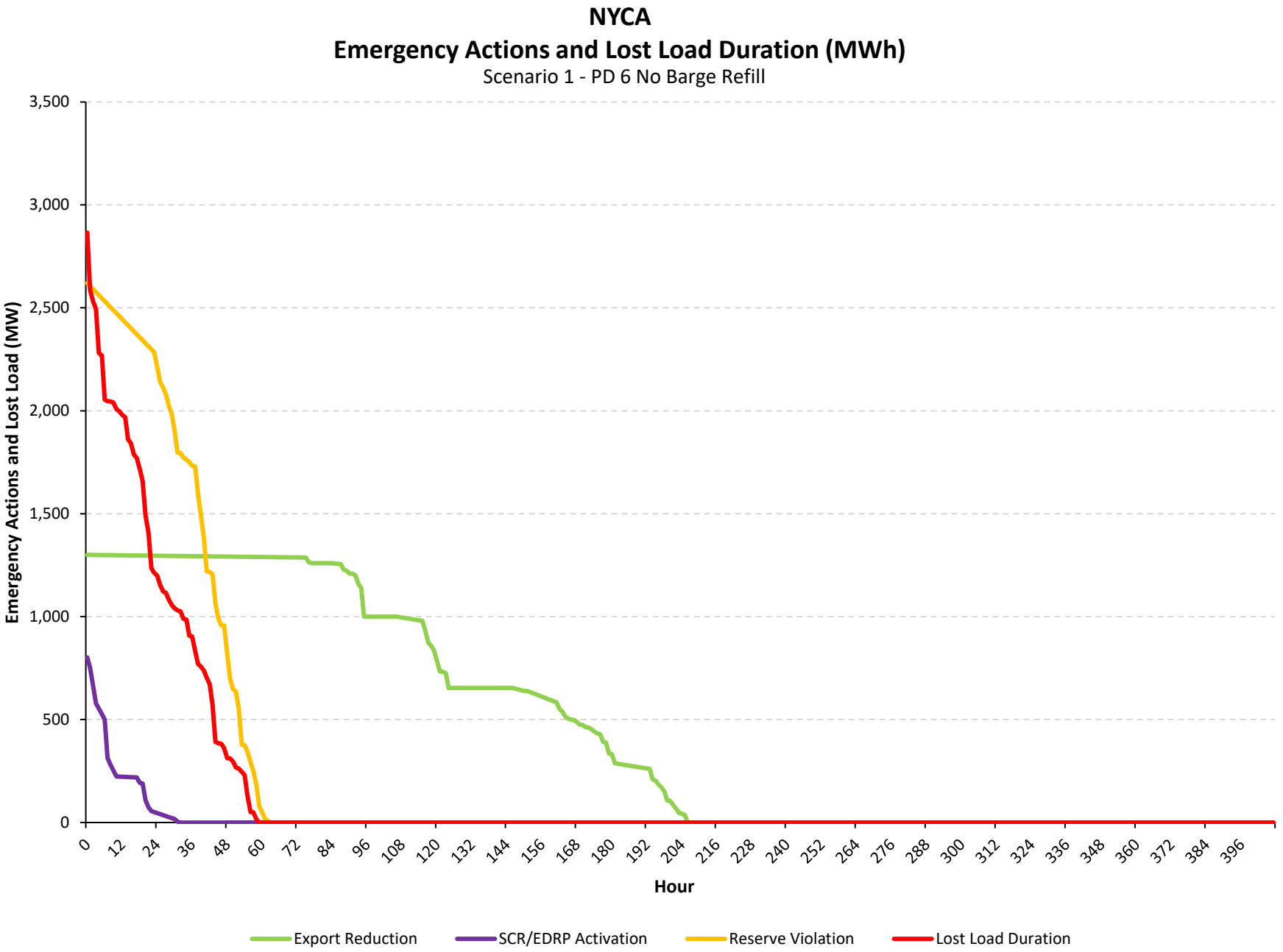
Quantity of Stored Fuel for Oil and Dual Fuel Units

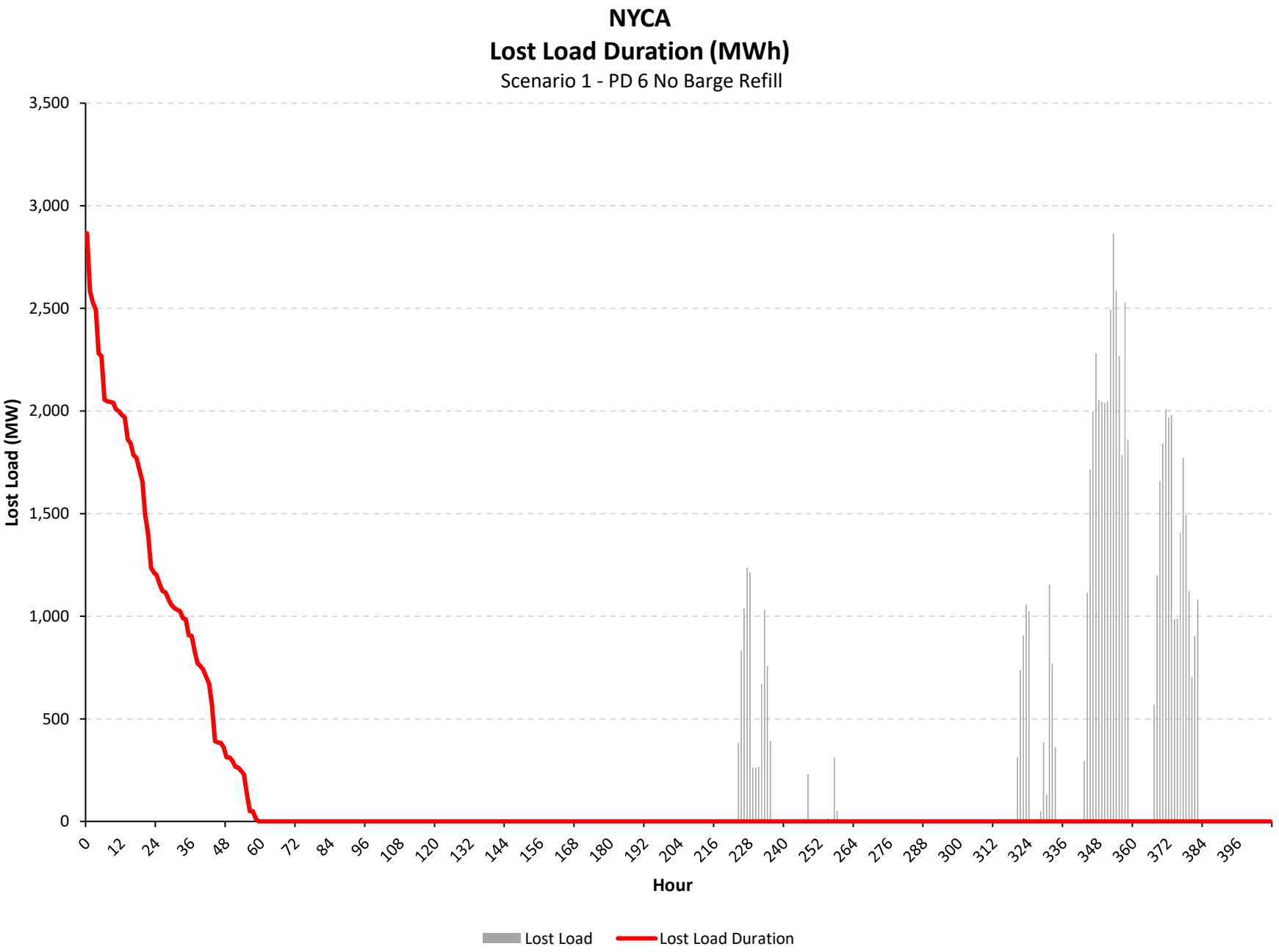
Scenario 1 - PD 6 No Barge Refill





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 6 No Barge Refill
Emergency Actions and Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 6 No Barge Refill
Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

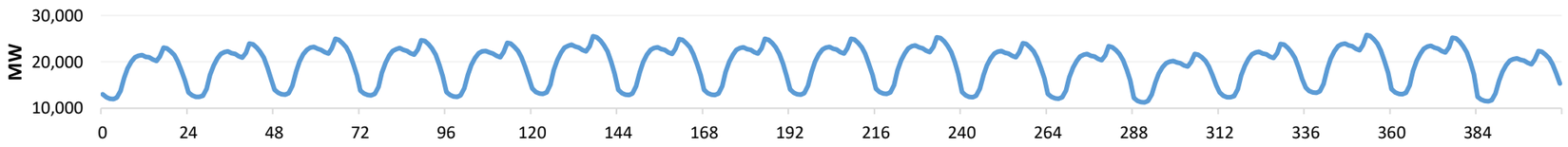
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 1 - PD 7 No Refill (Winter 2023/2024)

Hourly Results Summary

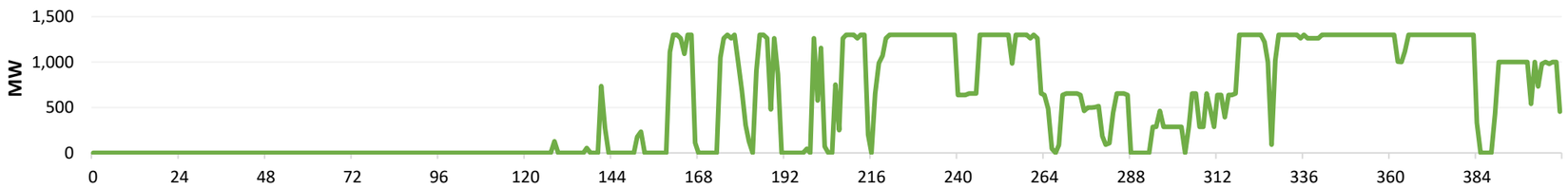
Case Name: Scenario 1 - PD 7 No Refill

Load During Modeling Period



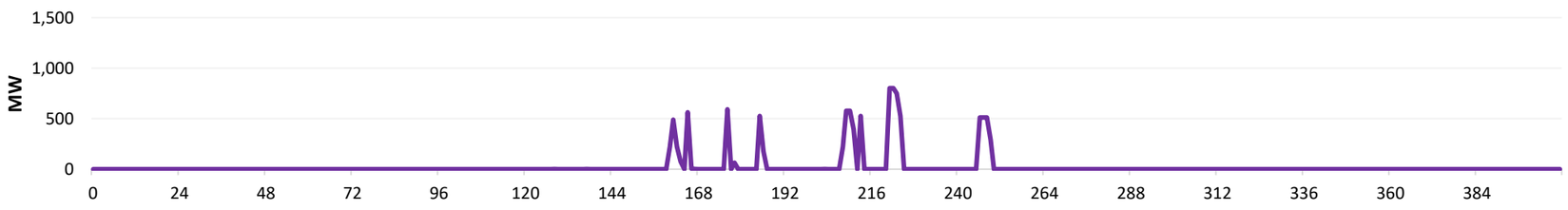
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



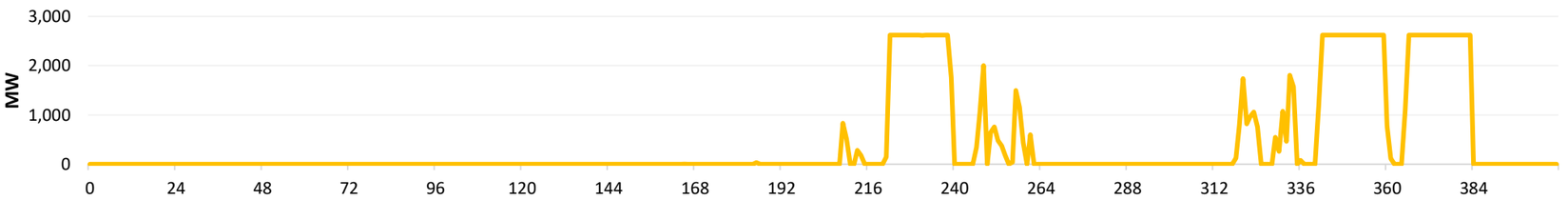
Export Reductions	
Total Hrs.	224
Total MWh	215,669
Avg. MW	528.6

SCR/EDRP Deployed During Modeling Period



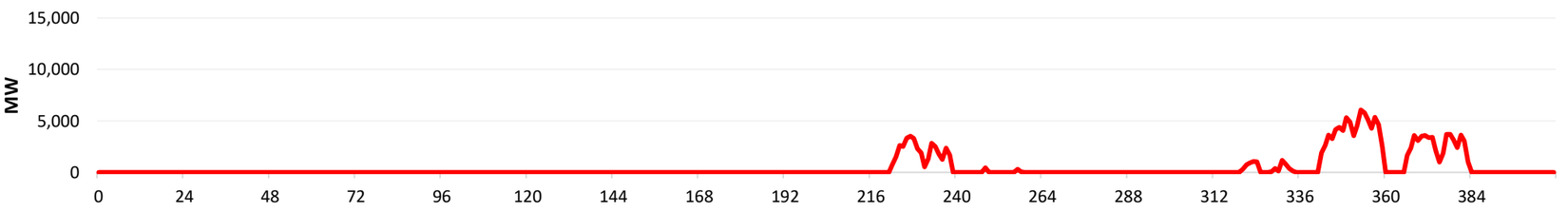
SCR Deployment	
Total Hrs.	23
Total MWh	9,942
Avg. MW	24.4

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	92
Total MWh	167,337
Avg. MW	410.1
First Hour with Viol.	160

Loss of Load During Modeling Period

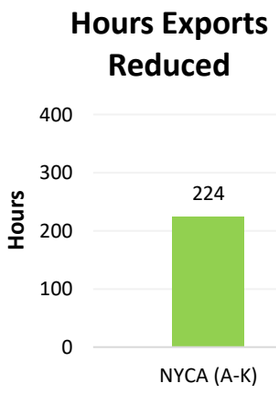


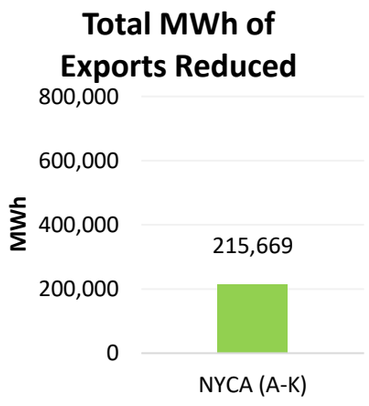
Loss of Load	
Total Hrs.	68
Total MWh	169,975
Avg. MW	416.6
First Hour with Losses	222

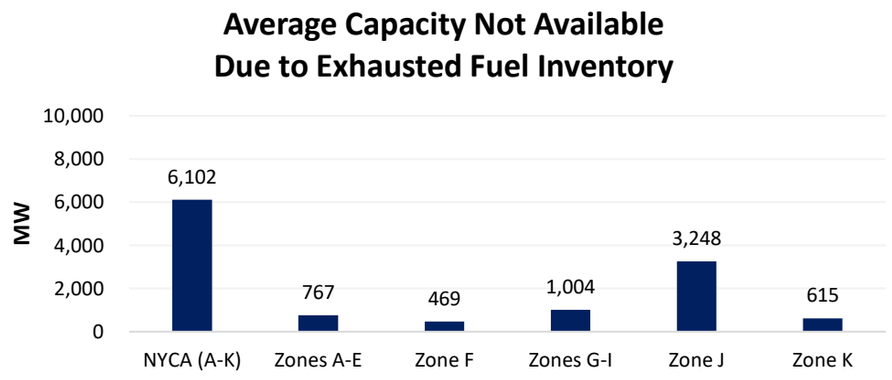
Full Period Results Summary

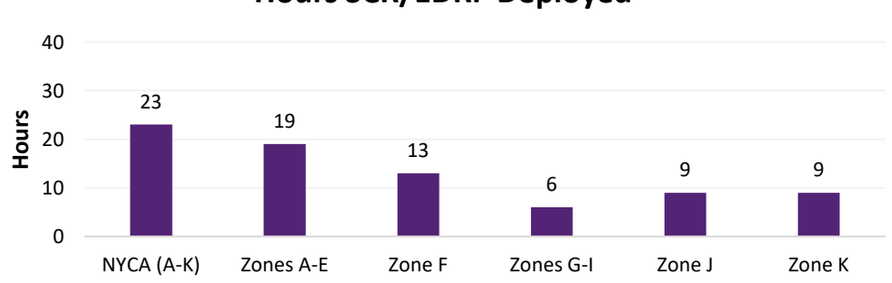
Case Name: Scenario 1 - PD 7 No Refill

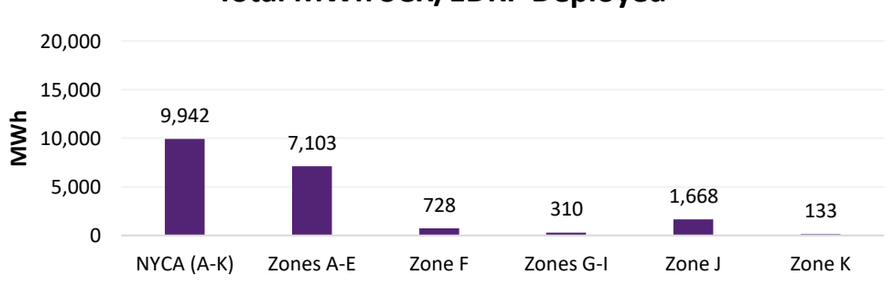
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

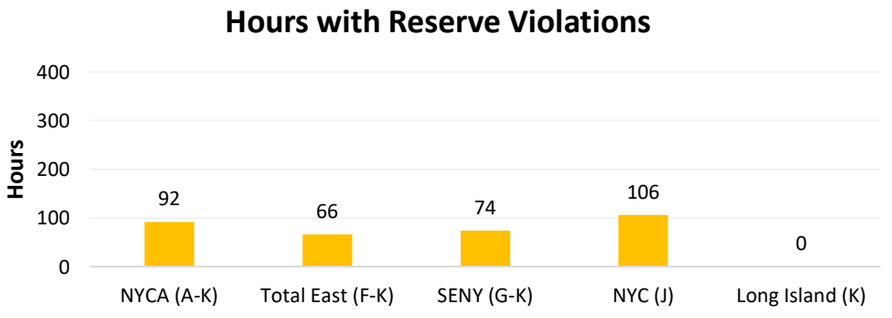


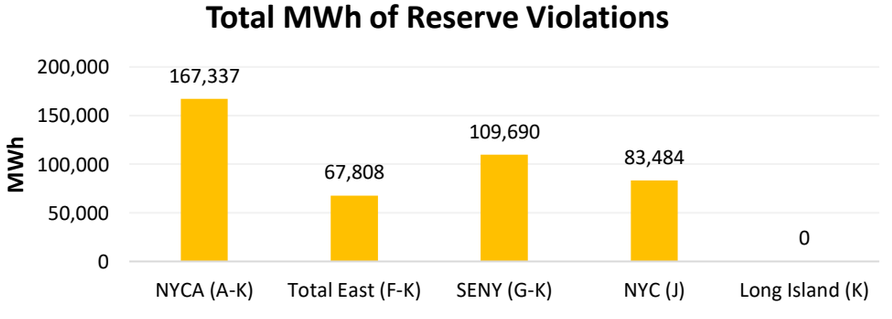


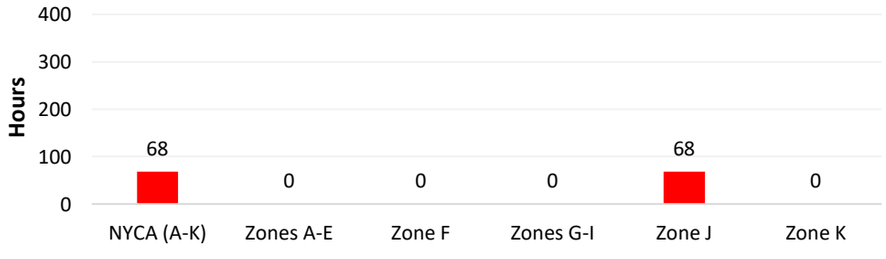


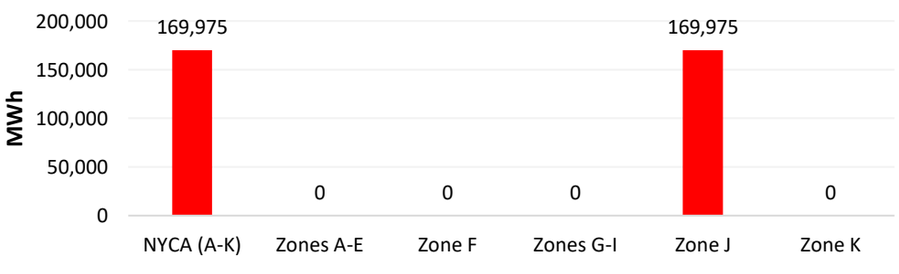


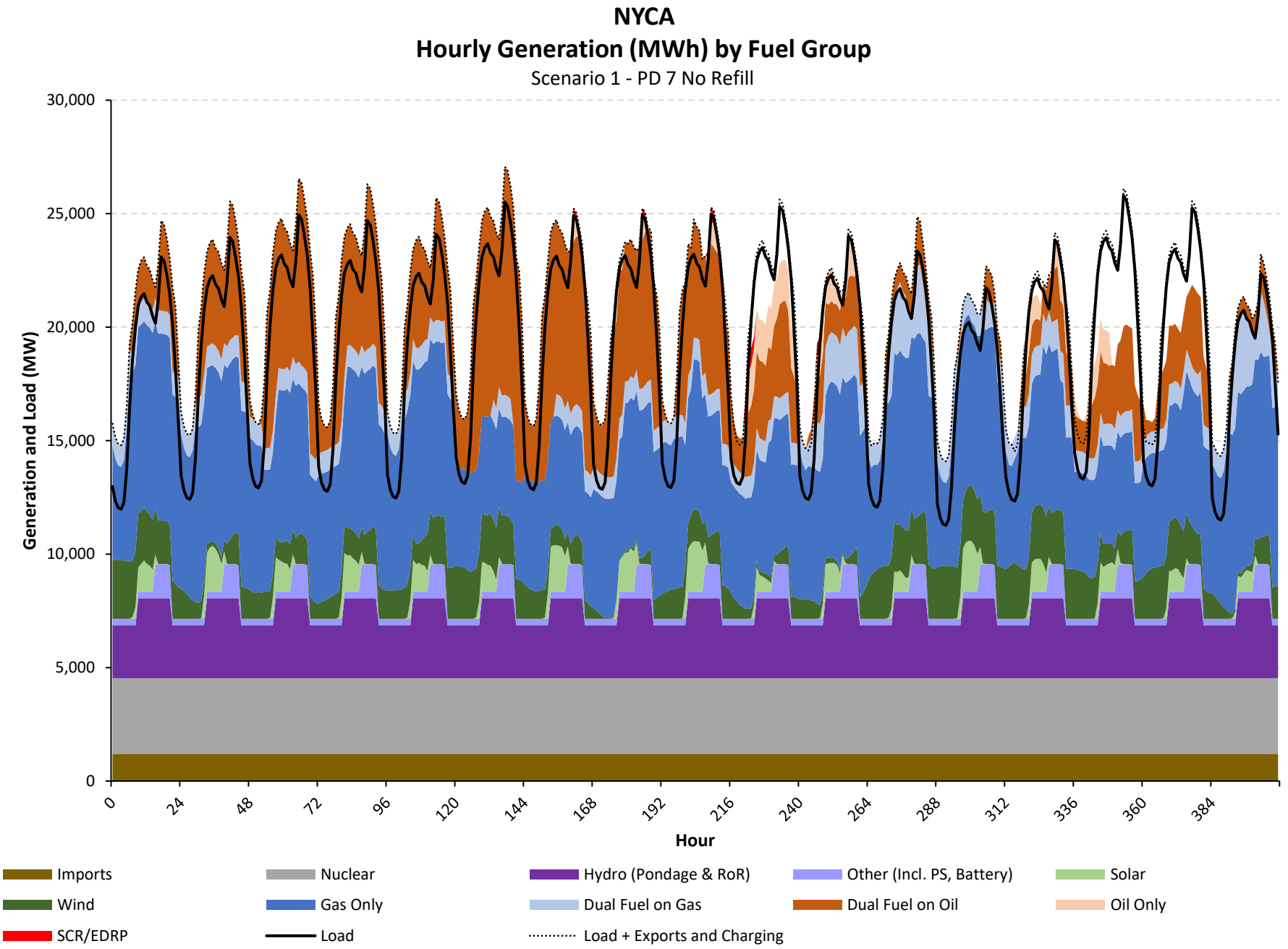




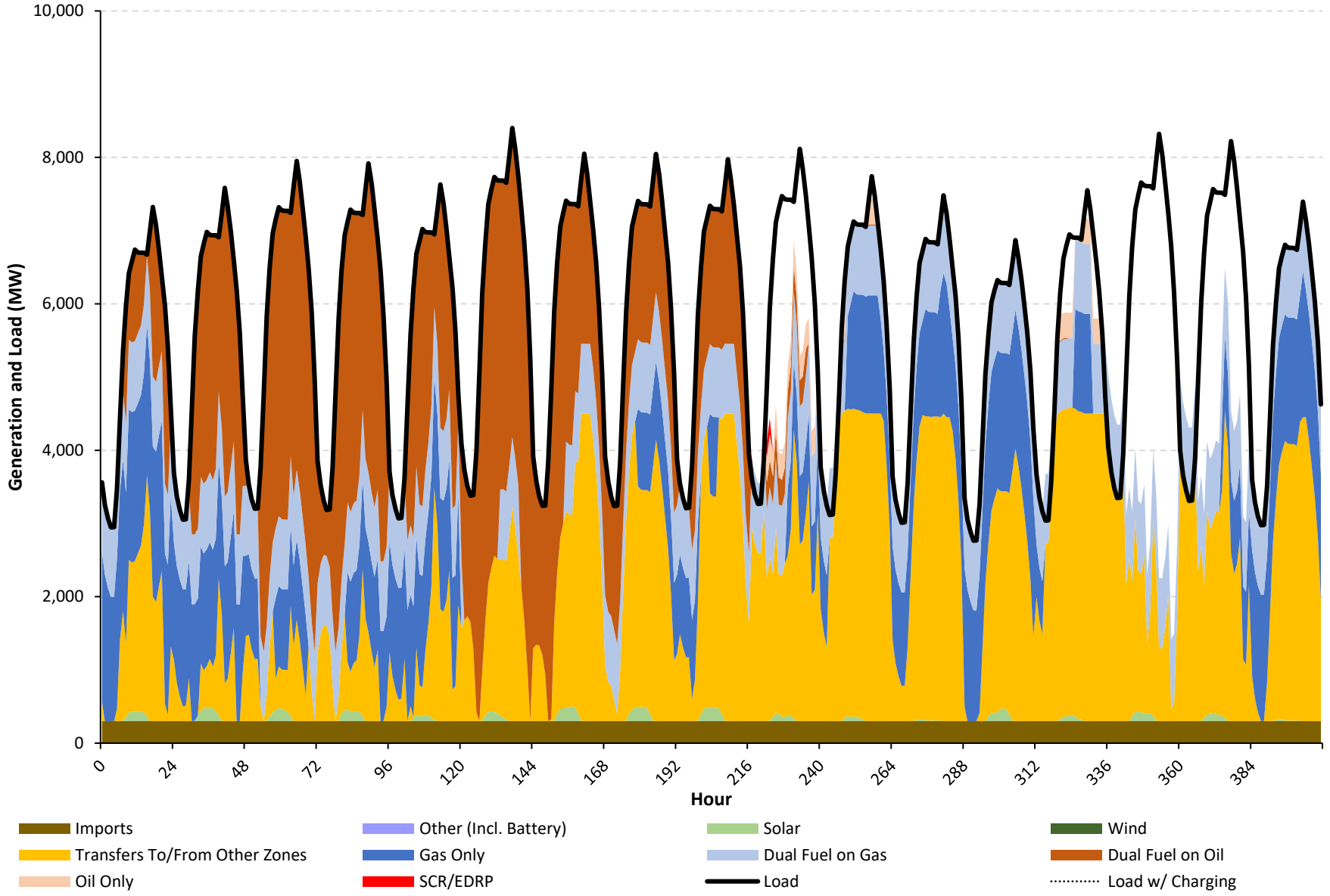




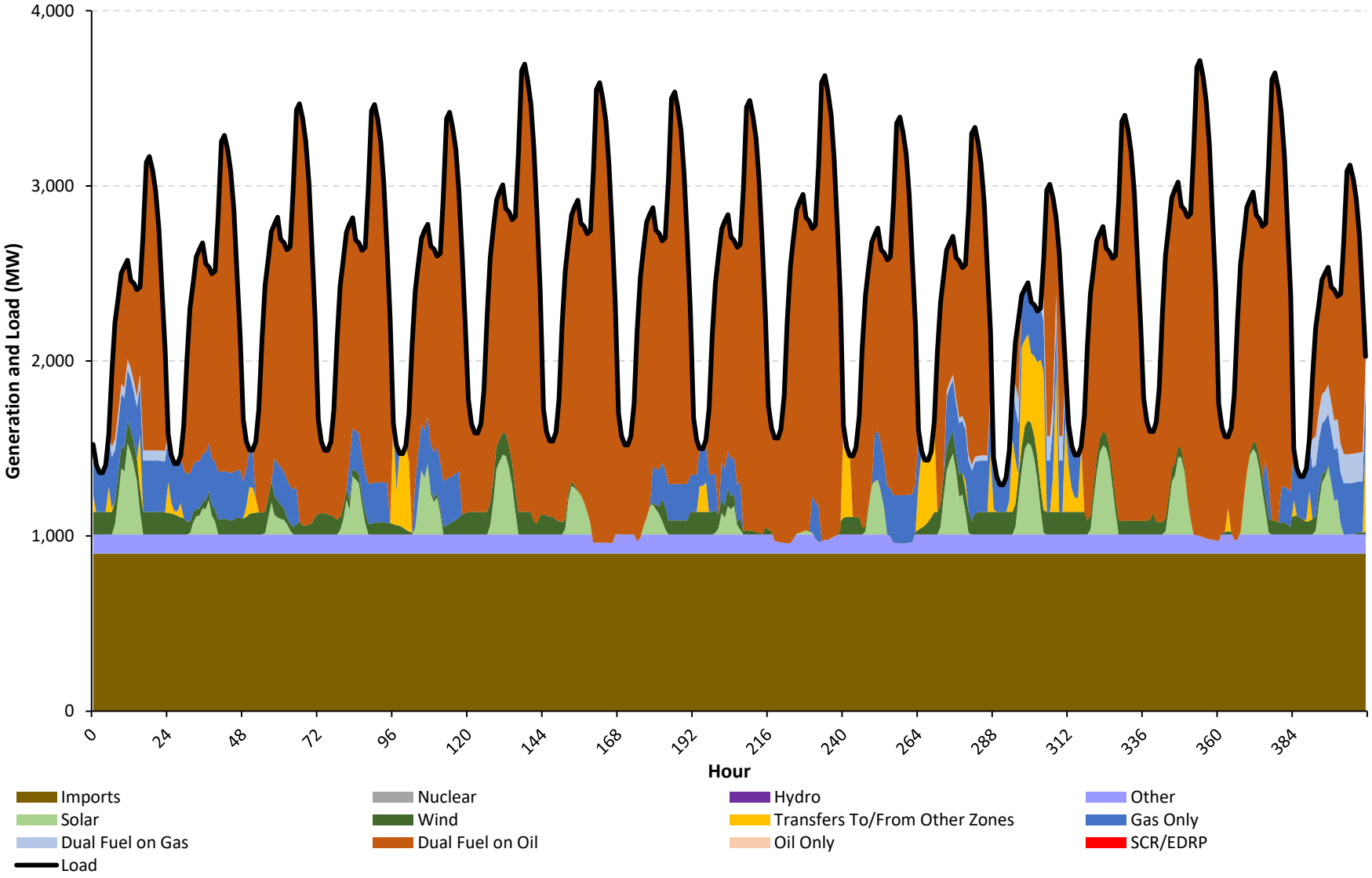



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 7 No Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 7 No Refill



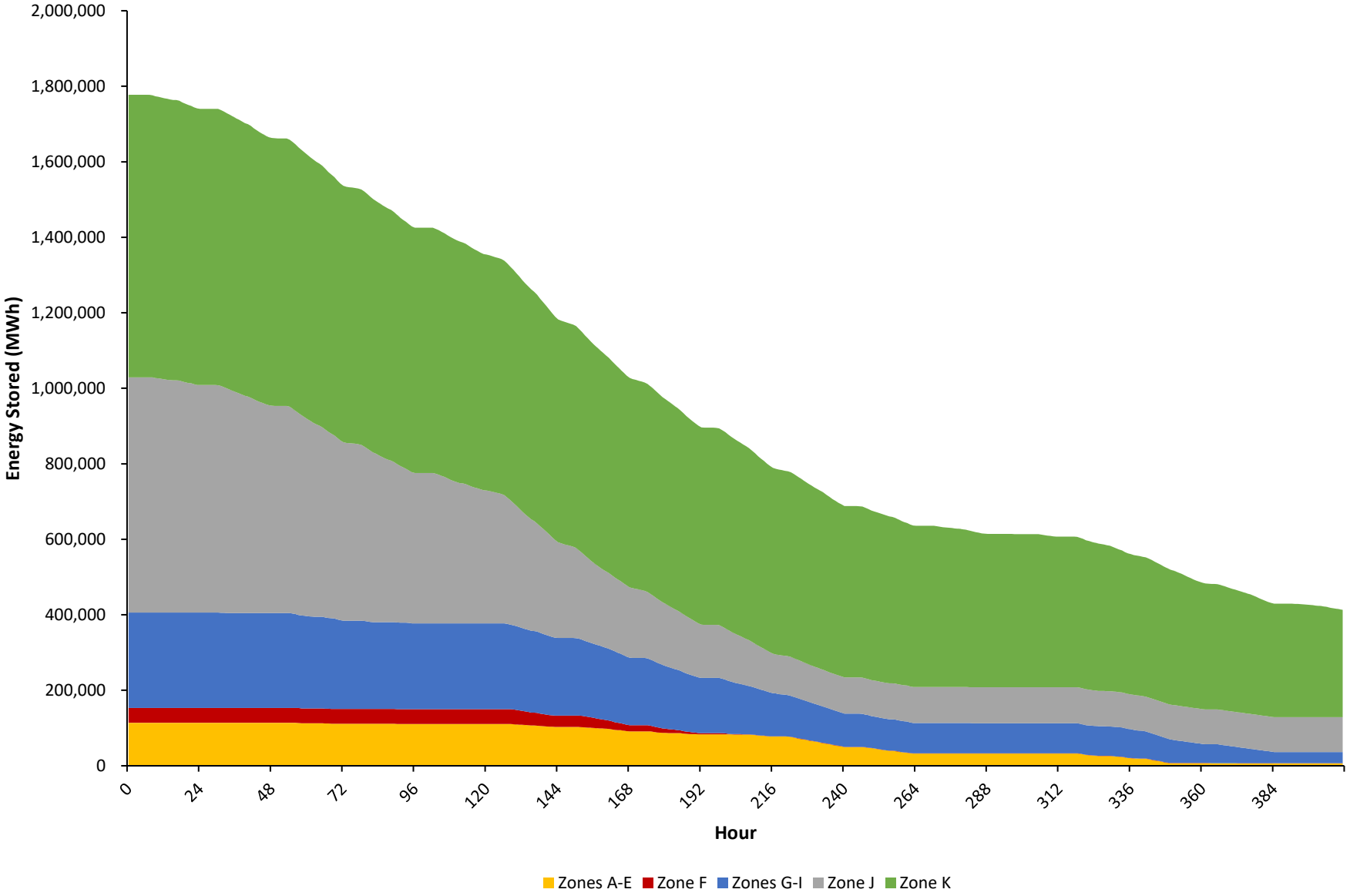
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 7 No Refill



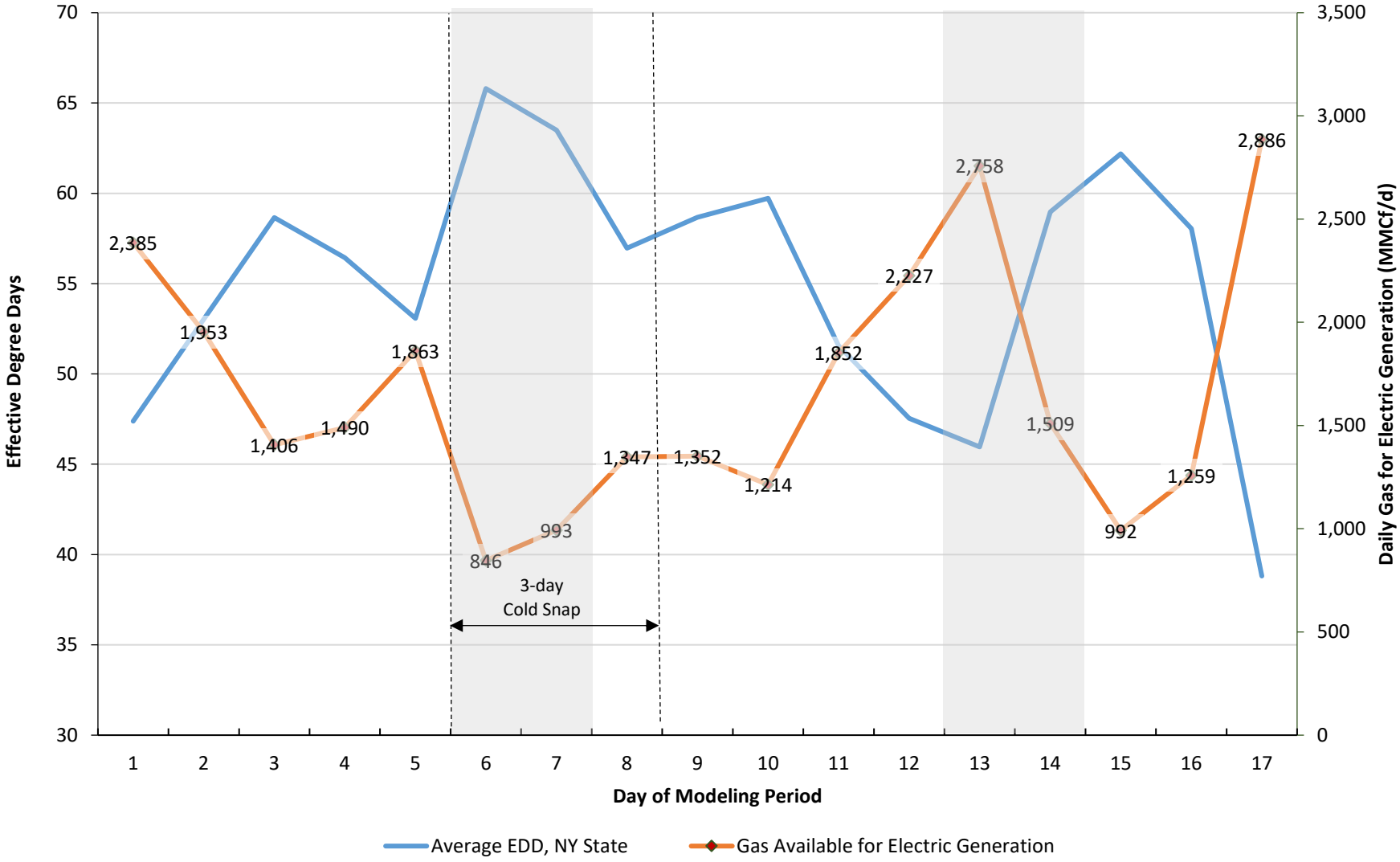
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

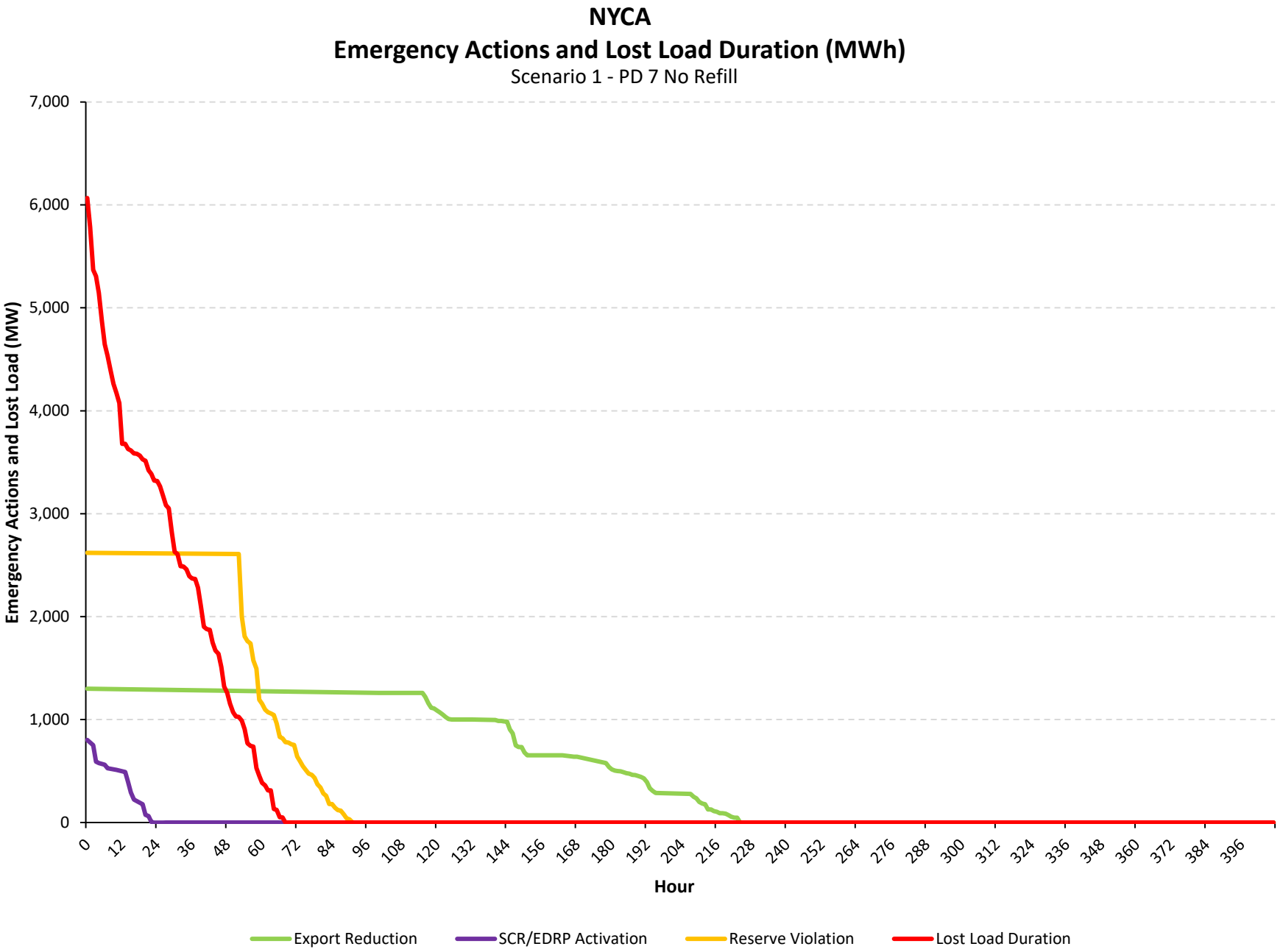
Scenario 1 - PD 7 No Refill

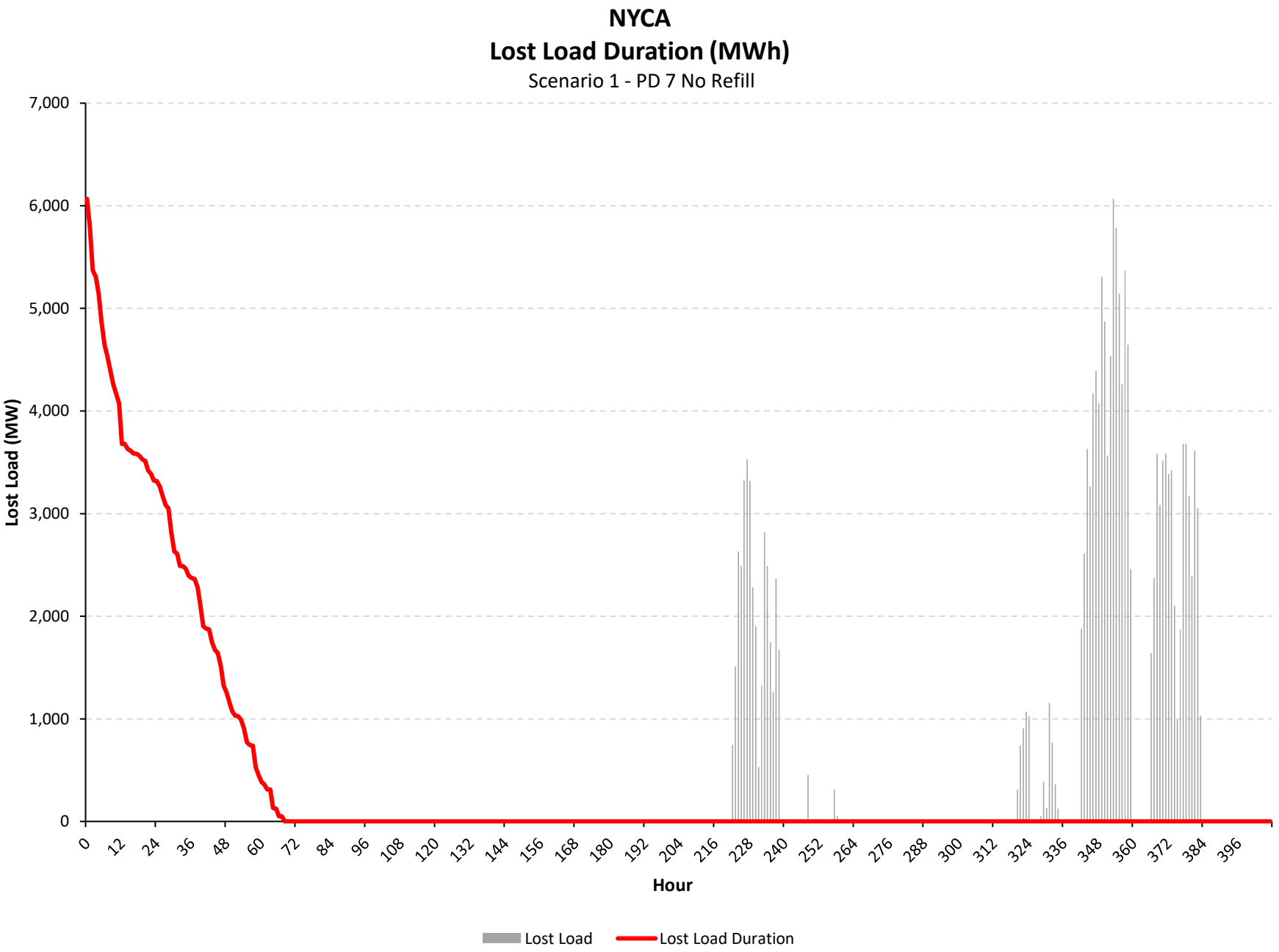


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 1 - PD 7 No Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 7 No Refill
Emergency Actions and Lost Load (MW)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 7 No Refill
Lost Load (MW)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

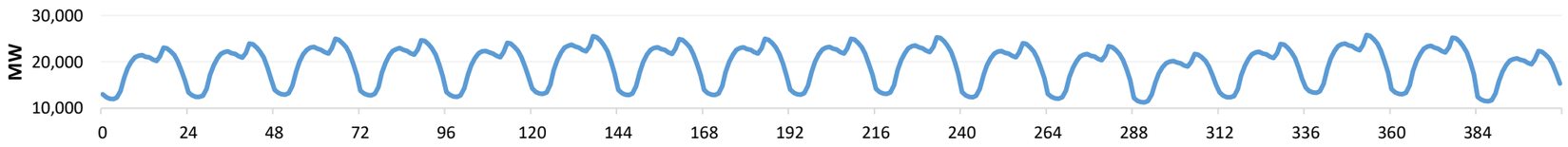
Case: Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K) (Winter 2023/2024)

Hourly Results Summary

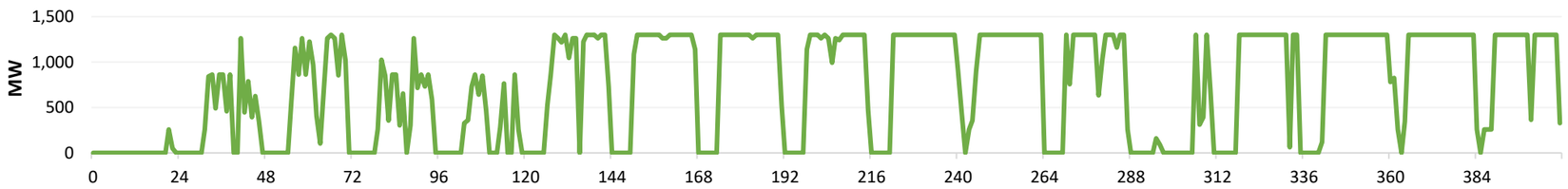
Case Name: Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

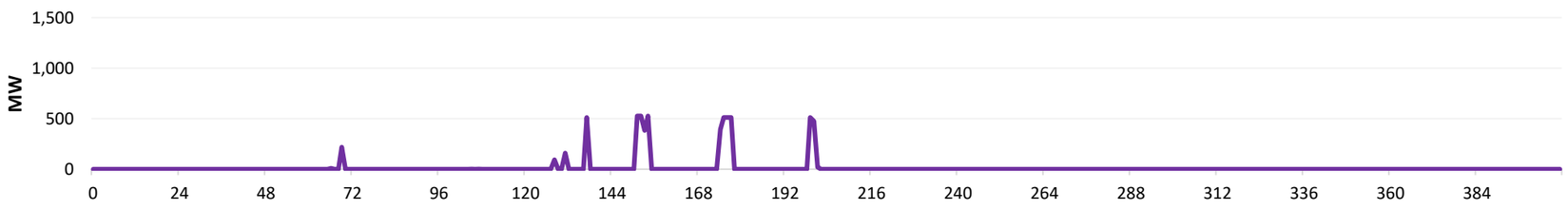


Export to ISO-NE Reduction During Modeling Period



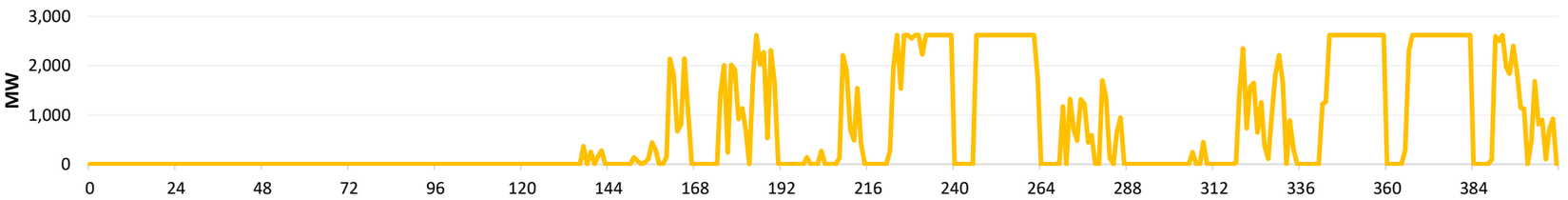
Export Reductions	
Total Hrs.	277
Total MWh	298,686
Avg. MW	732.1

SCR/EDRP Deployed During Modeling Period



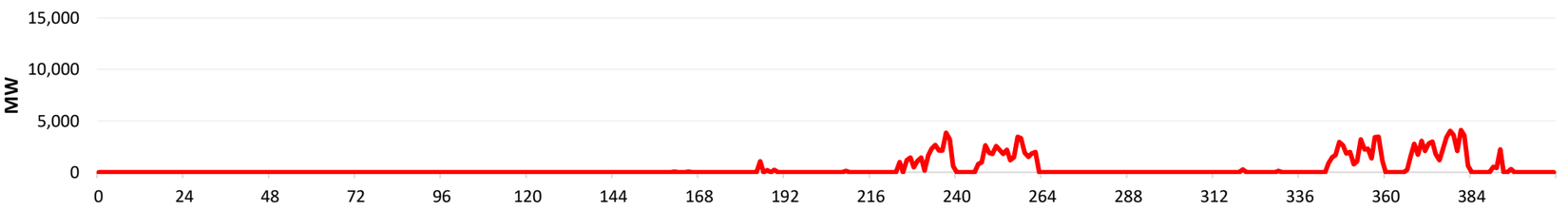
SCR Deployment	
Total Hrs.	16
Total MWh	5,888
Avg. MW	14.4

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	162
Total MWh	277,084
Avg. MW	679.1
First Hour with Viol.	137

Loss of Load During Modeling Period

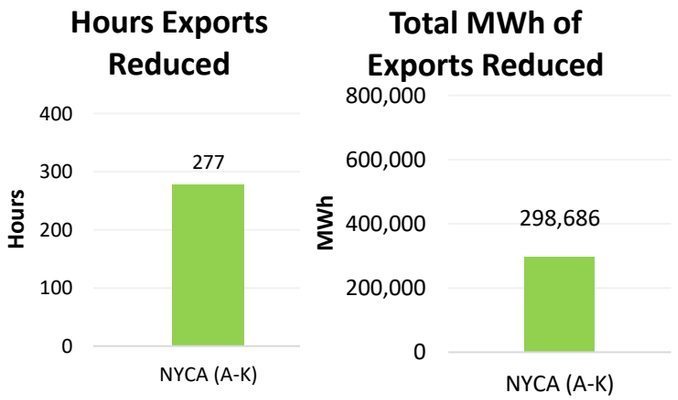


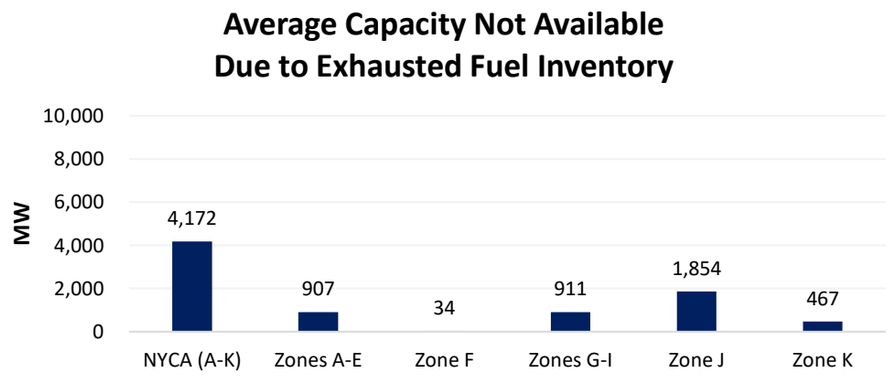
Loss of Load	
Total Hrs.	78
Total MWh	140,290
Avg. MW	343.8
First Hour with Losses	161

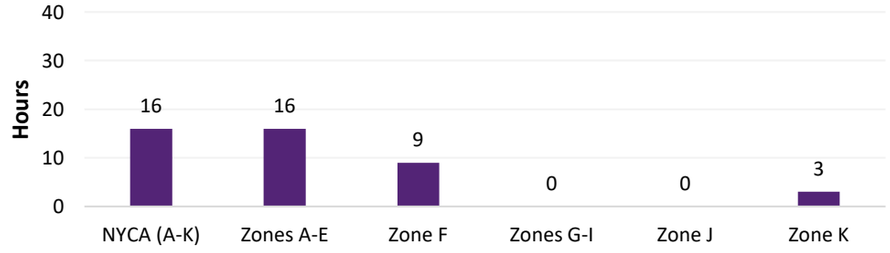
Full Period Results Summary

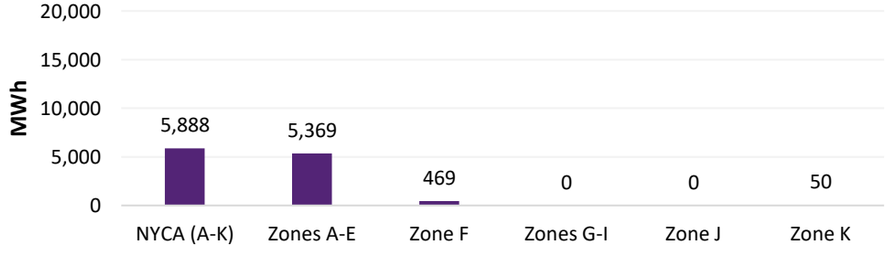
Case Name: Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)

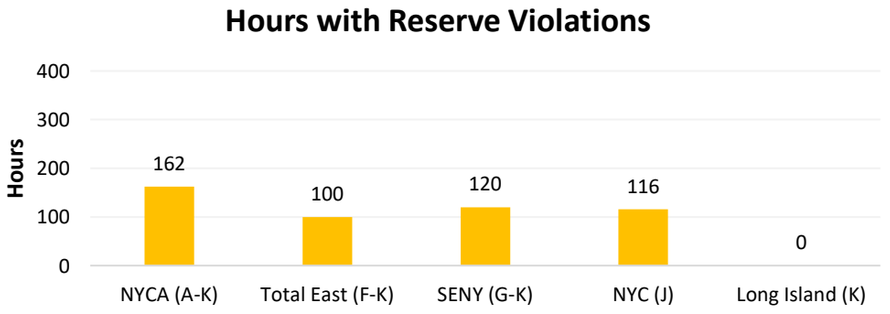
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

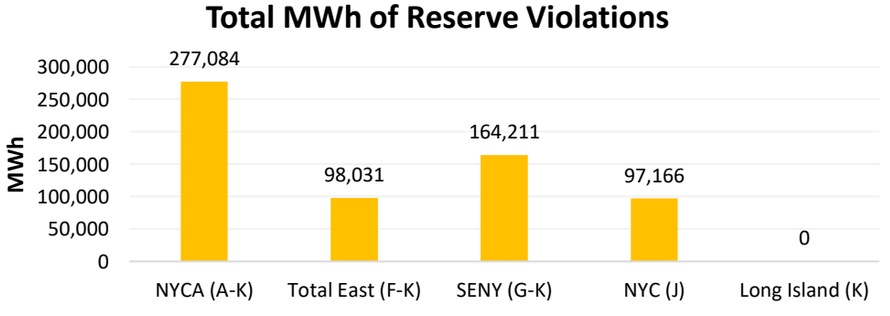


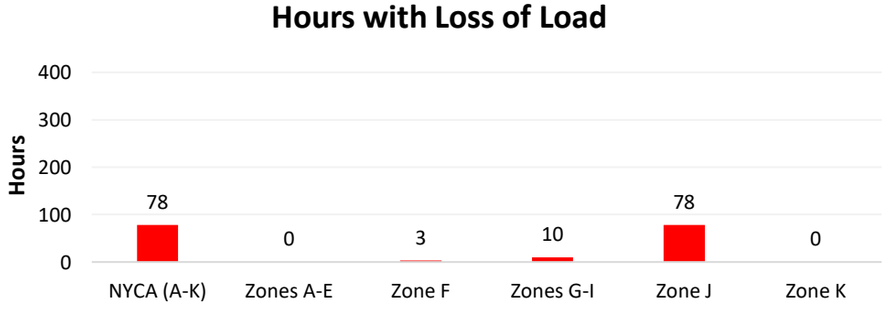


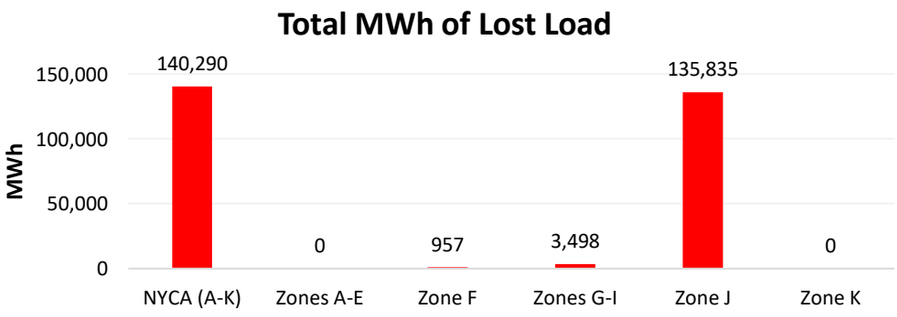


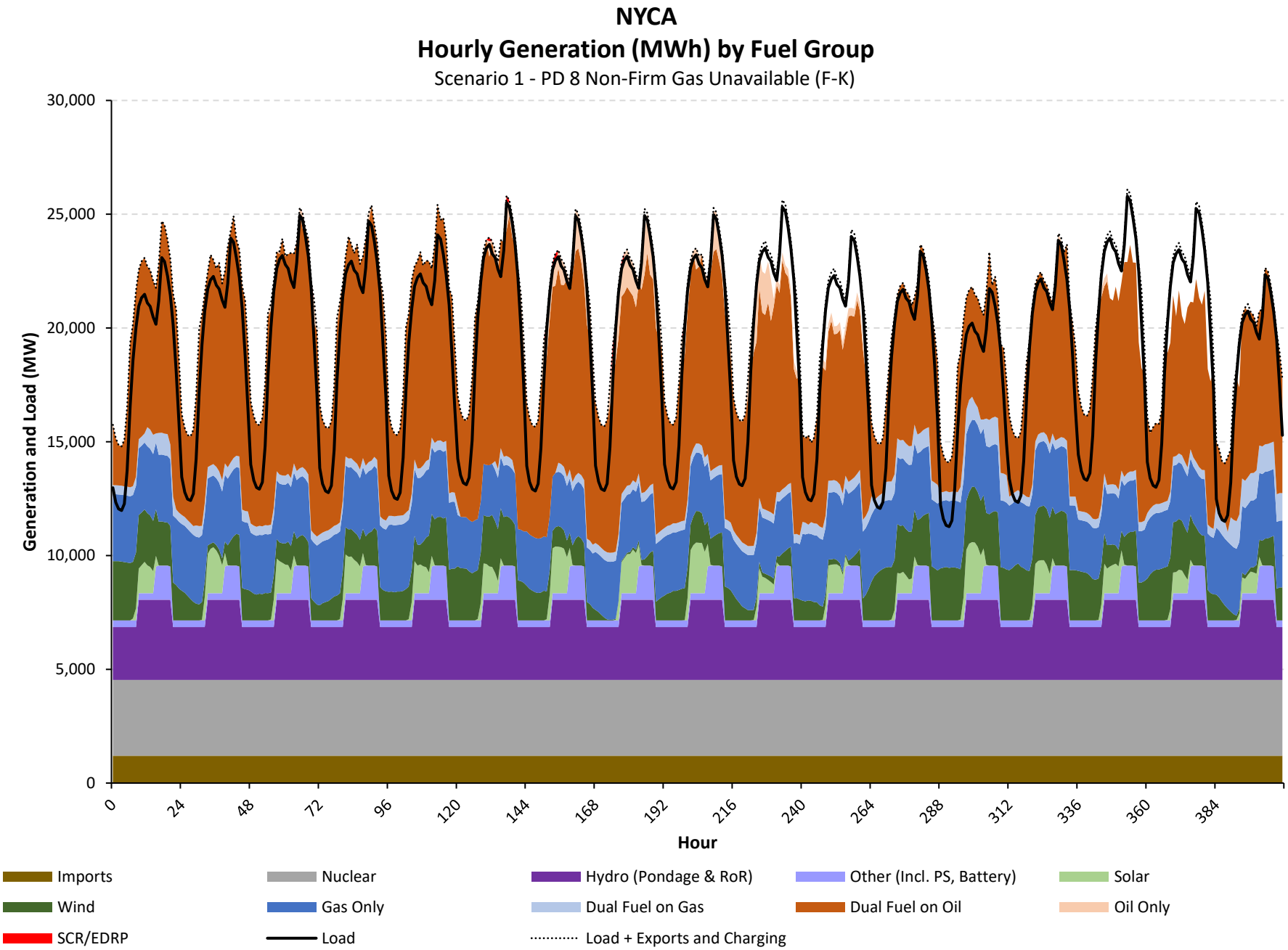




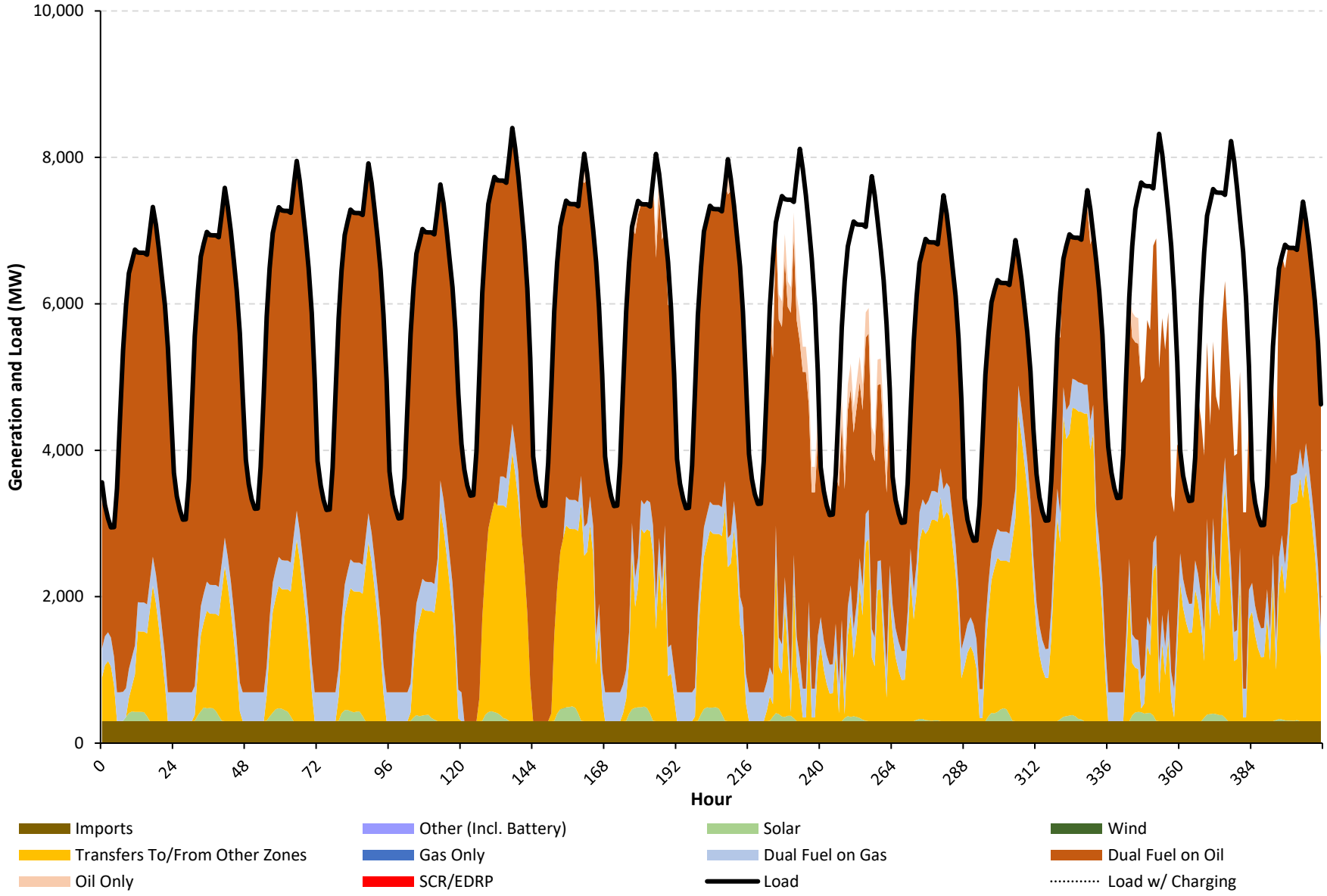




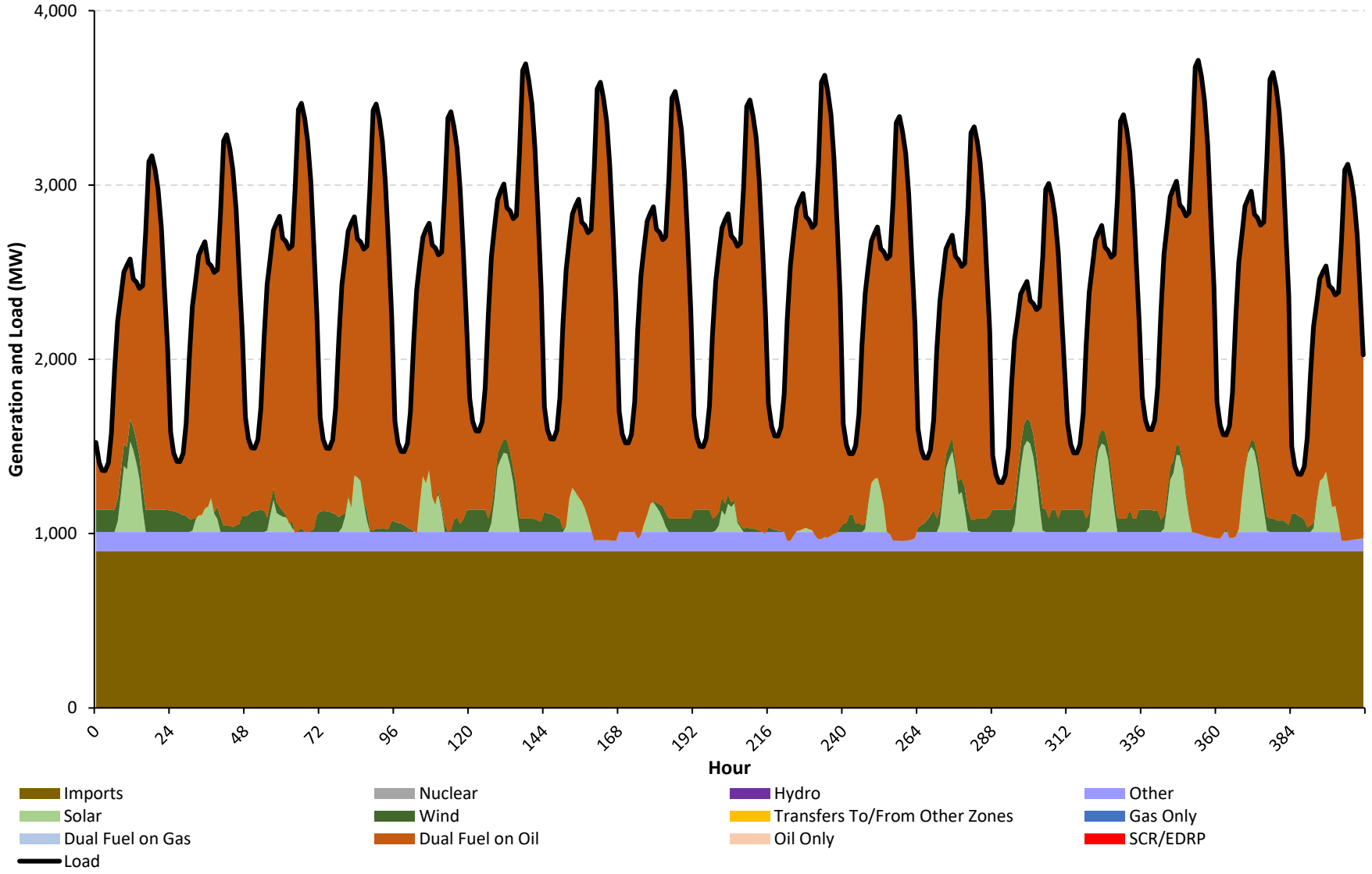



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)



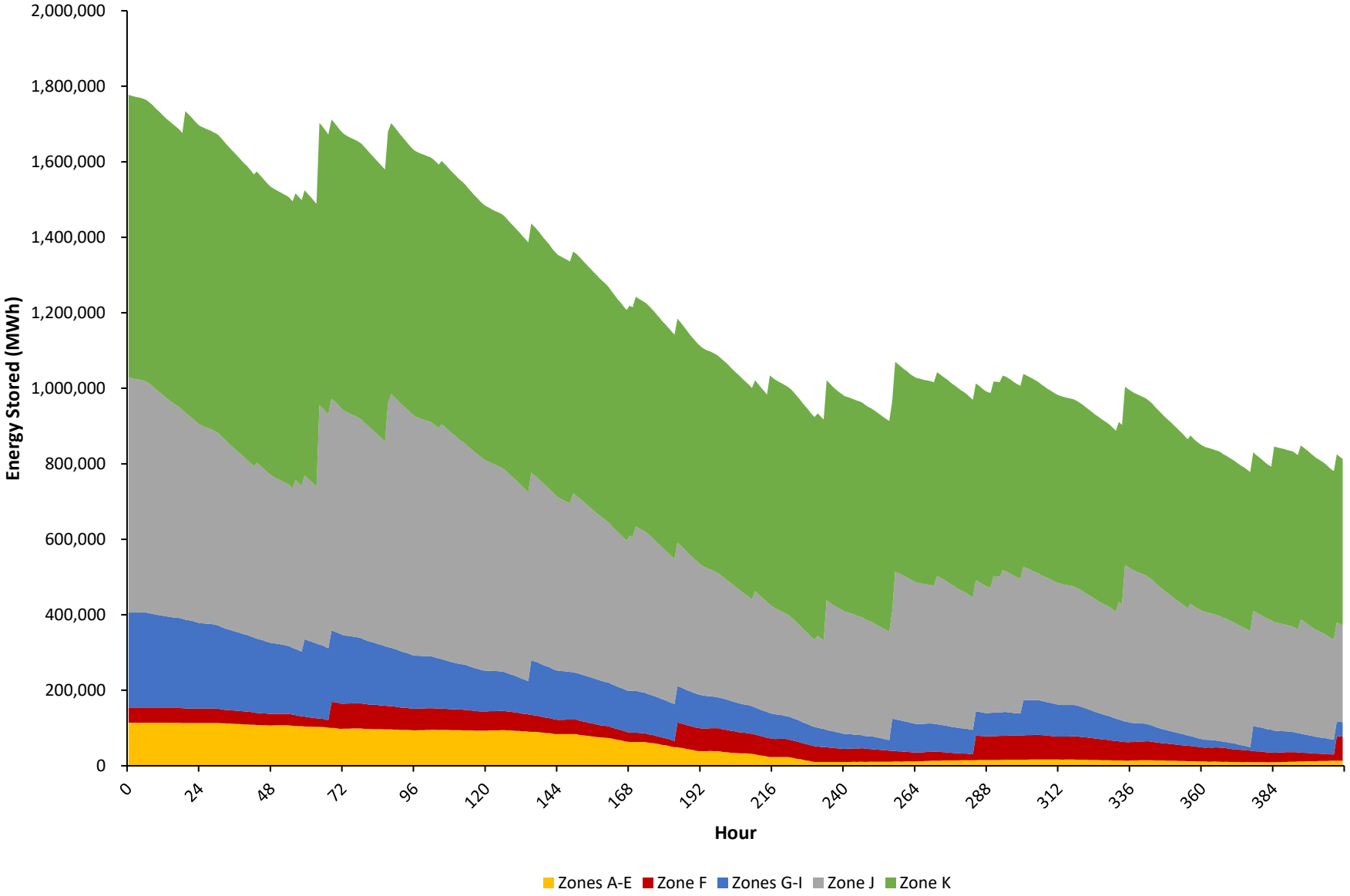
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)

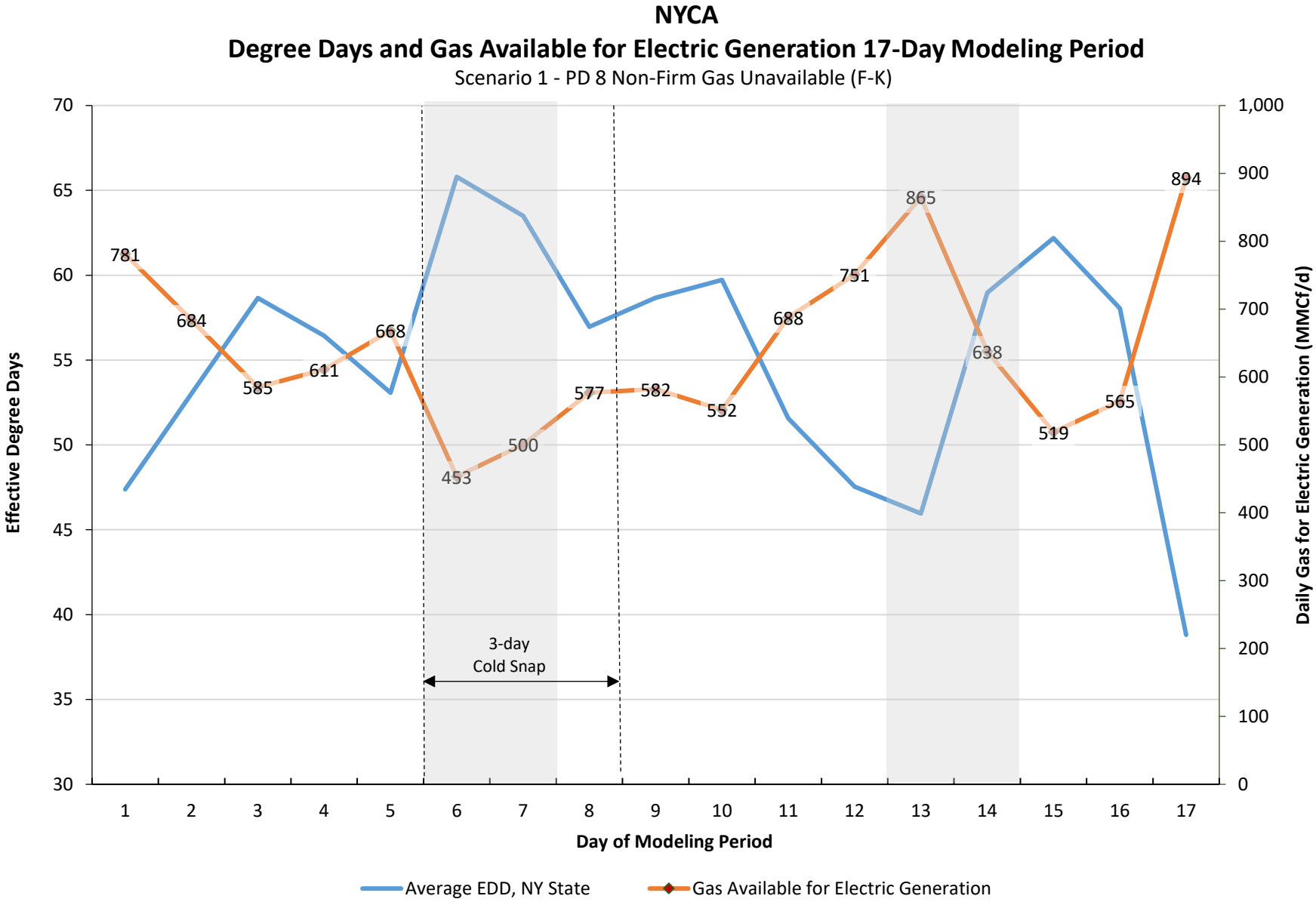


NYCA

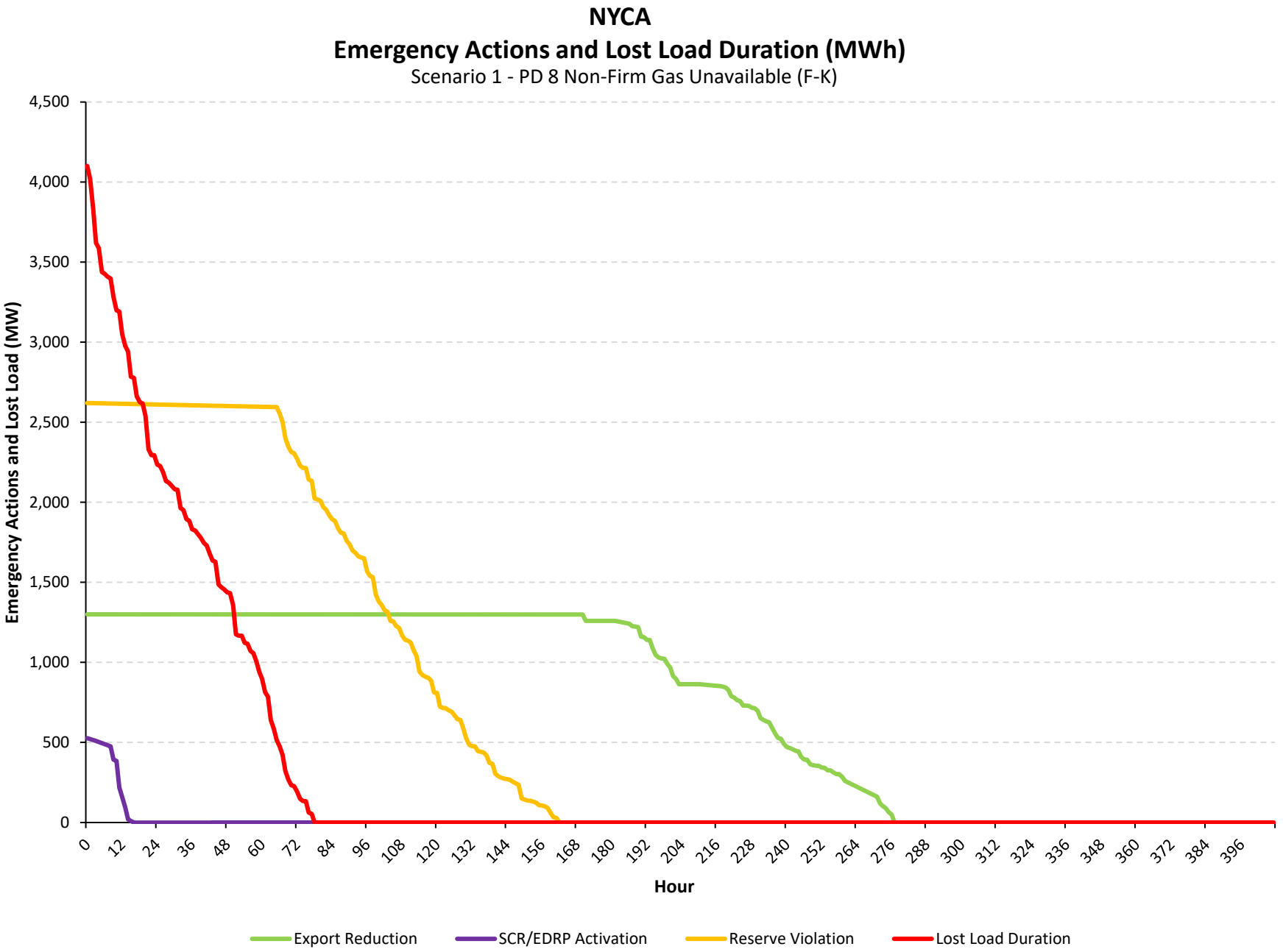
Quantity of Stored Fuel for Oil and Dual Fuel Units

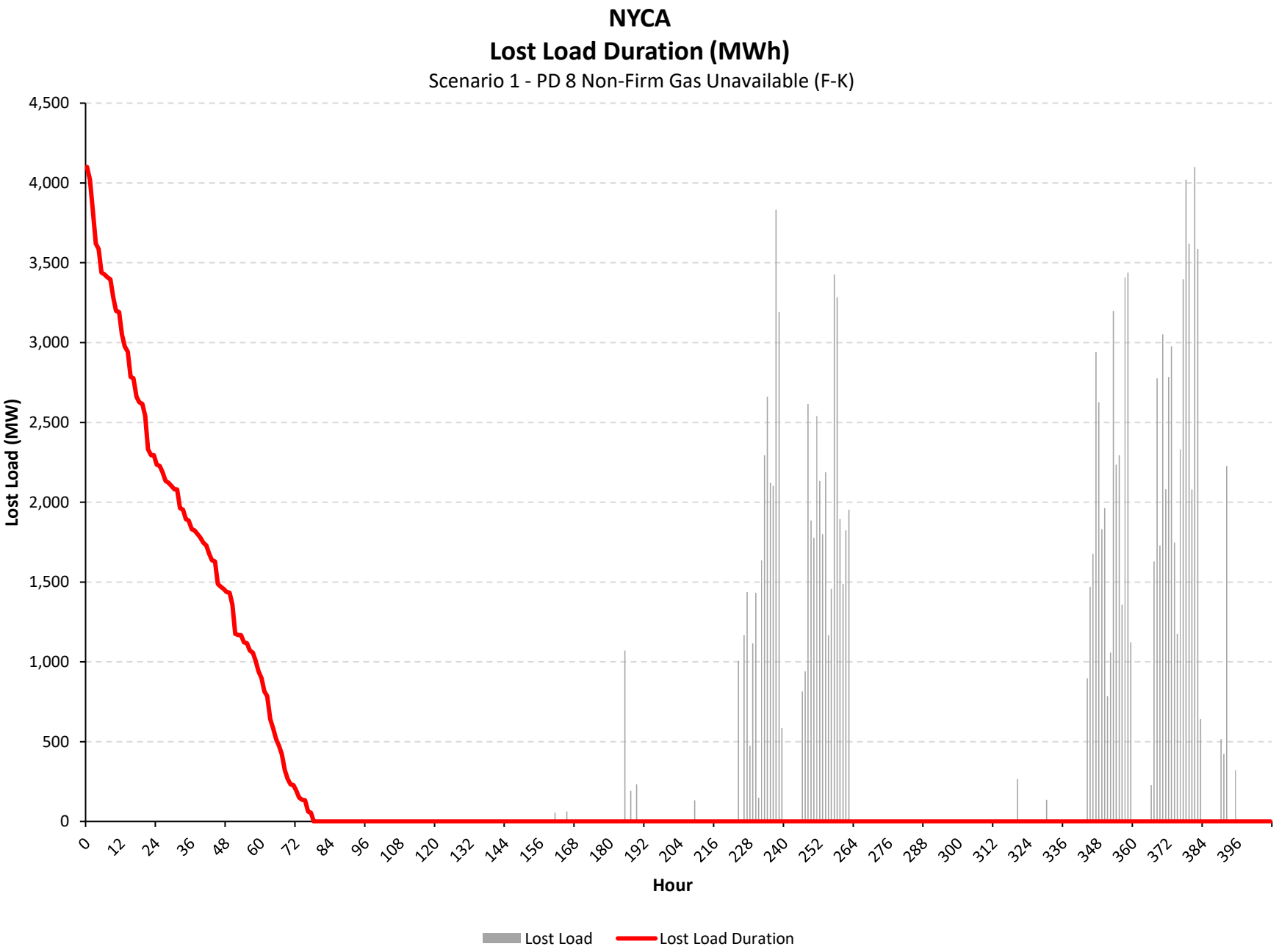
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)
Emergency Actions and Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 8 Non-Firm Gas Unavailable (F-K)
Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

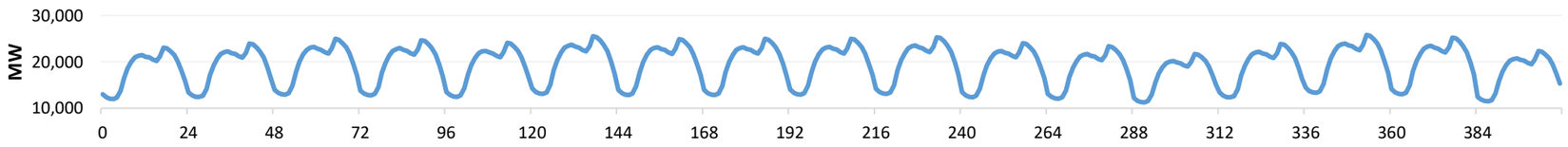
Case: Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA) (Winter 2023/2024)

Hourly Results Summary

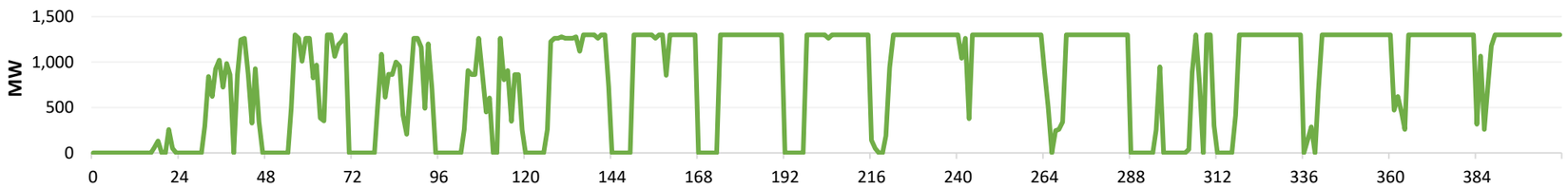
Case Name: Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

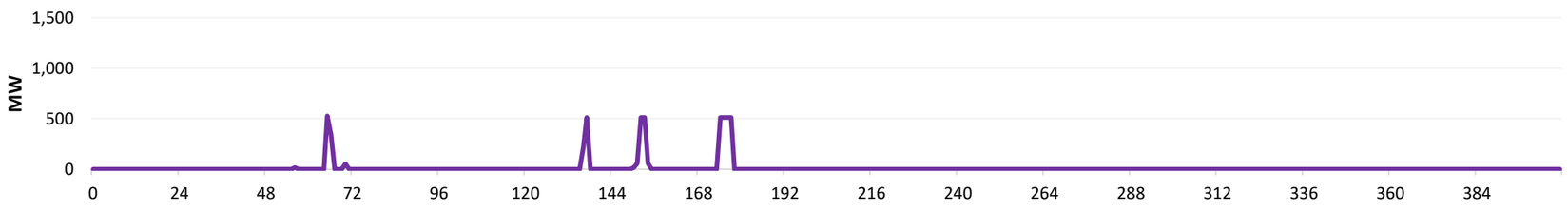


Export to ISO-NE Reduction During Modeling Period



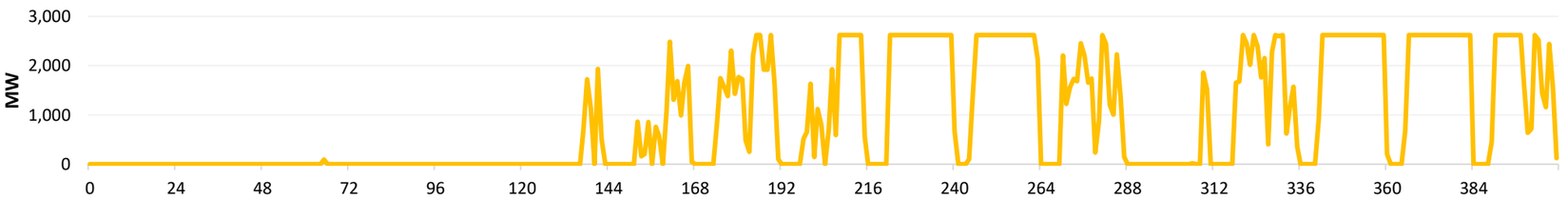
Export Reductions	
Total Hrs.	305
Total MWh	337,893
Avg. MW	828.2

SCR/EDRP Deployed During Modeling Period



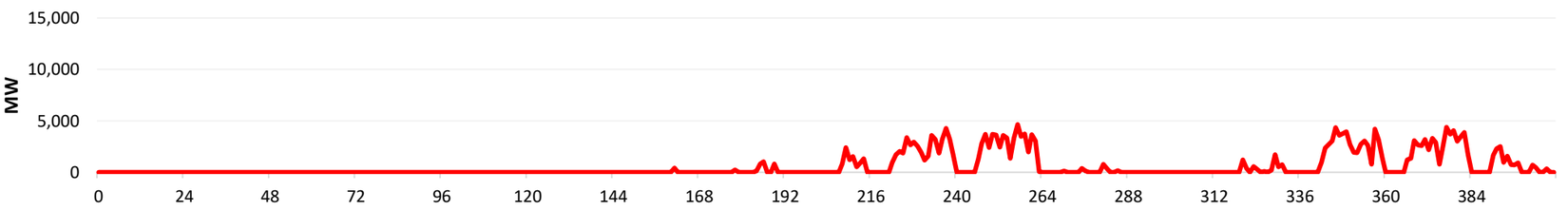
SCR Deployment	
Total Hrs.	15
Total MWh	4,862
Avg. MW	11.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	191
Total MWh	370,694
Avg. MW	908.6
First Hour with Viol.	65

Loss of Load During Modeling Period

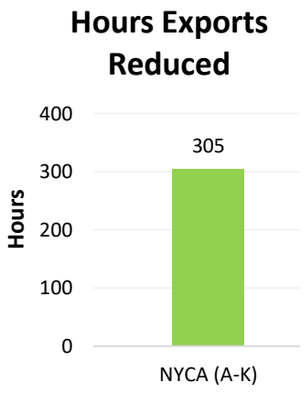


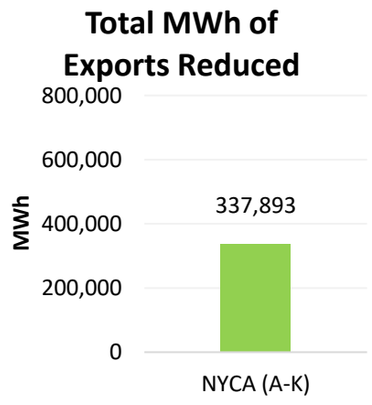
Loss of Load	
Total Hrs.	111
Total MWh	227,476
Avg. MW	557.5
First Hour with Losses	161

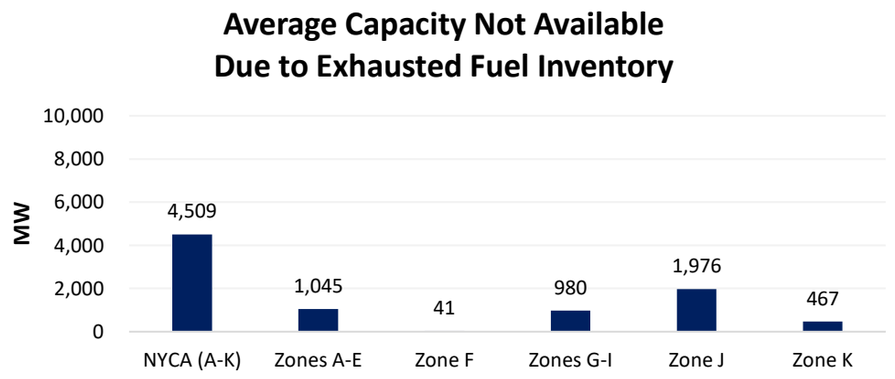
Full Period Results Summary

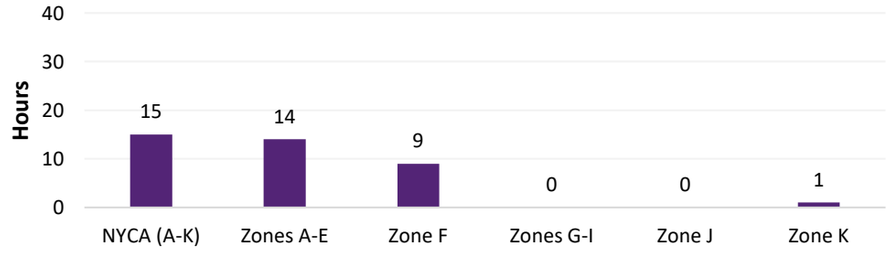
Case Name: Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)

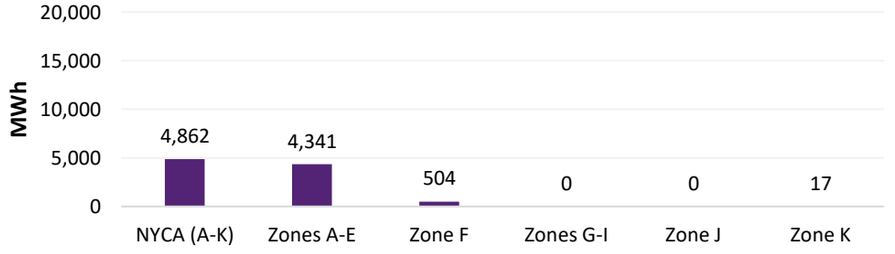
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

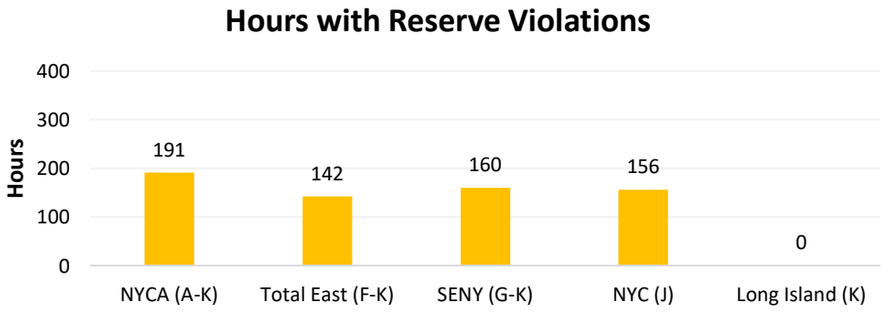


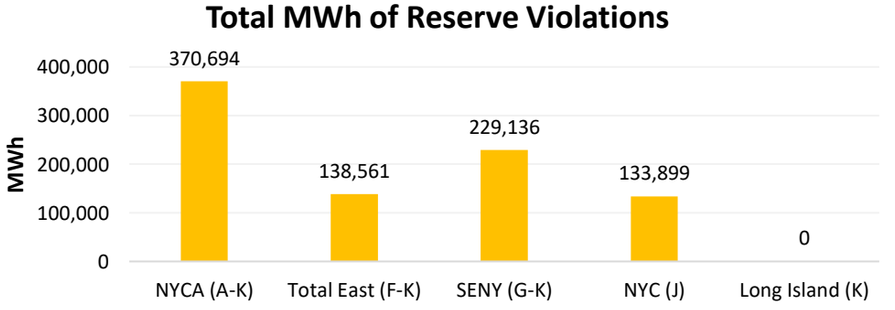


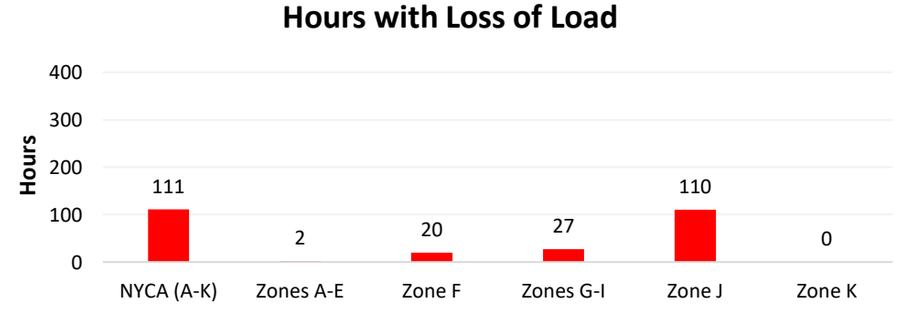


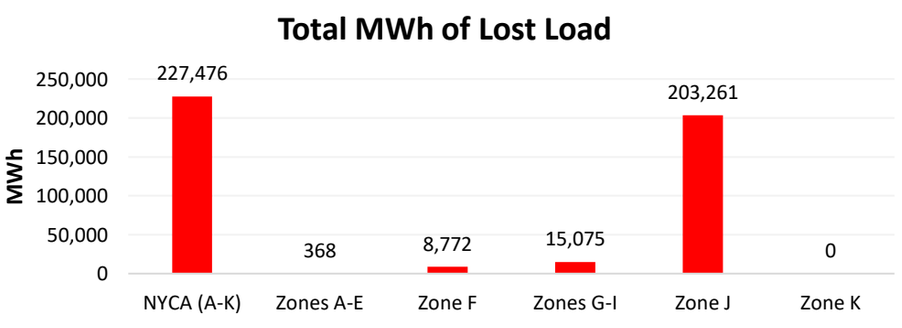




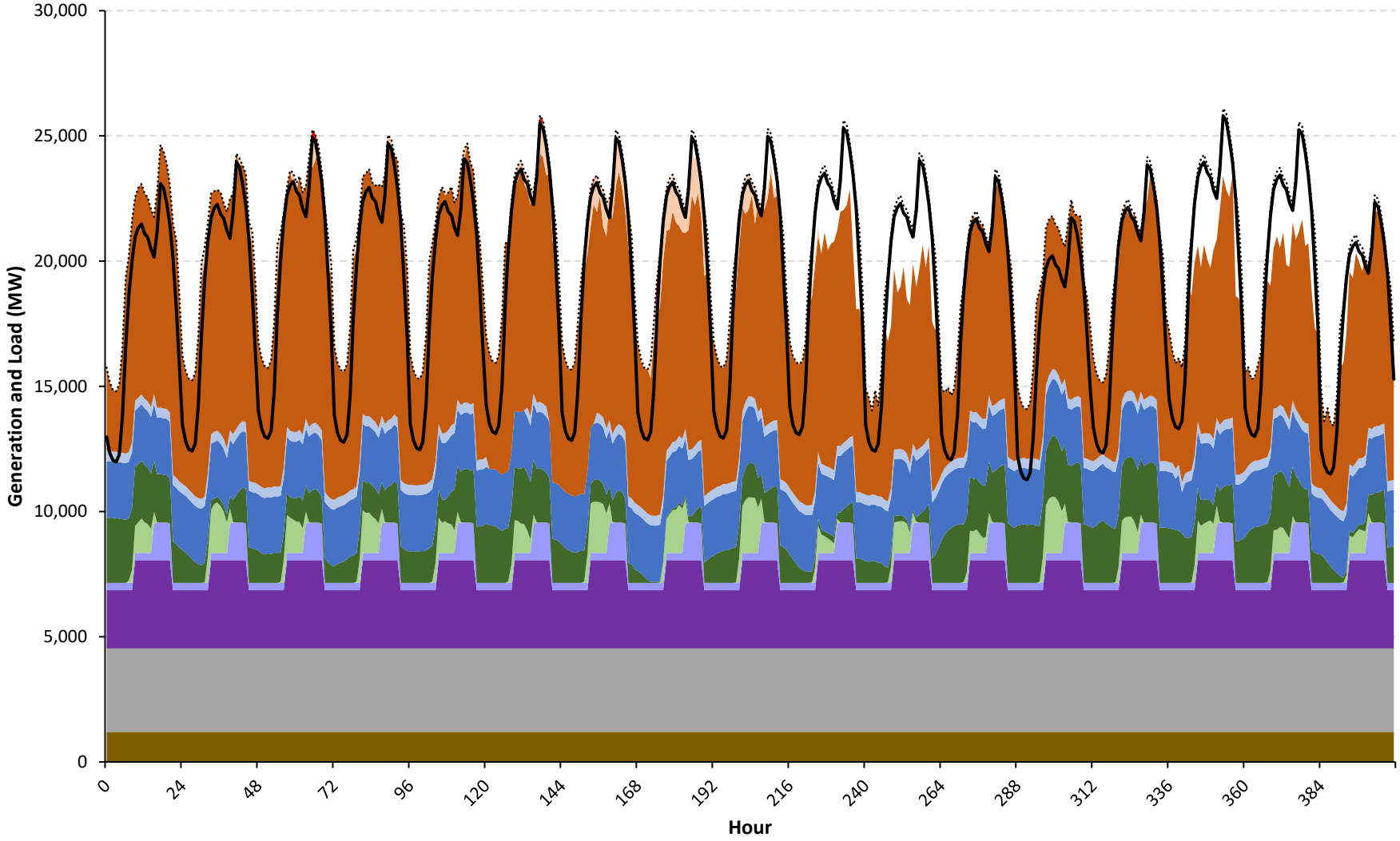




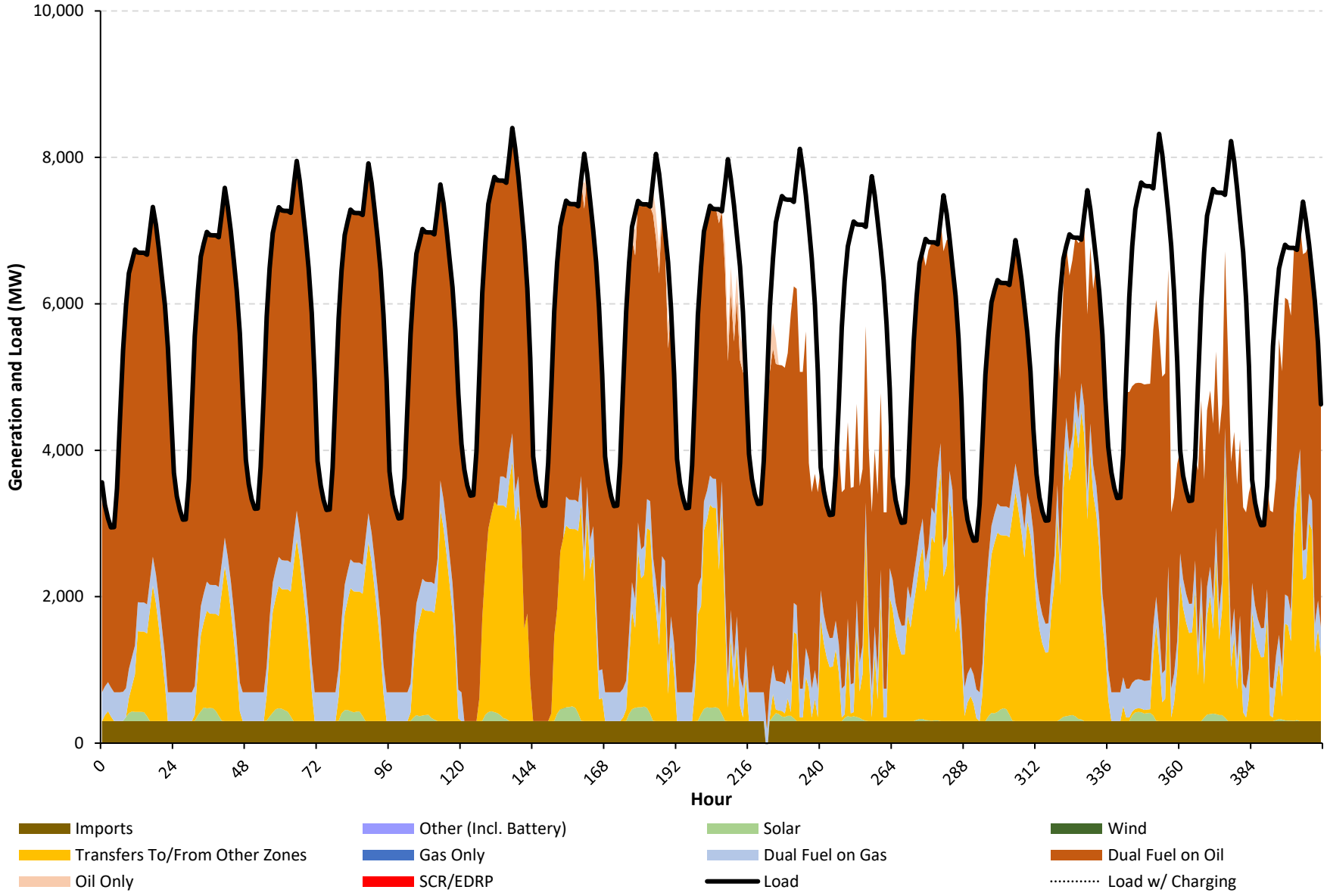




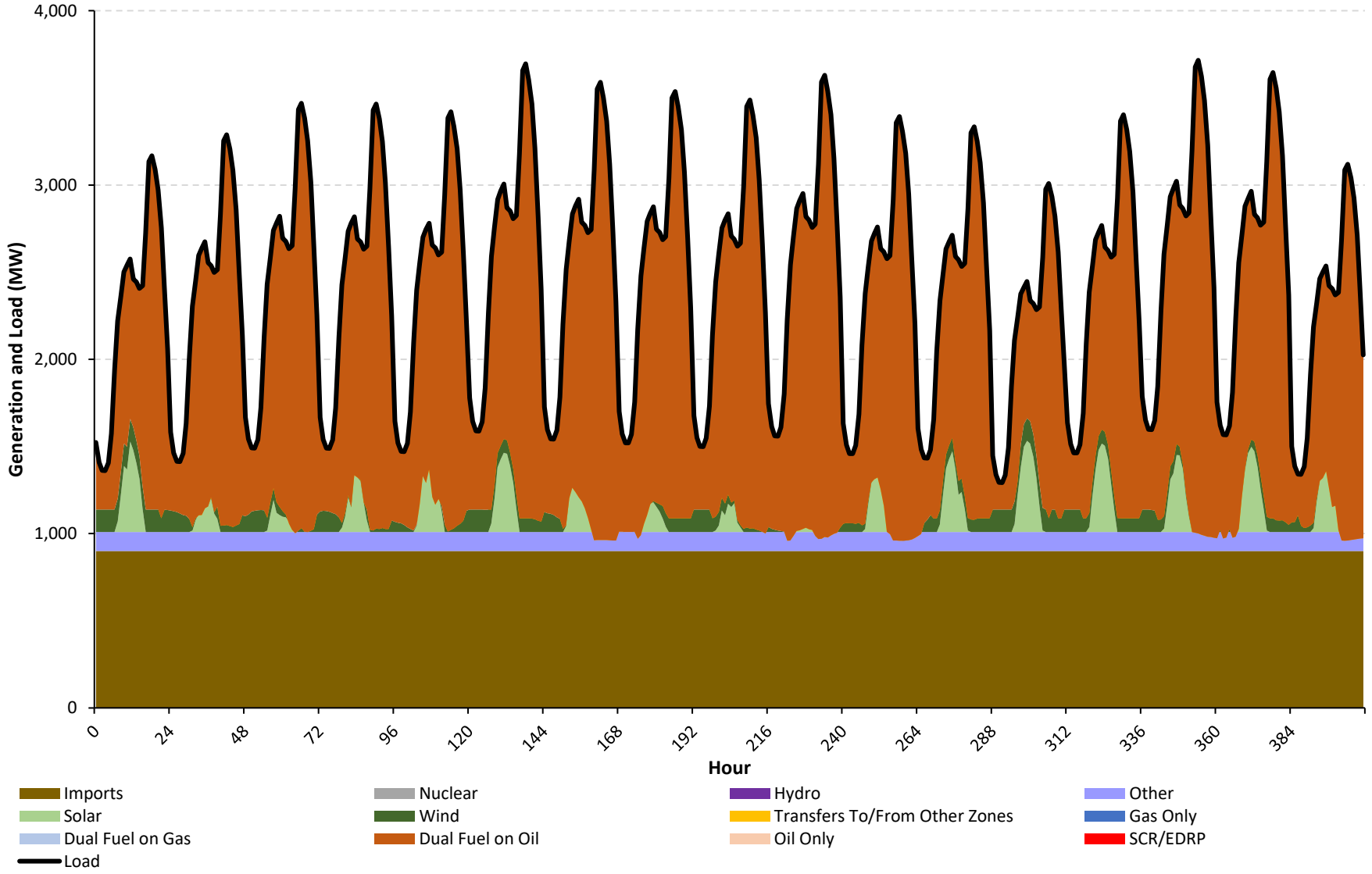
NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)



Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)



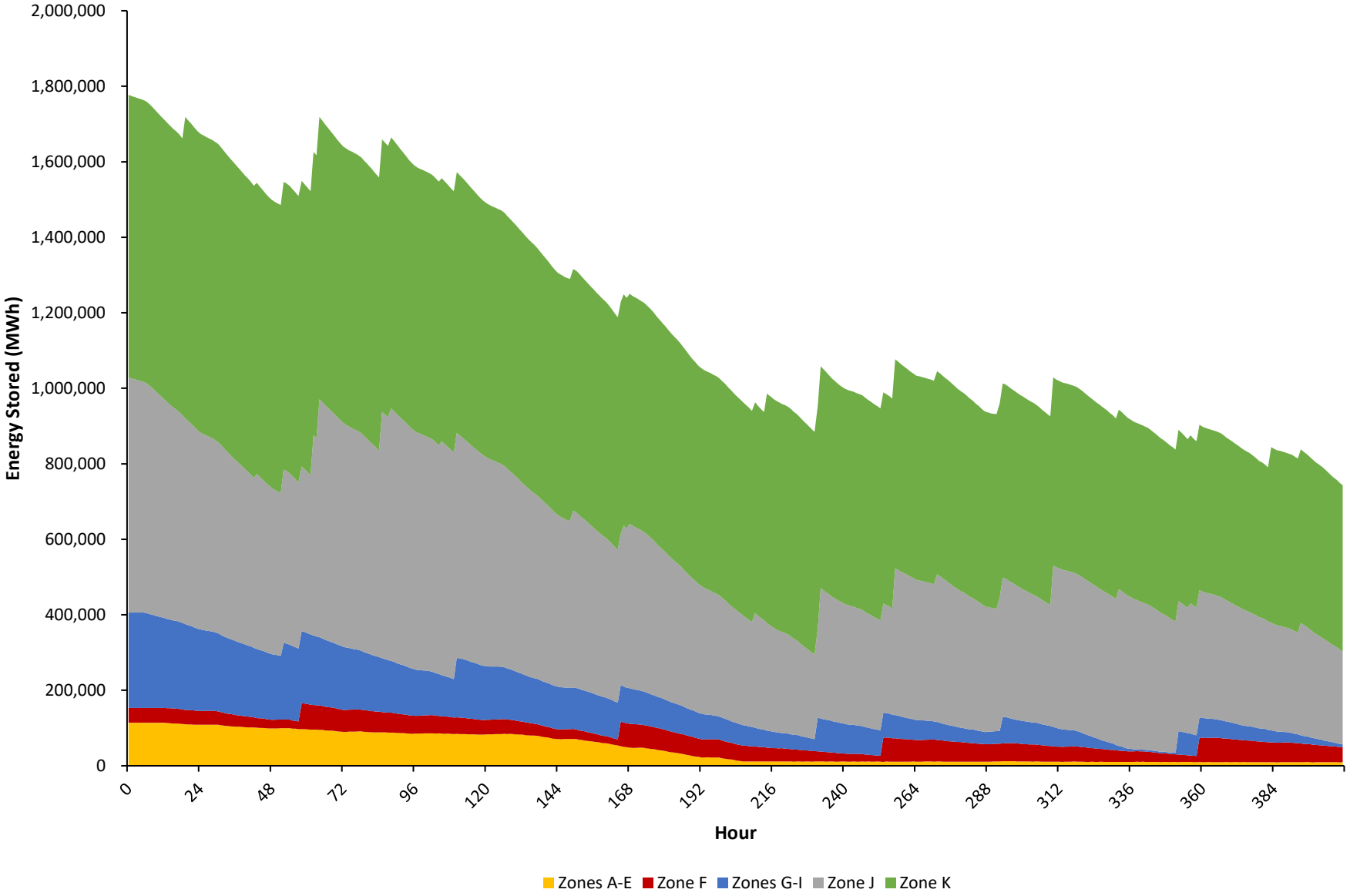
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)

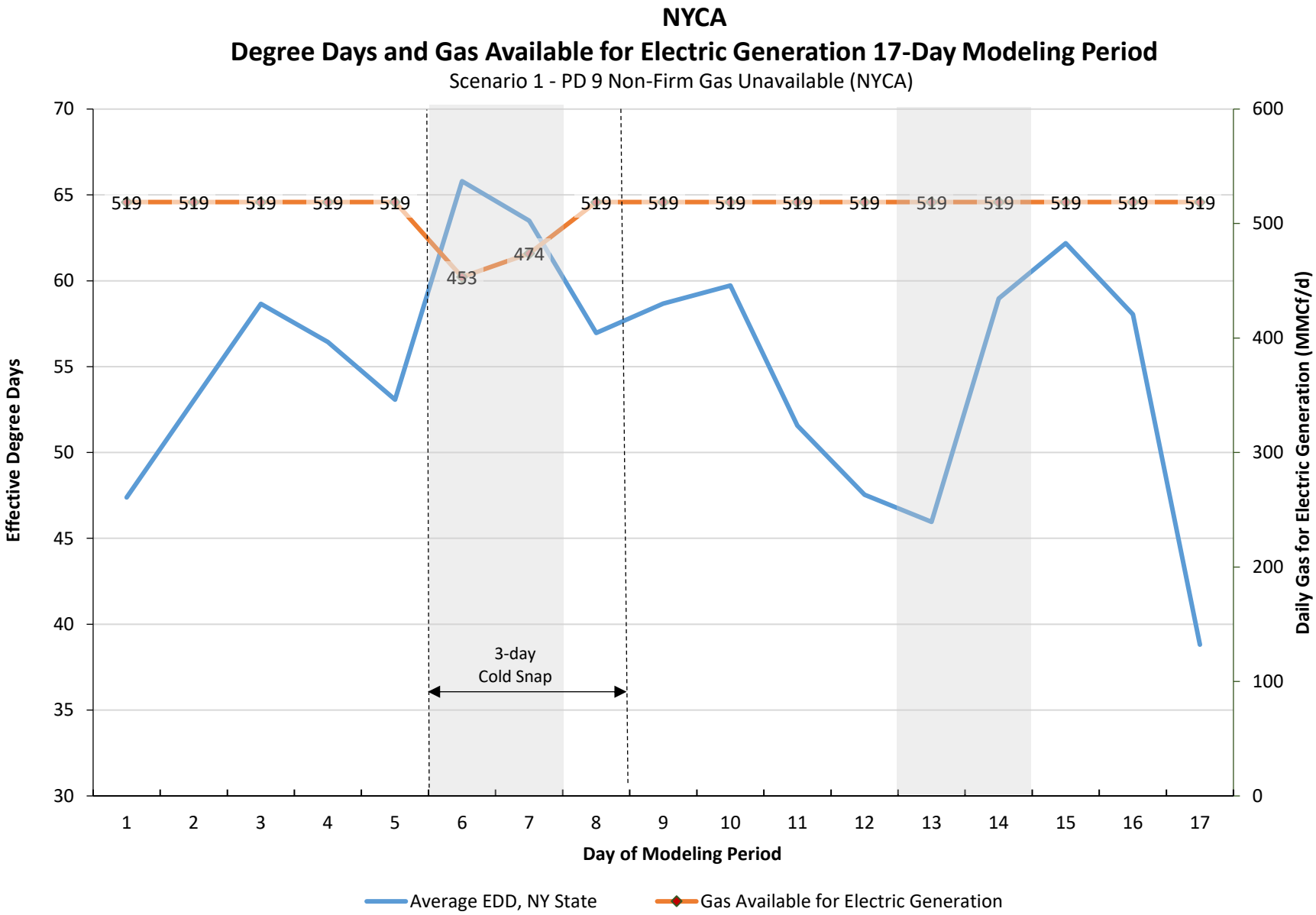


NYCA

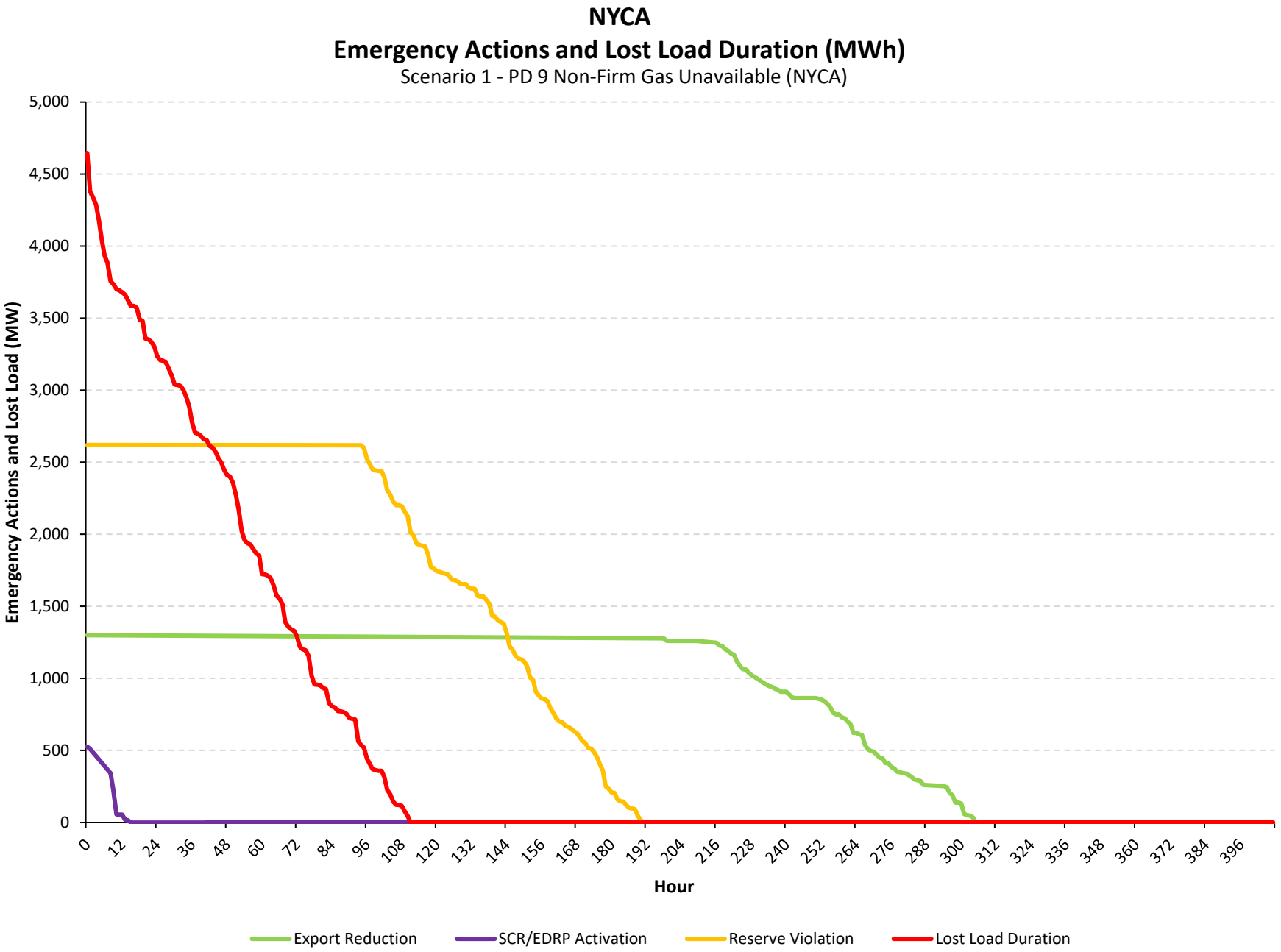
Quantity of Stored Fuel for Oil and Dual Fuel Units

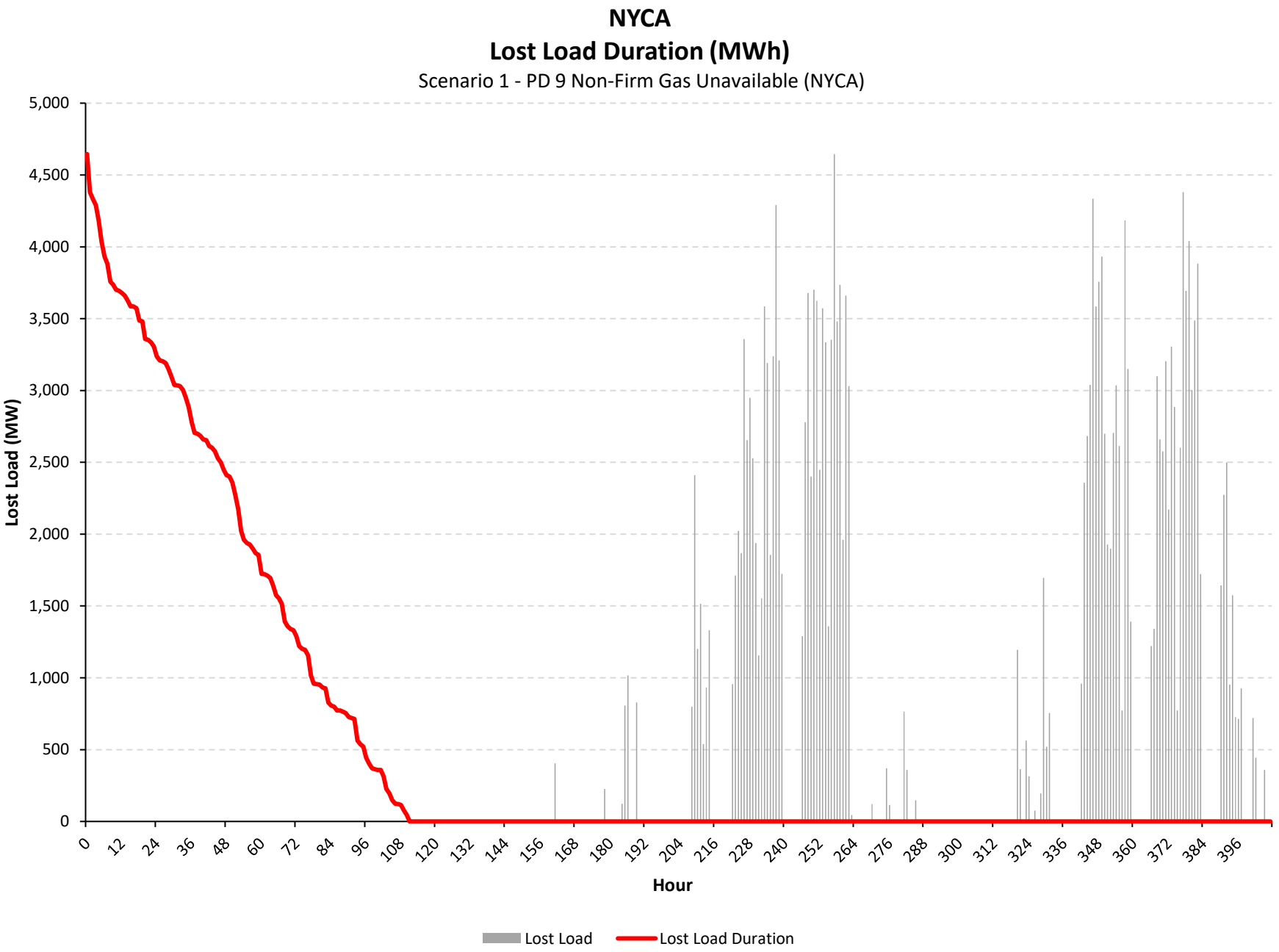
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 9 Non-Firm Gas Unavailable (NYCA)
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

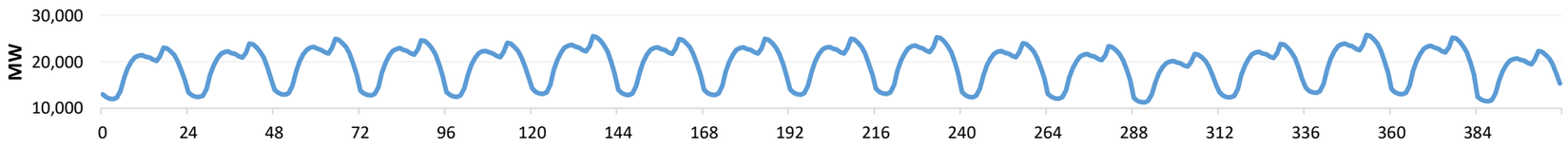
Case: Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days) (Winter 2023/2024)

Hourly Results Summary

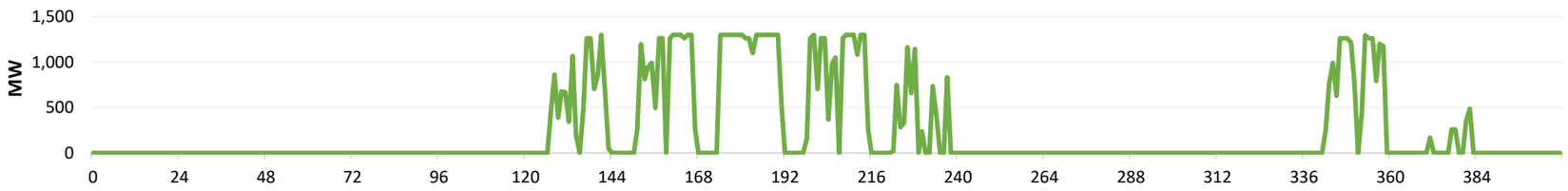
Case Name: Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

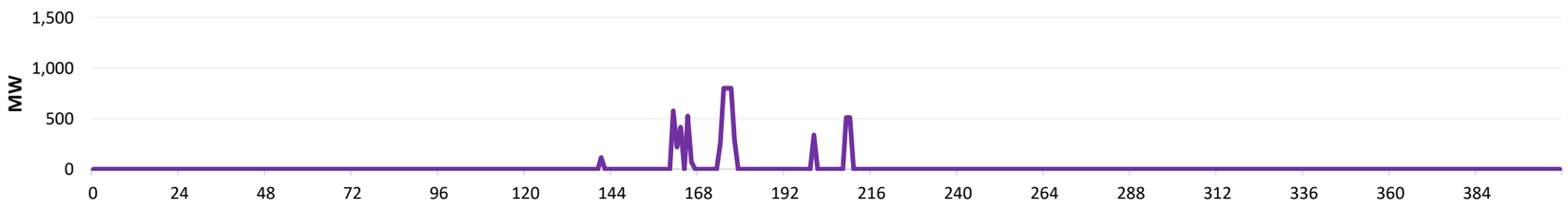


Export to ISO-NE Reduction During Modeling Period



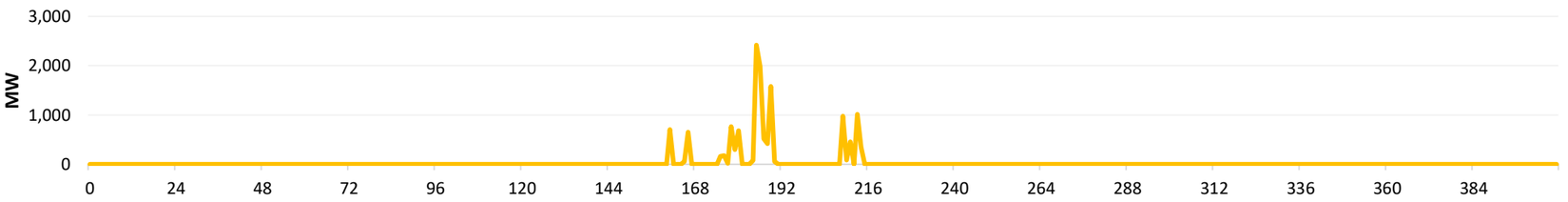
Export Reductions	
Total Hrs.	99
Total MWh	91,473
Avg. MW	224.2

SCR/EDRP Deployed During Modeling Period



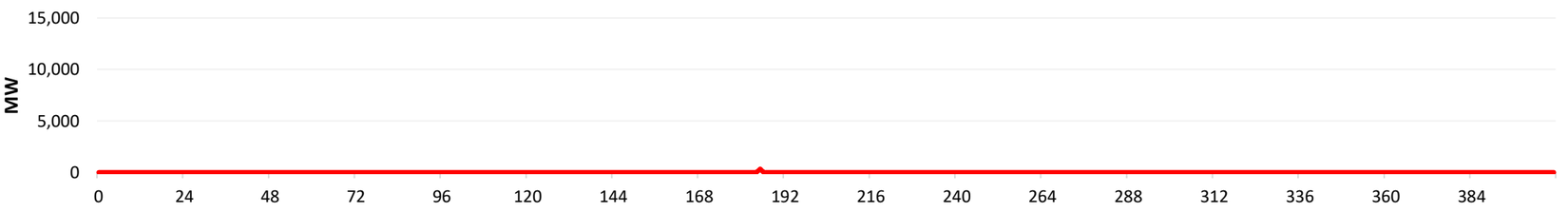
SCR Deployment	
Total Hrs.	14
Total MWh	6,244
Avg. MW	15.3

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	21
Total MWh	13,444
Avg. MW	33.0
First Hour with Viol.	161

Loss of Load During Modeling Period



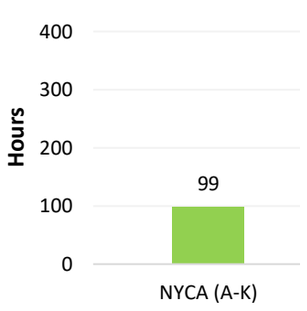
Loss of Load	
Total Hrs.	1
Total MWh	338
Avg. MW	0.8
First Hour with Losses	185

Full Period Results Summary

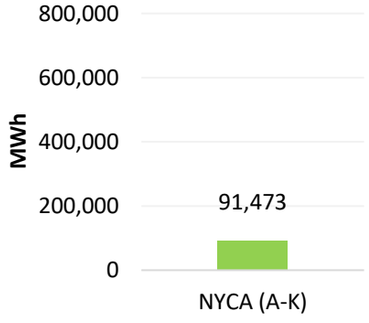
Case Name: Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

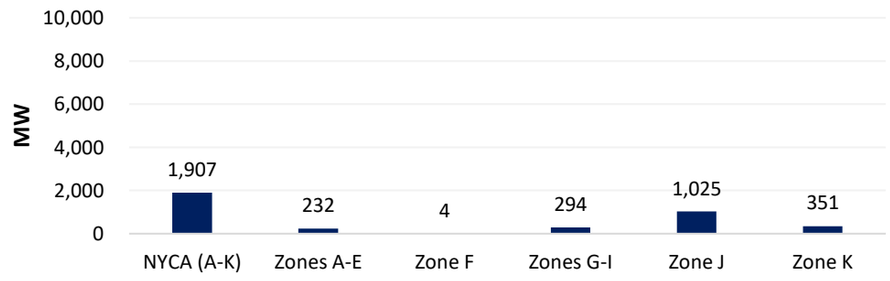
Hours Exports Reduced



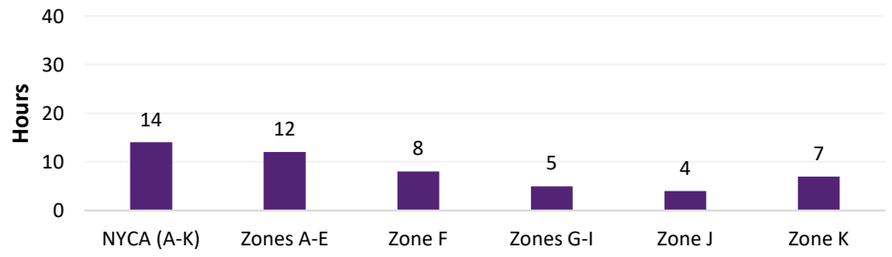
Total MWh of Exports Reduced



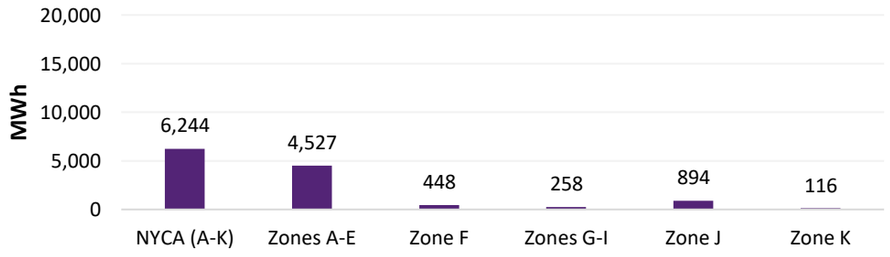
Average Capacity Not Available Due to Exhausted Fuel Inventory



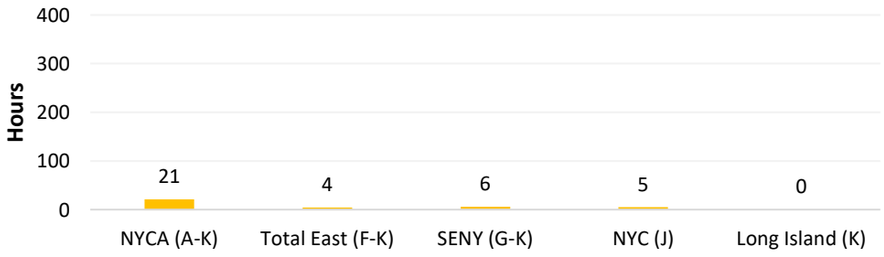
Hours SCR/EDRP Deployed



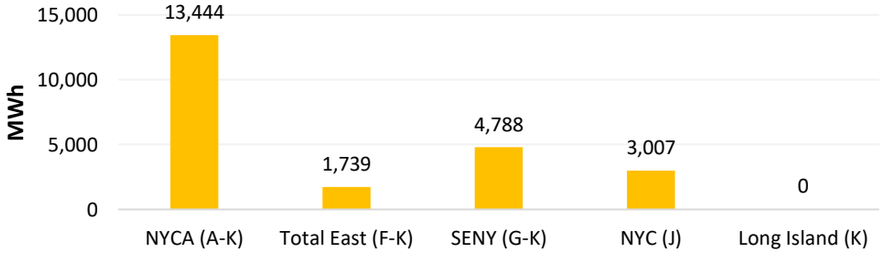
Total MWh SCR/EDRP Deployed



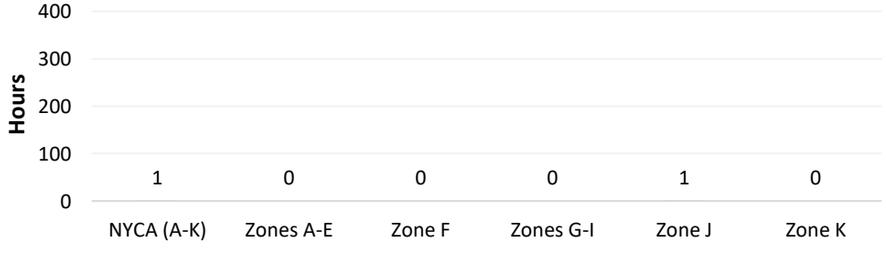
Hours with Reserve Violations



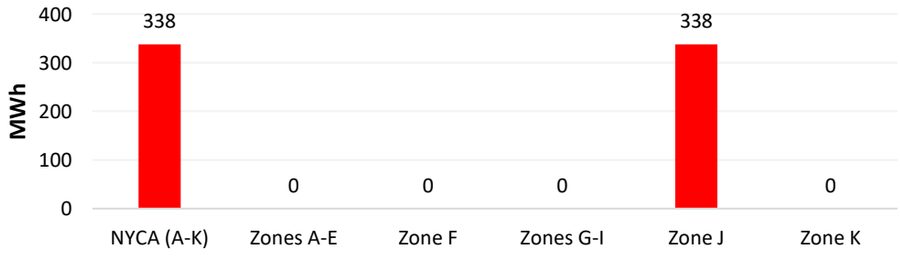
Total MWh of Reserve Violations

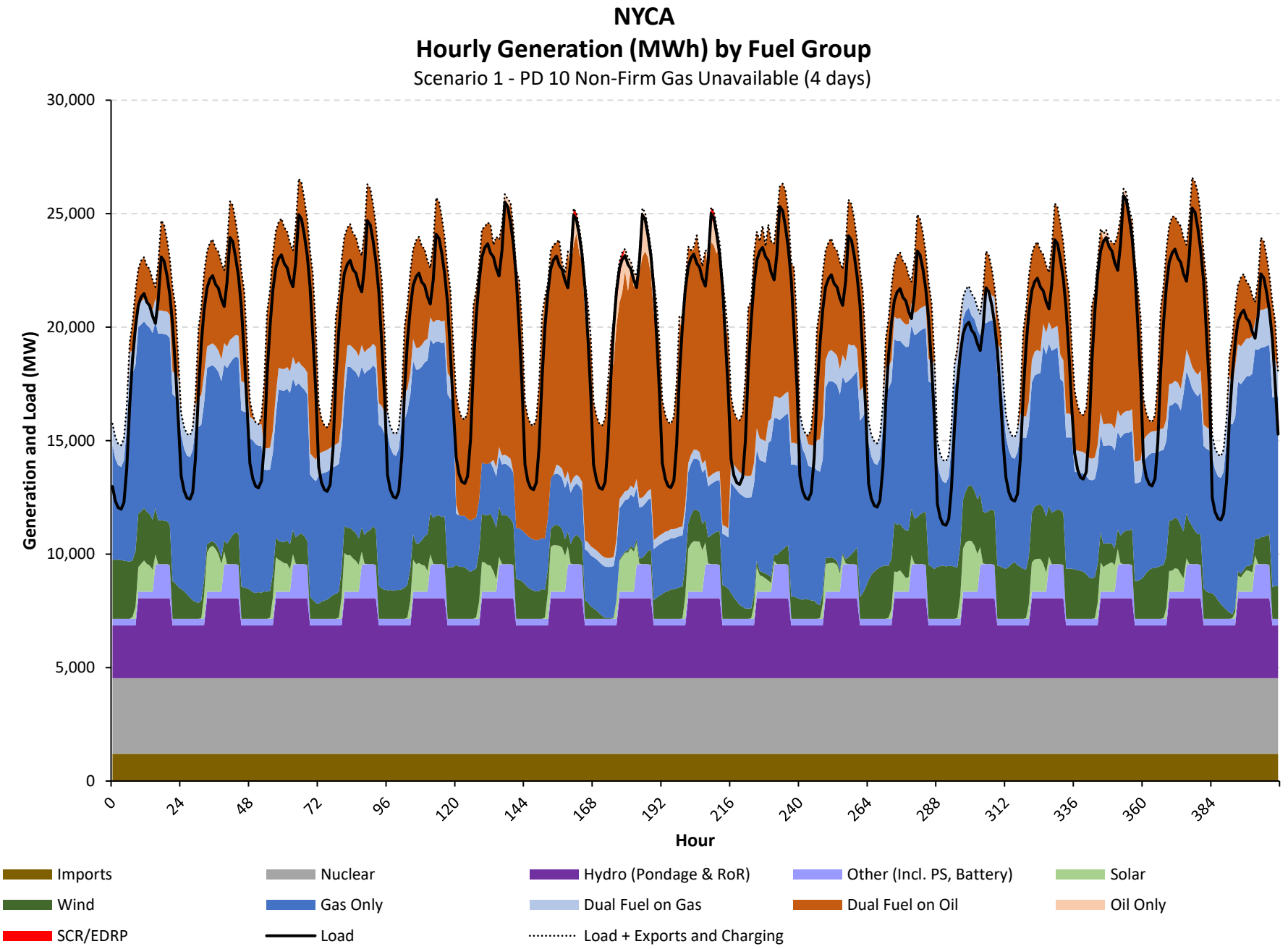


Hours with Loss of Load

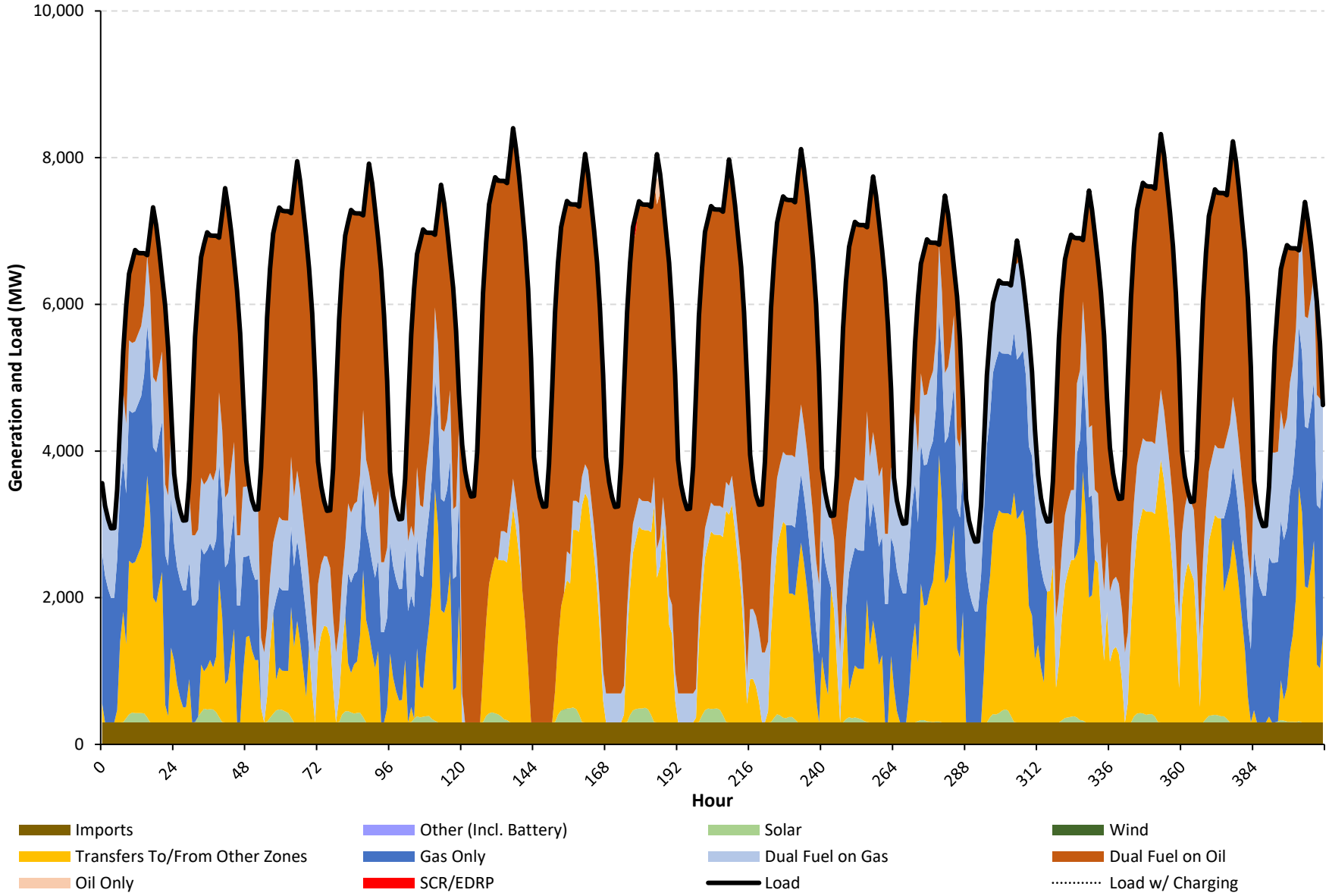


Total MWh of Lost Load

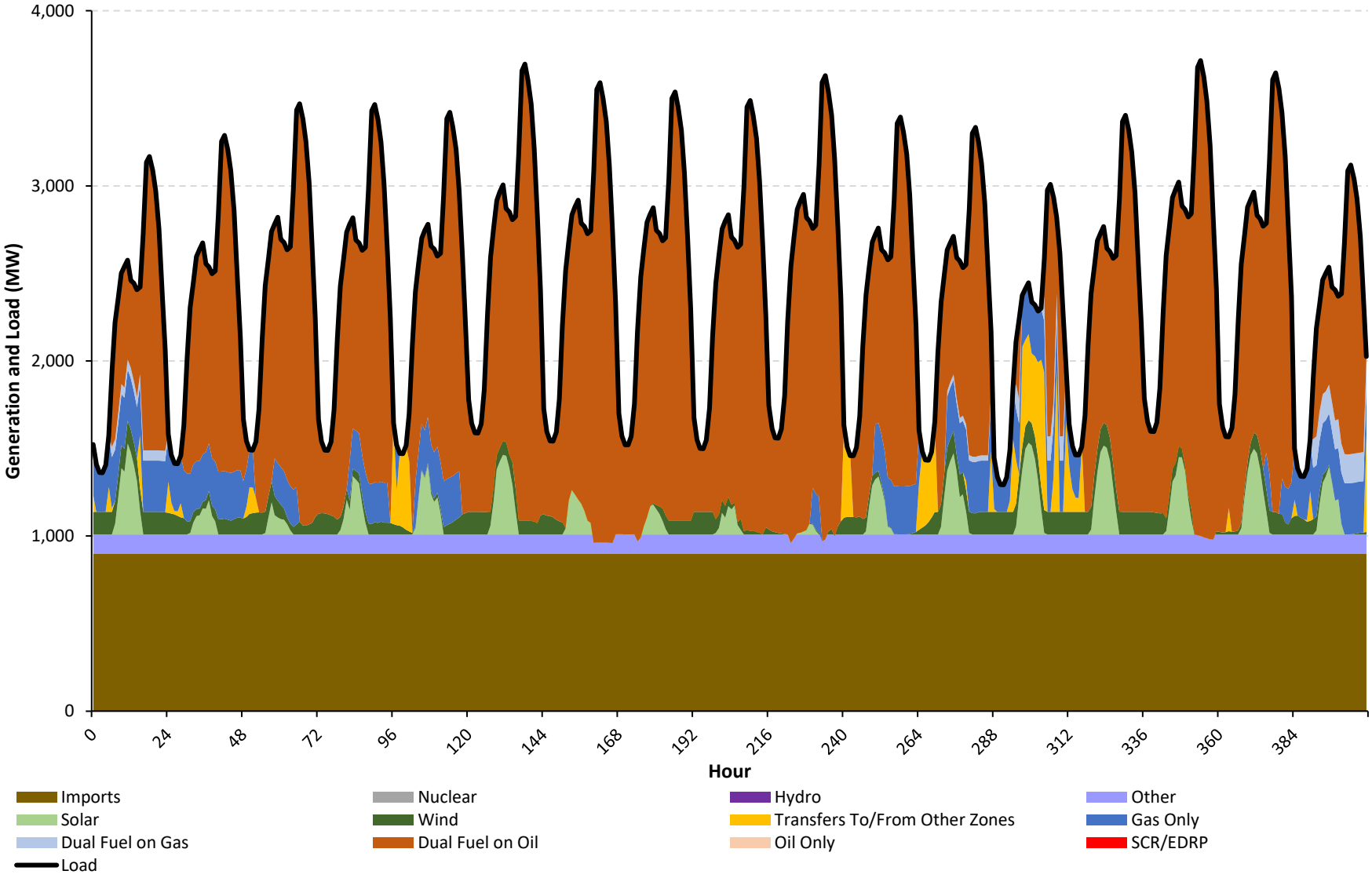



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)



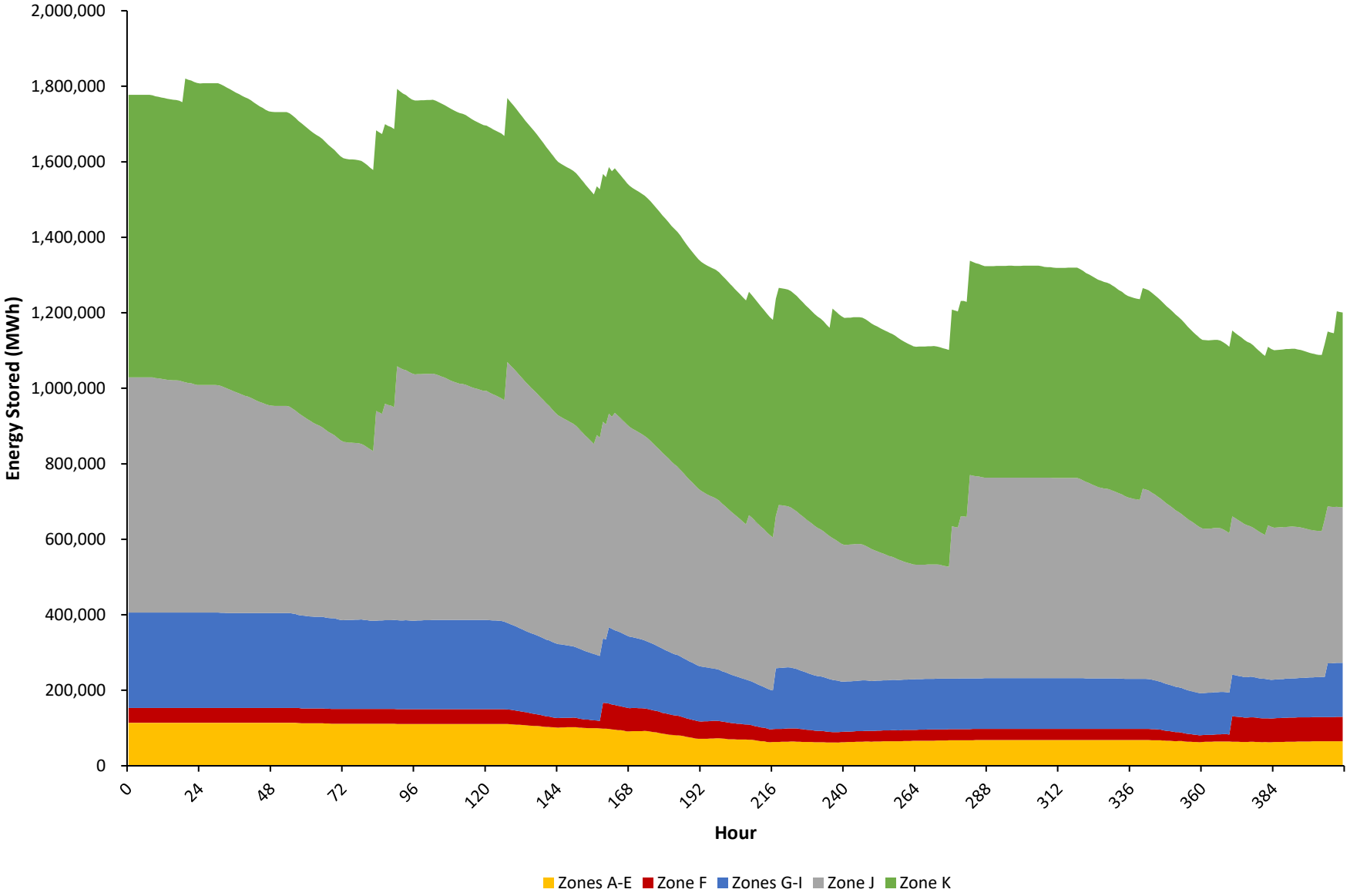
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)



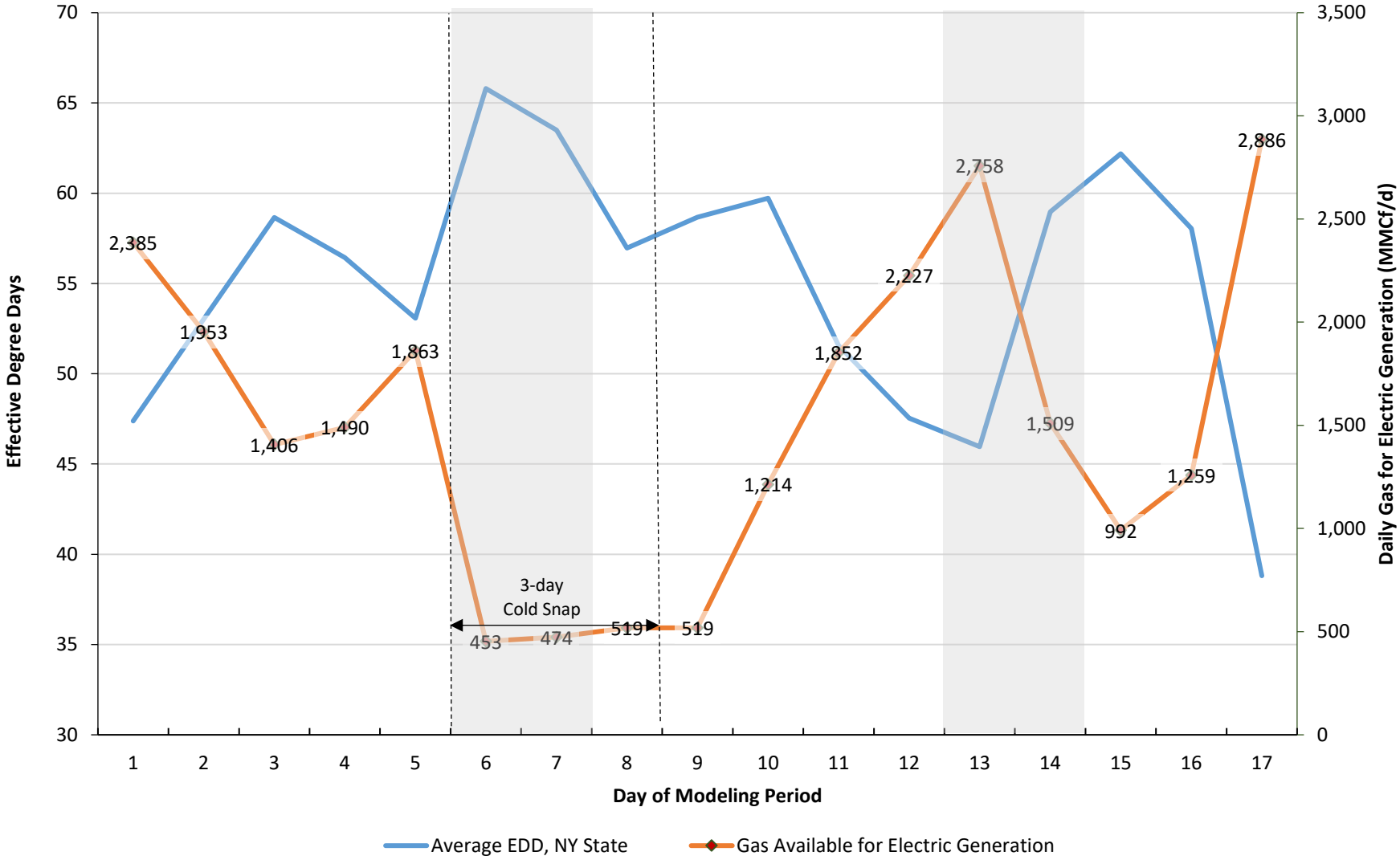
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)



NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)

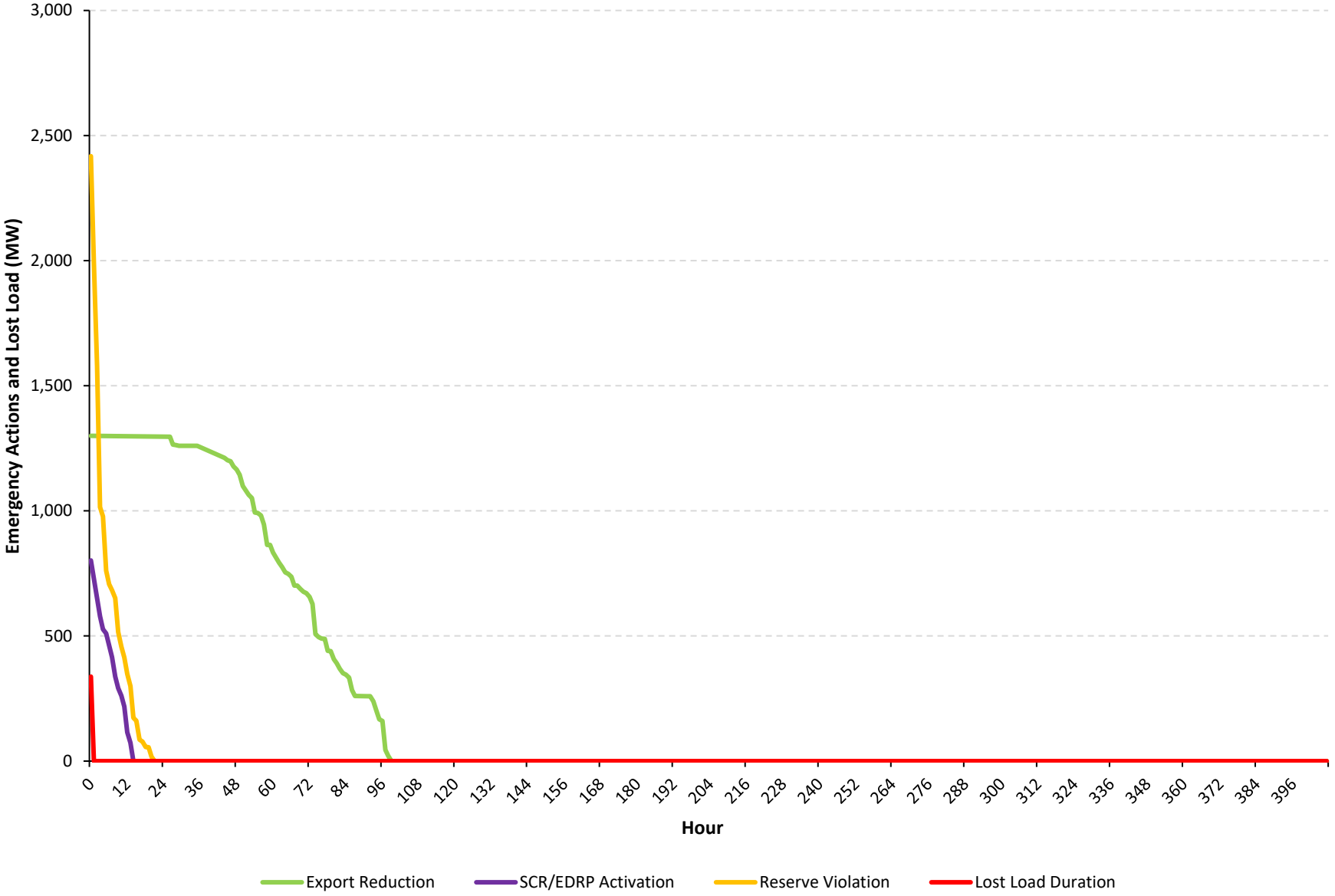


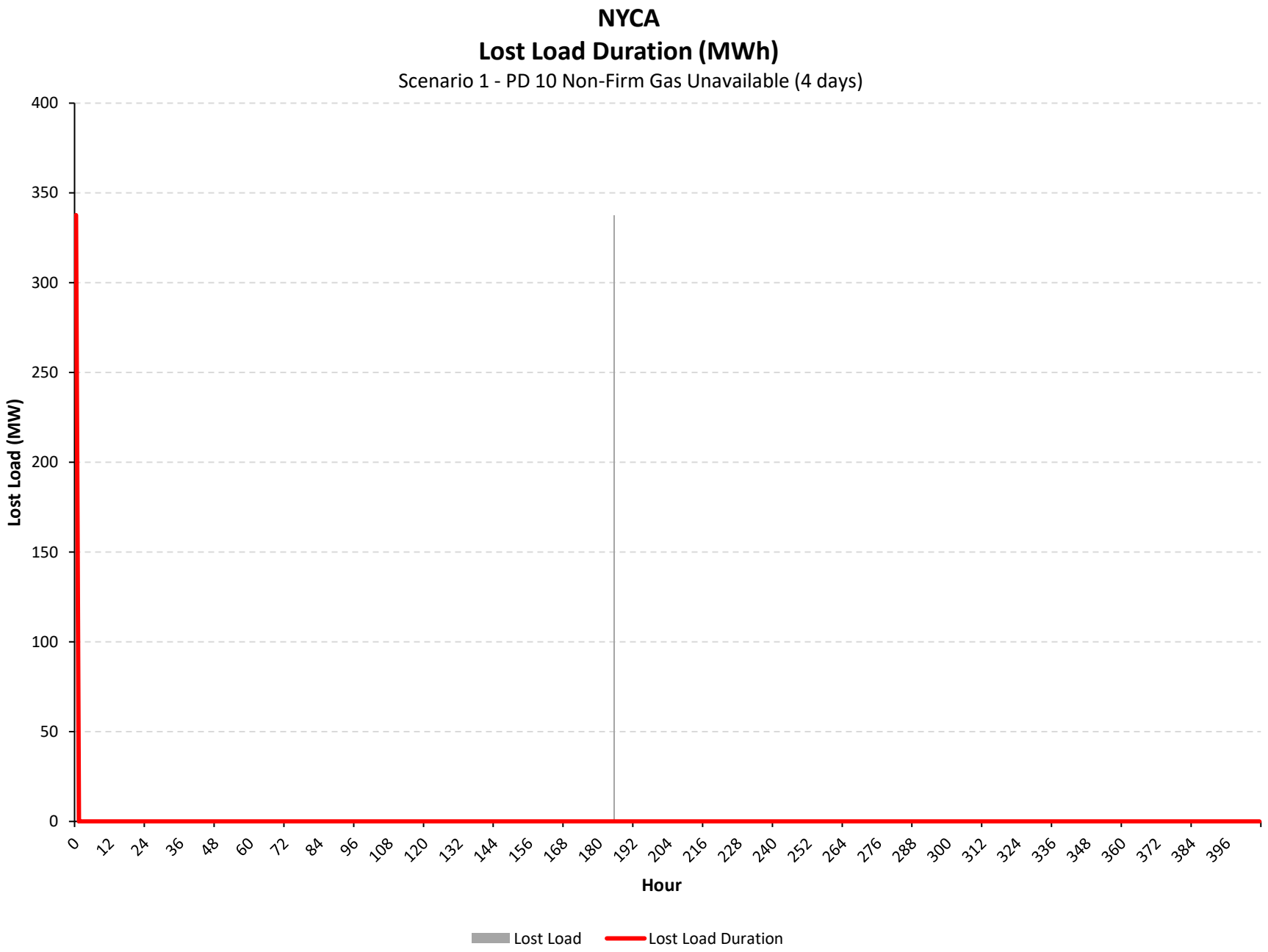
Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.

NYCA

Emergency Actions and Lost Load Duration (MWh)

Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)




NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 10 Non-Firm Gas Unavailable (4 days)
Lost Load (MW)
400
350
300
250
200
150
100
50
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

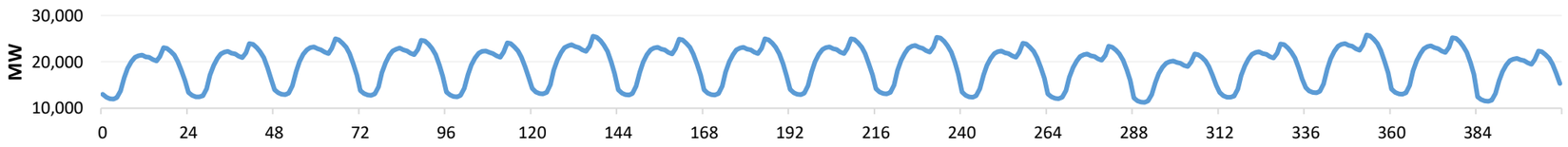
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 1 - PD 11 Combination Disruption (Winter 2023/2024)

Hourly Results Summary

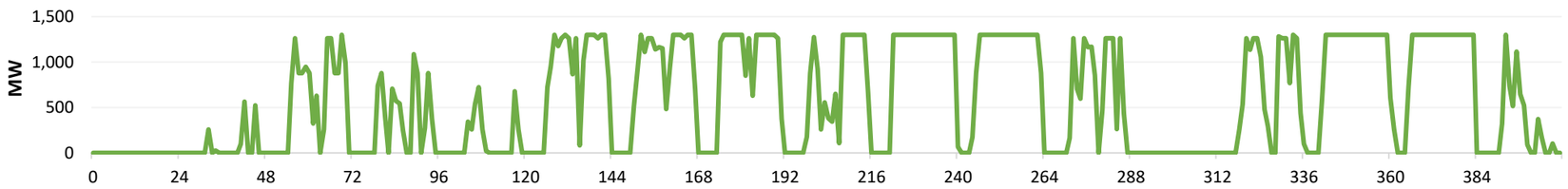
Case Name: Scenario 1 - PD 11 Combination Disruption

Load During Modeling Period



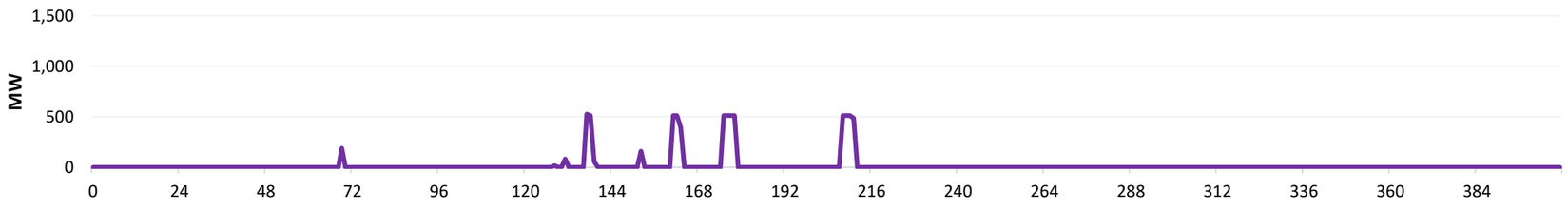
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



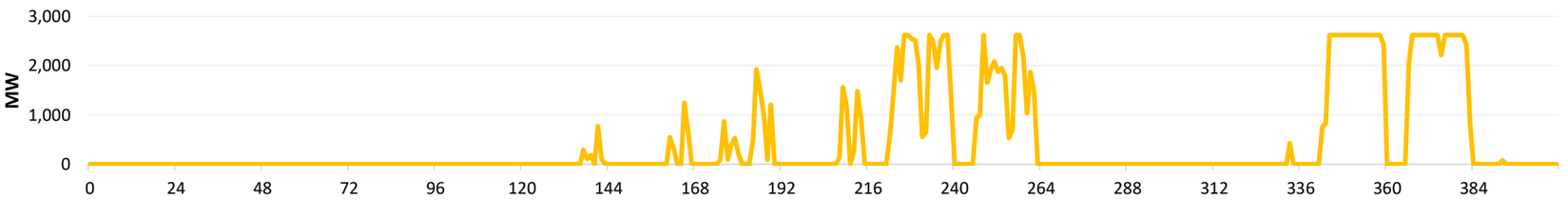
Export Reductions	
Total Hrs.	234
Total MWh	232,422
Avg. MW	569.7

SCR/EDRP Deployed During Modeling Period



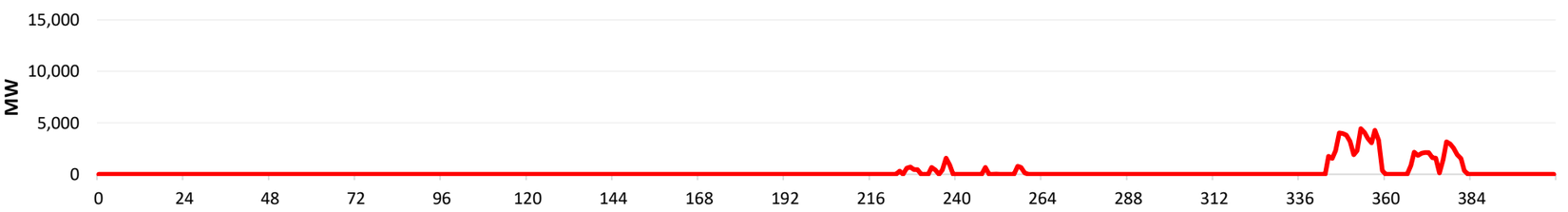
SCR Deployment	
Total Hrs.	18
Total MWh	7,009
Avg. MW	17.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	100
Total MWh	170,747
Avg. MW	418.5
First Hour with Viol.	137

Loss of Load During Modeling Period



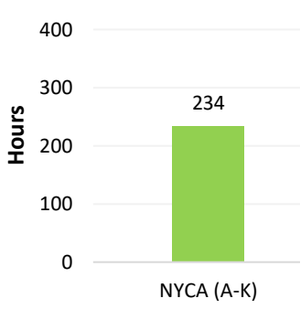
Loss of Load	
Total Hrs.	47
Total MWh	84,544
Avg. MW	207.2
First Hour with Losses	224

Full Period Results Summary

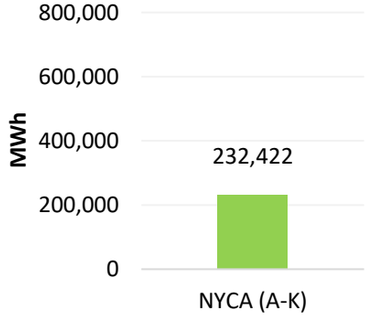
Case Name: Scenario 1 - PD 11 Combination Disruption

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

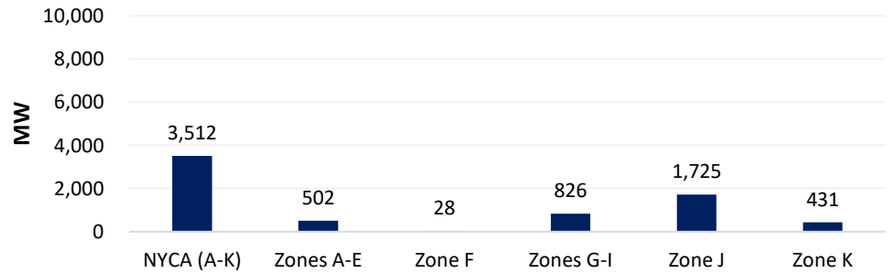
Hours Exports Reduced



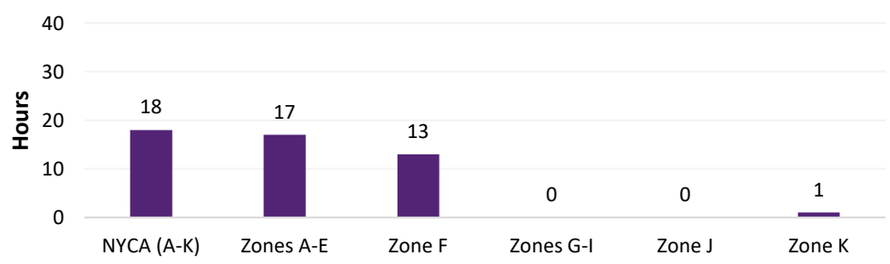
Total MWh of Exports Reduced



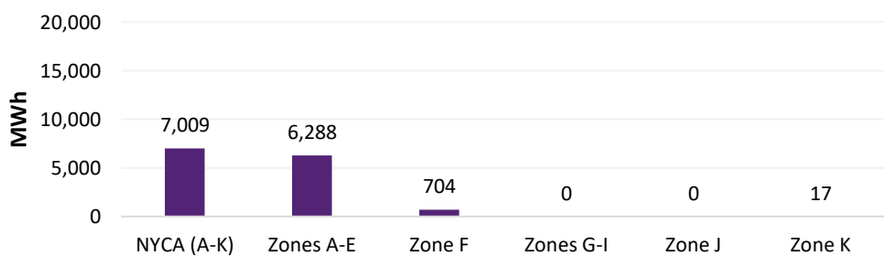
Average Capacity Not Available Due to Exhausted Fuel Inventory



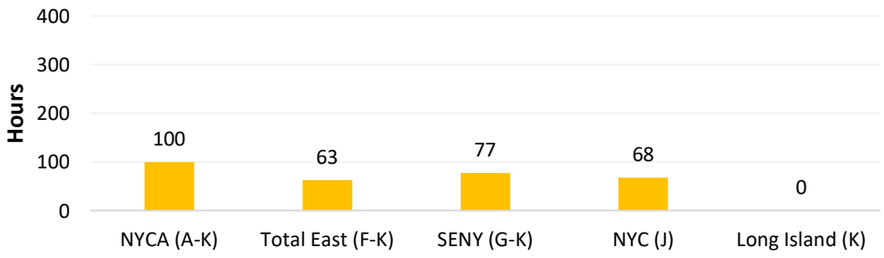
Hours SCR/EDRP Deployed



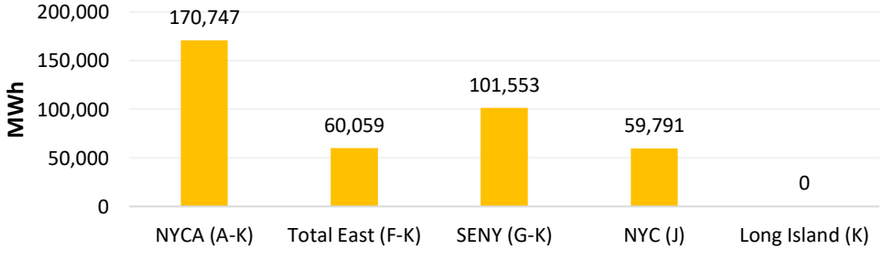
Total MWh SCR/EDRP Deployed



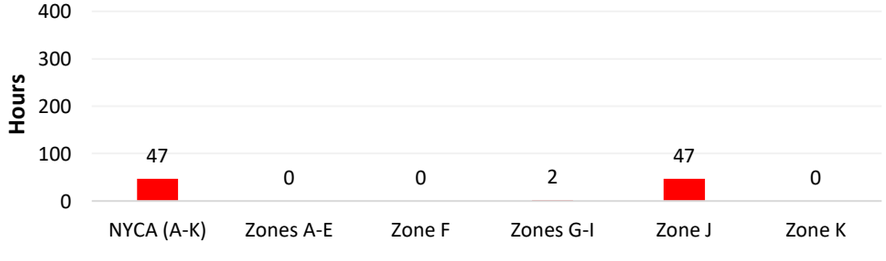
Hours with Reserve Violations



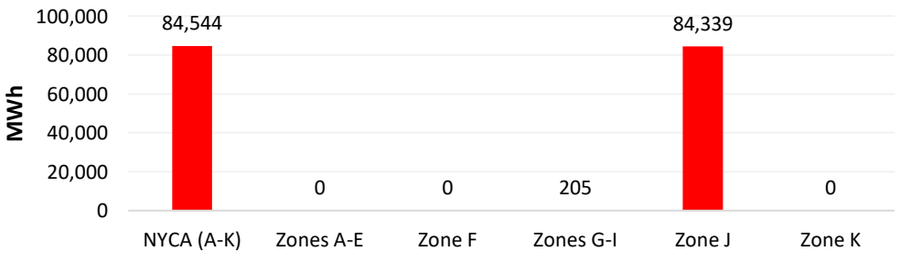
Total MWh of Reserve Violations

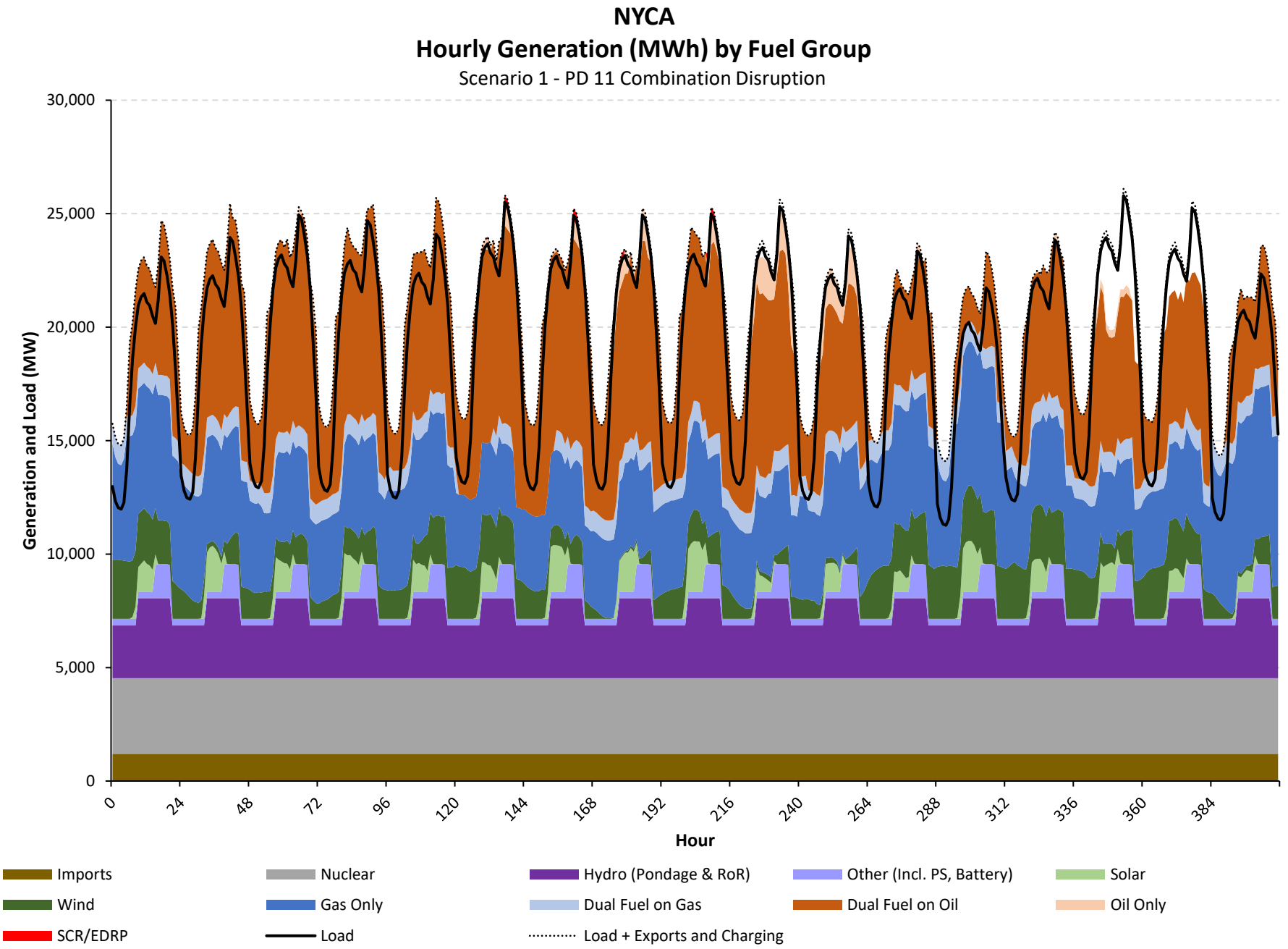


Hours with Loss of Load

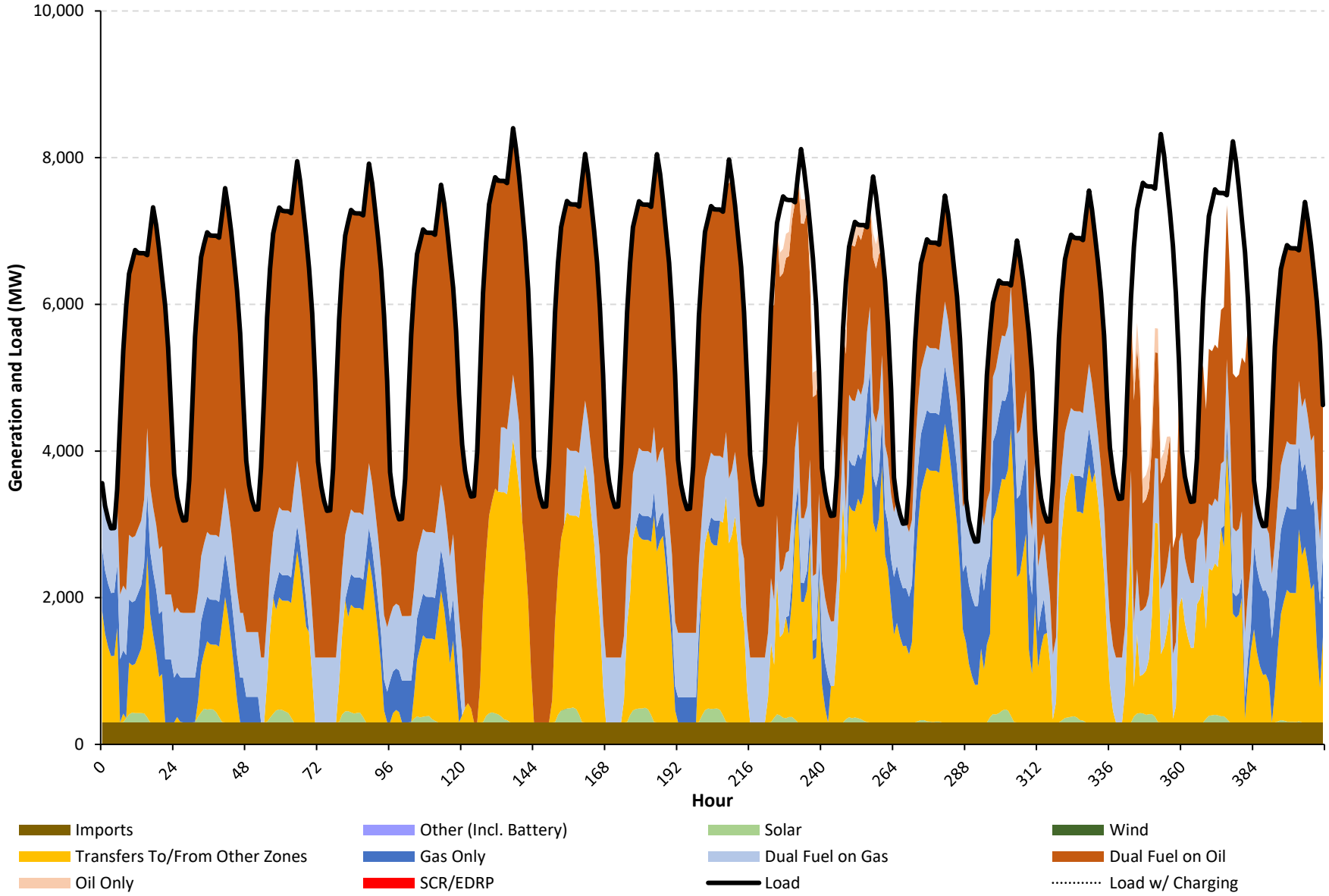


Total MWh of Lost Load

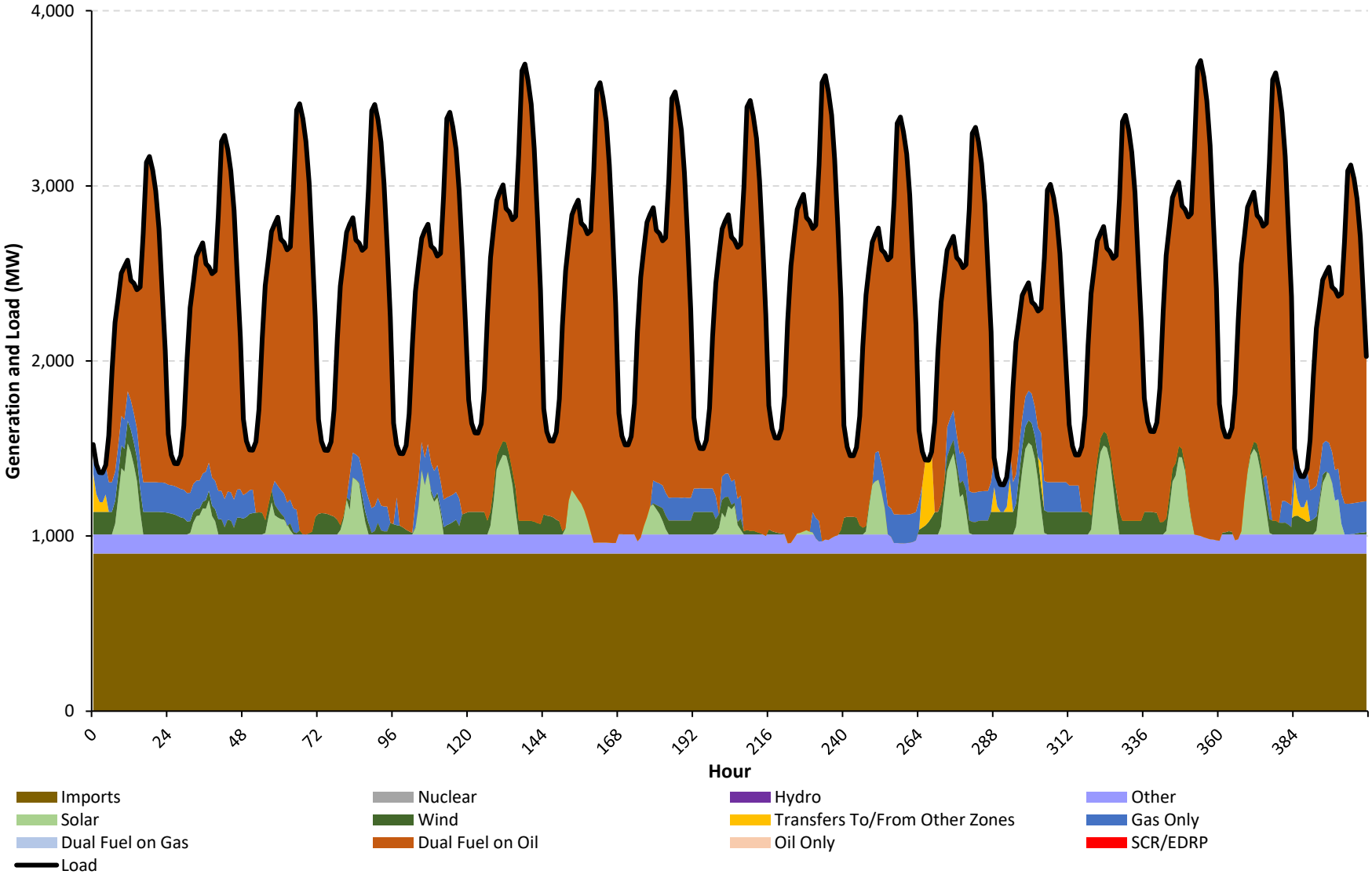


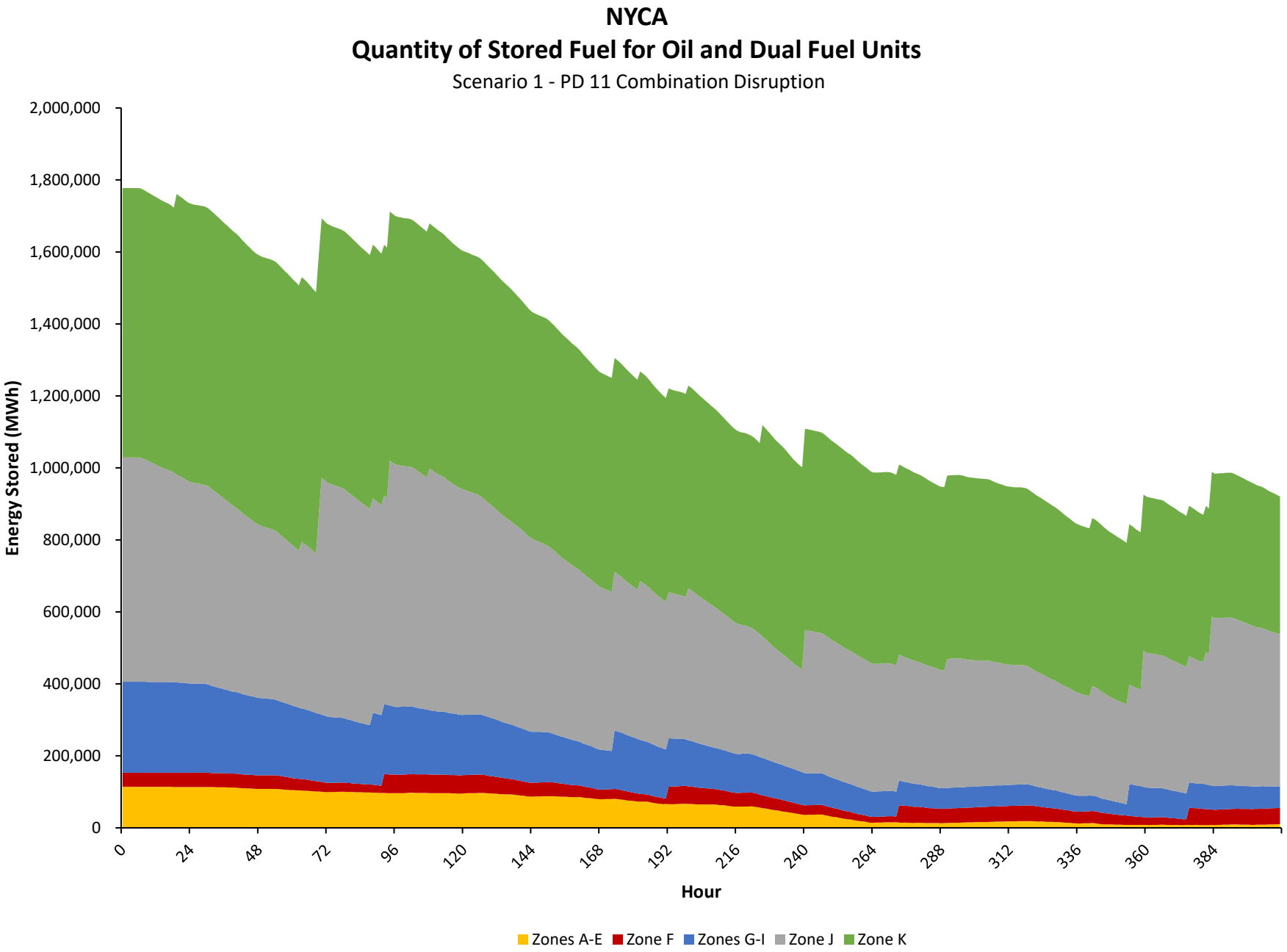

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 1 - PD 11 Combination Disruption
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

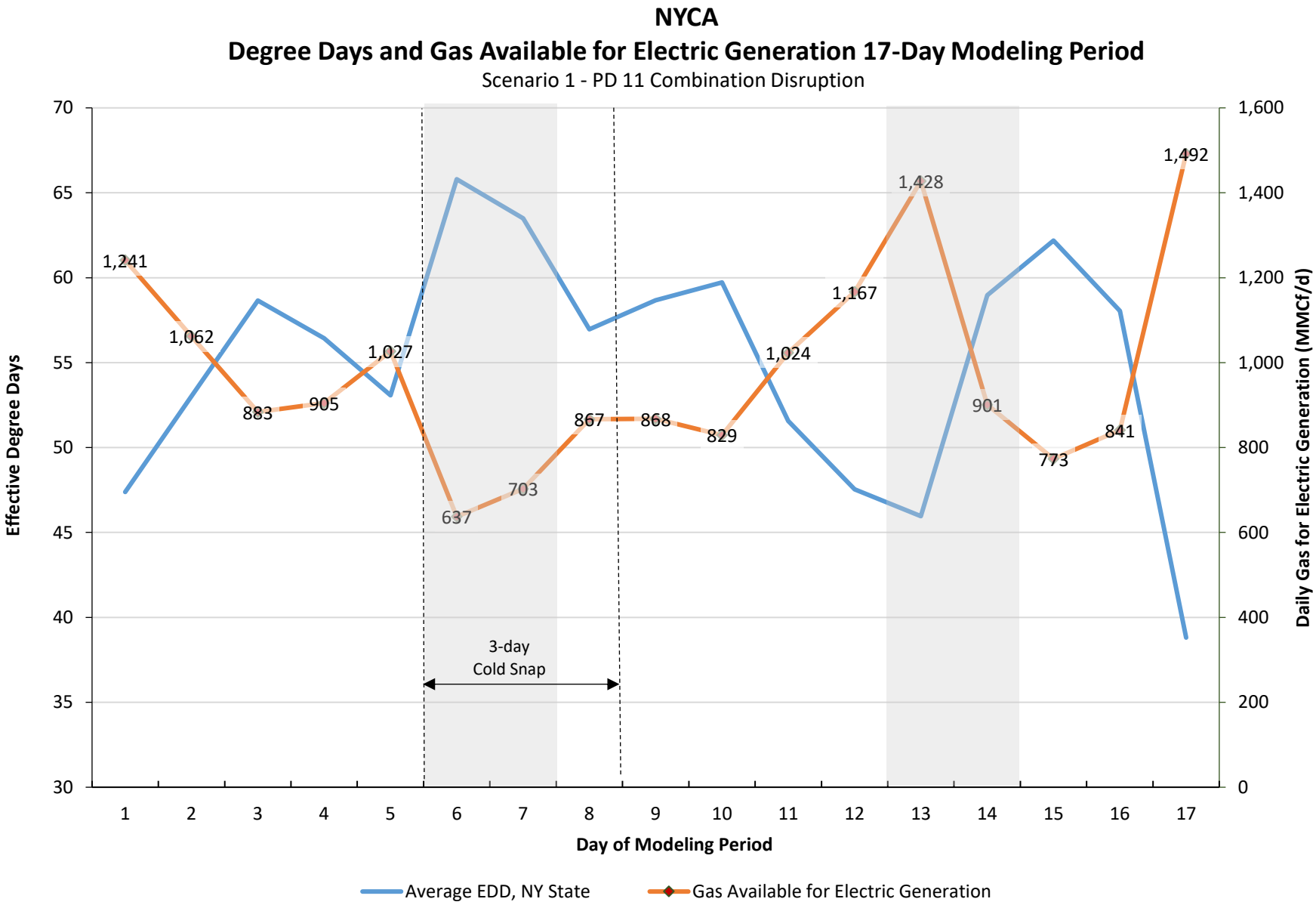
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 11 Combination Disruption



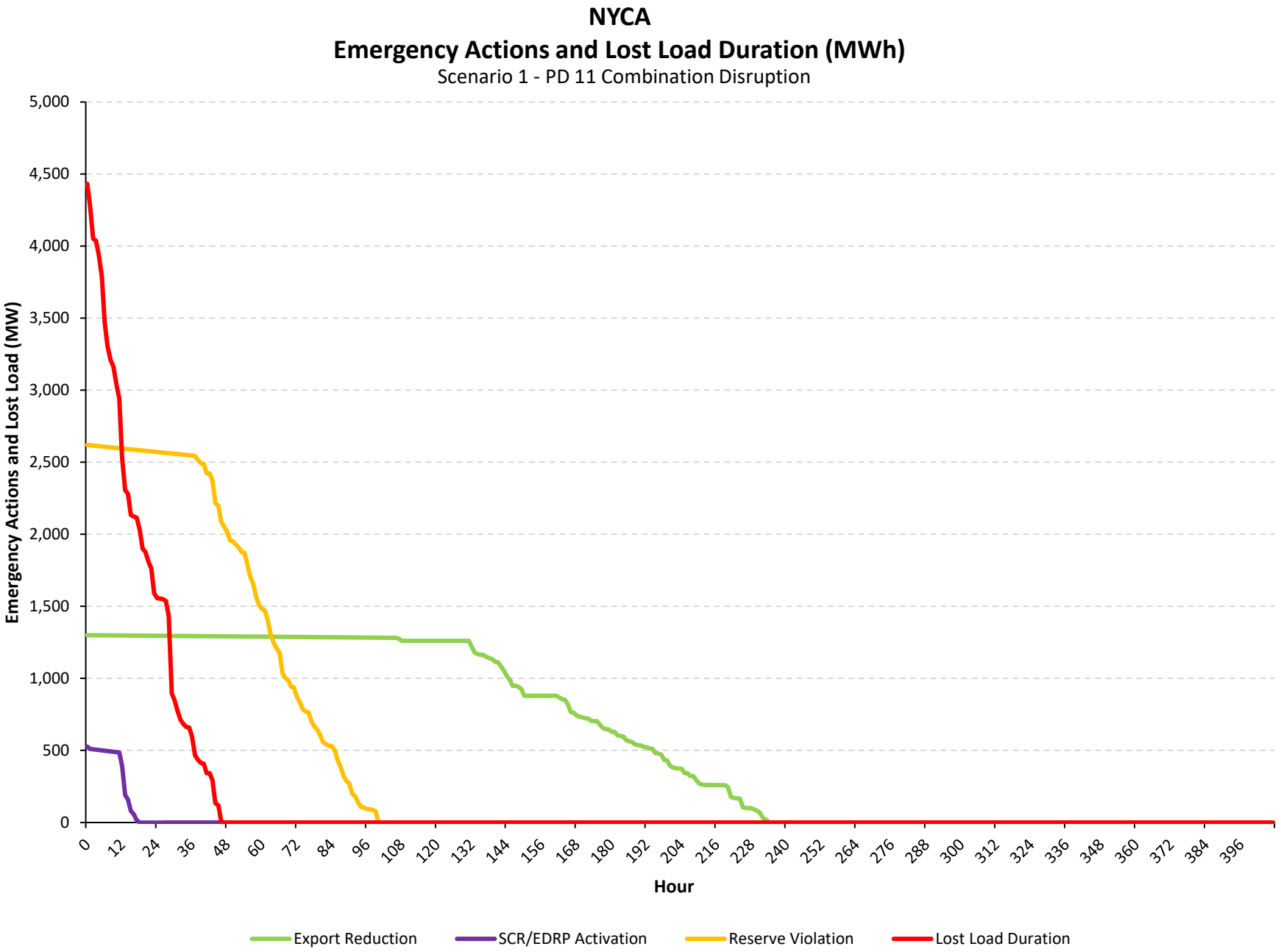
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 1 - PD 11 Combination Disruption

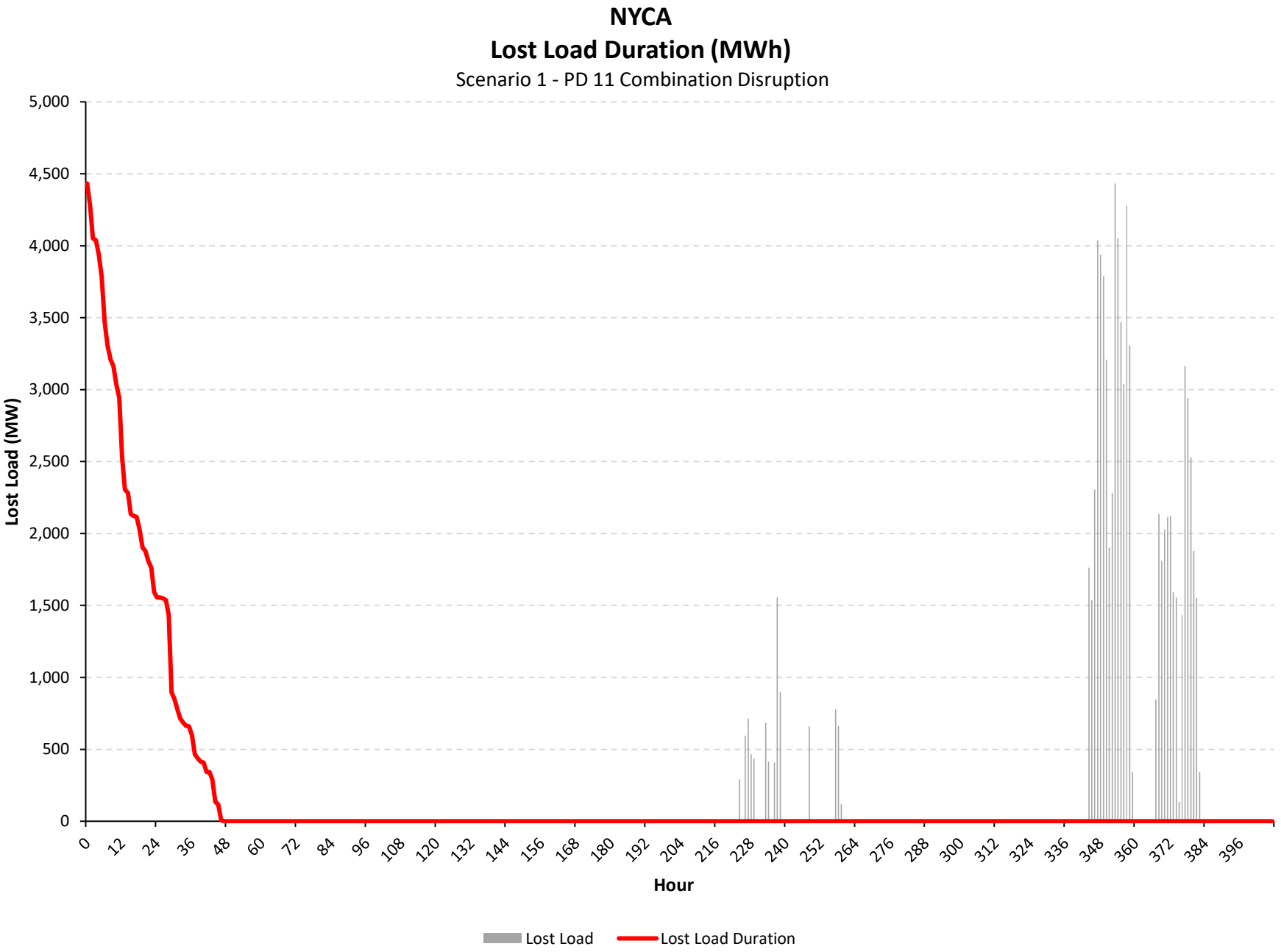



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 1 - PD 11 Combination Disruption
Energy Stored (MWh)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 1 - PD 11 Combination Disruption
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 1 - PD 11 Combination Disruption
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

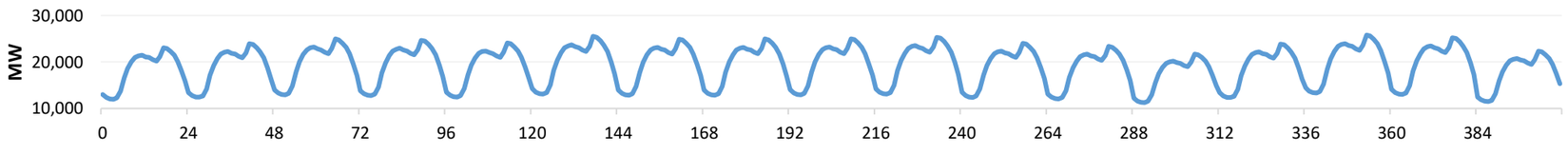
Case: Scenario 2 - PD 1 No Disruptions (Winter 2023/2024)

Hourly Results Summary

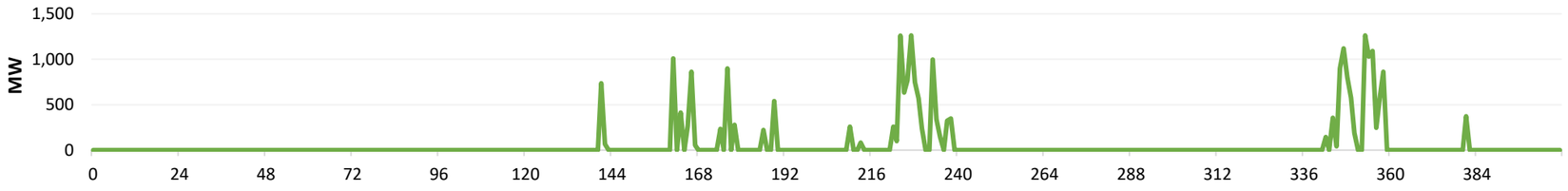
Case Name: Scenario 2 - PD 1 No Disruptions

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

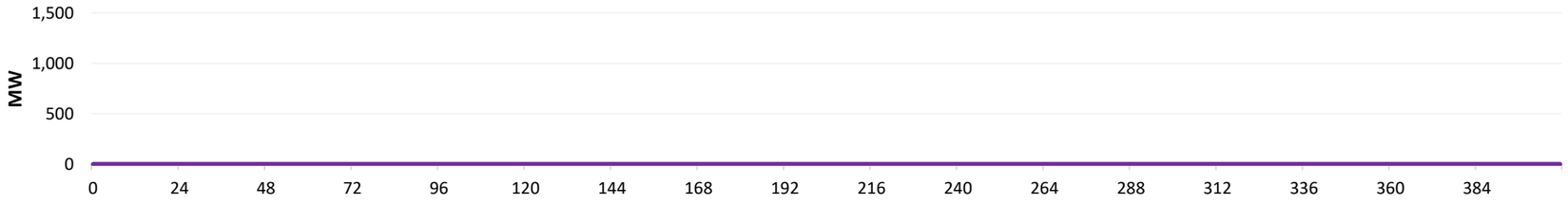


Export to ISO-NE Reduction During Modeling Period



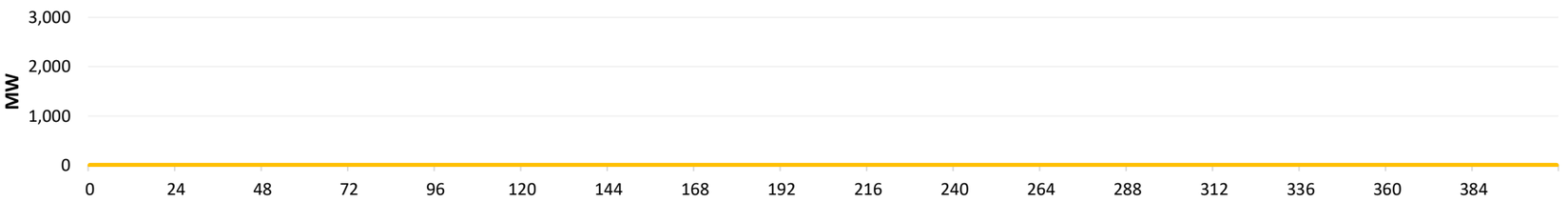
Export Reductions	
Total Hrs.	43
Total MWh	23,451
Avg. MW	57.5

SCR/EDRP Deployed During Modeling Period



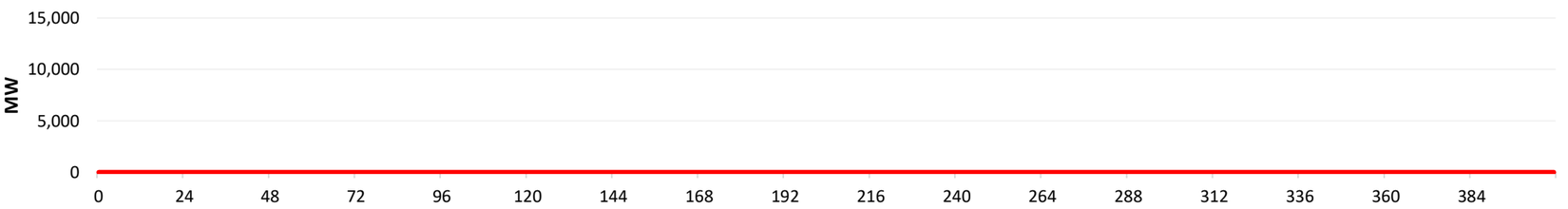
SCR Deployment	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

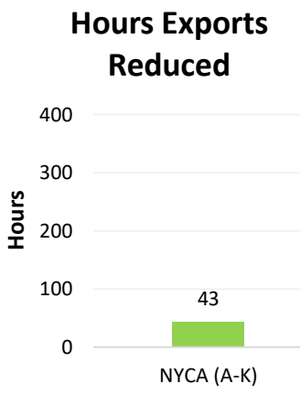


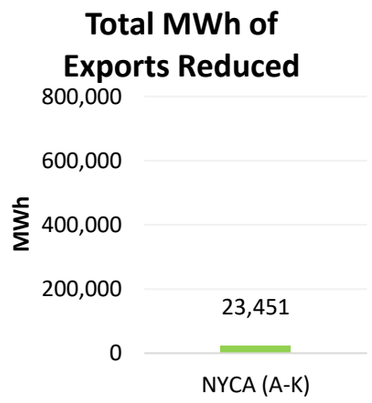
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

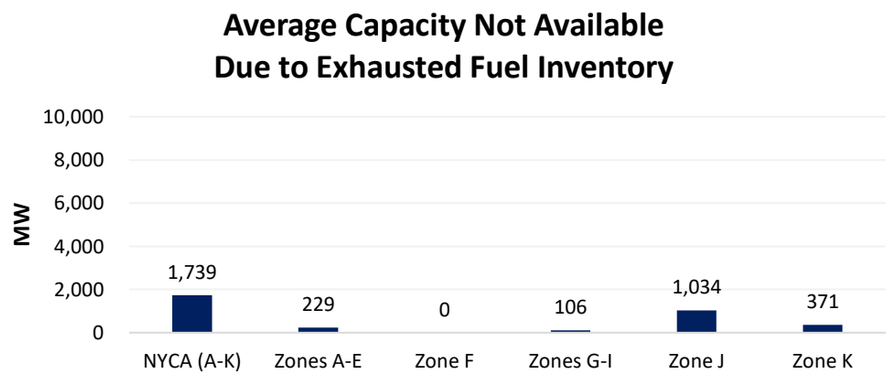
Full Period Results Summary

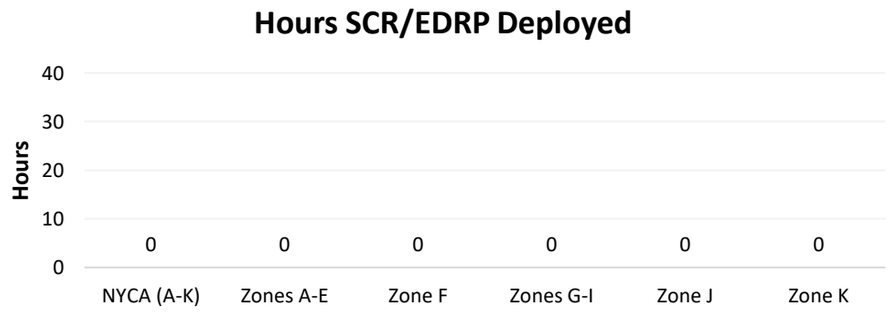
Case Name: Scenario 2 - PD 1 No Disruptions

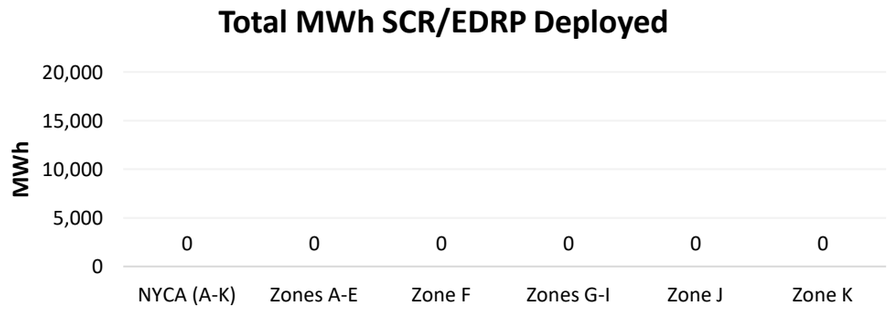
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

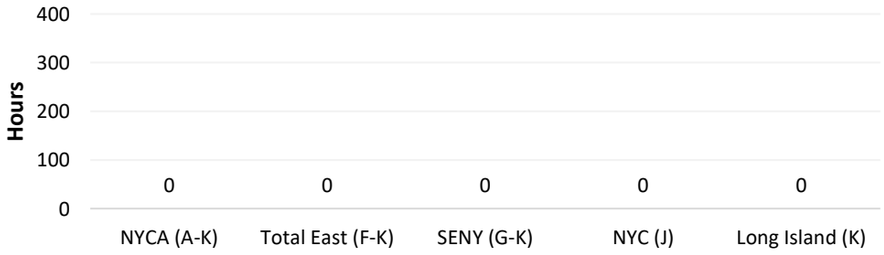


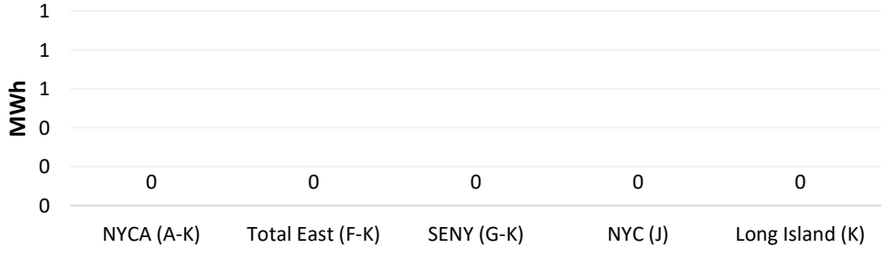


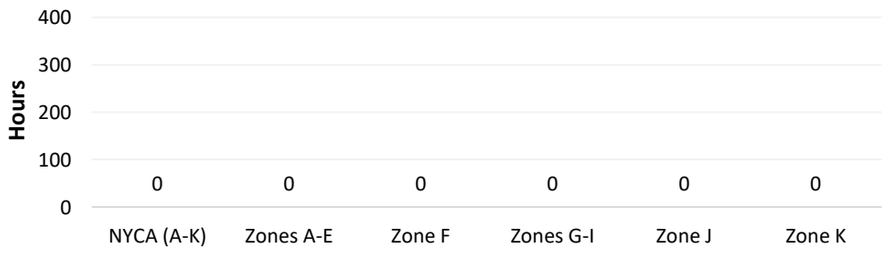


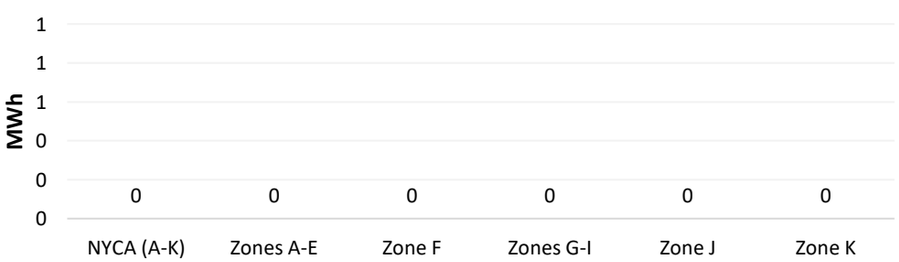


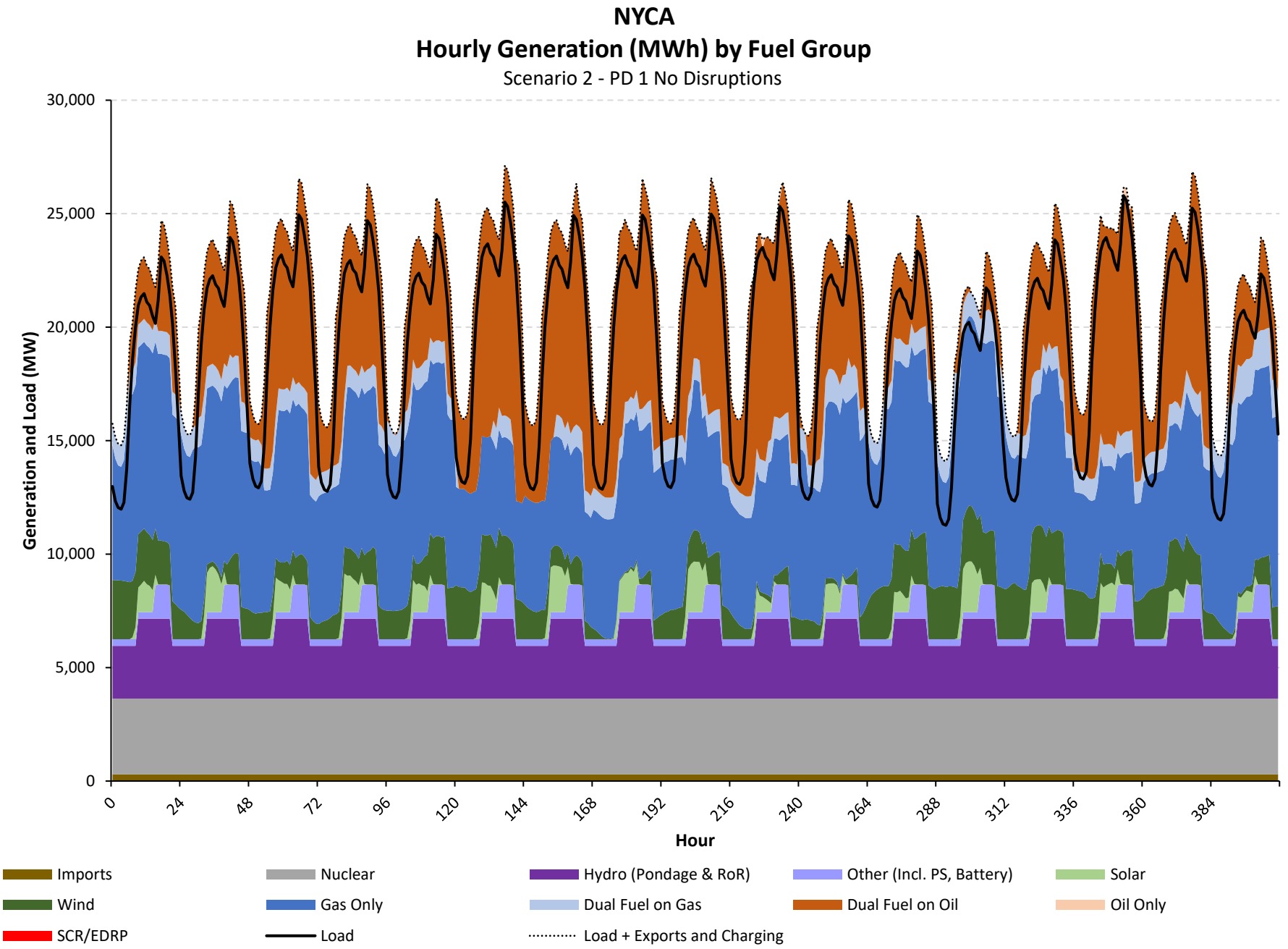


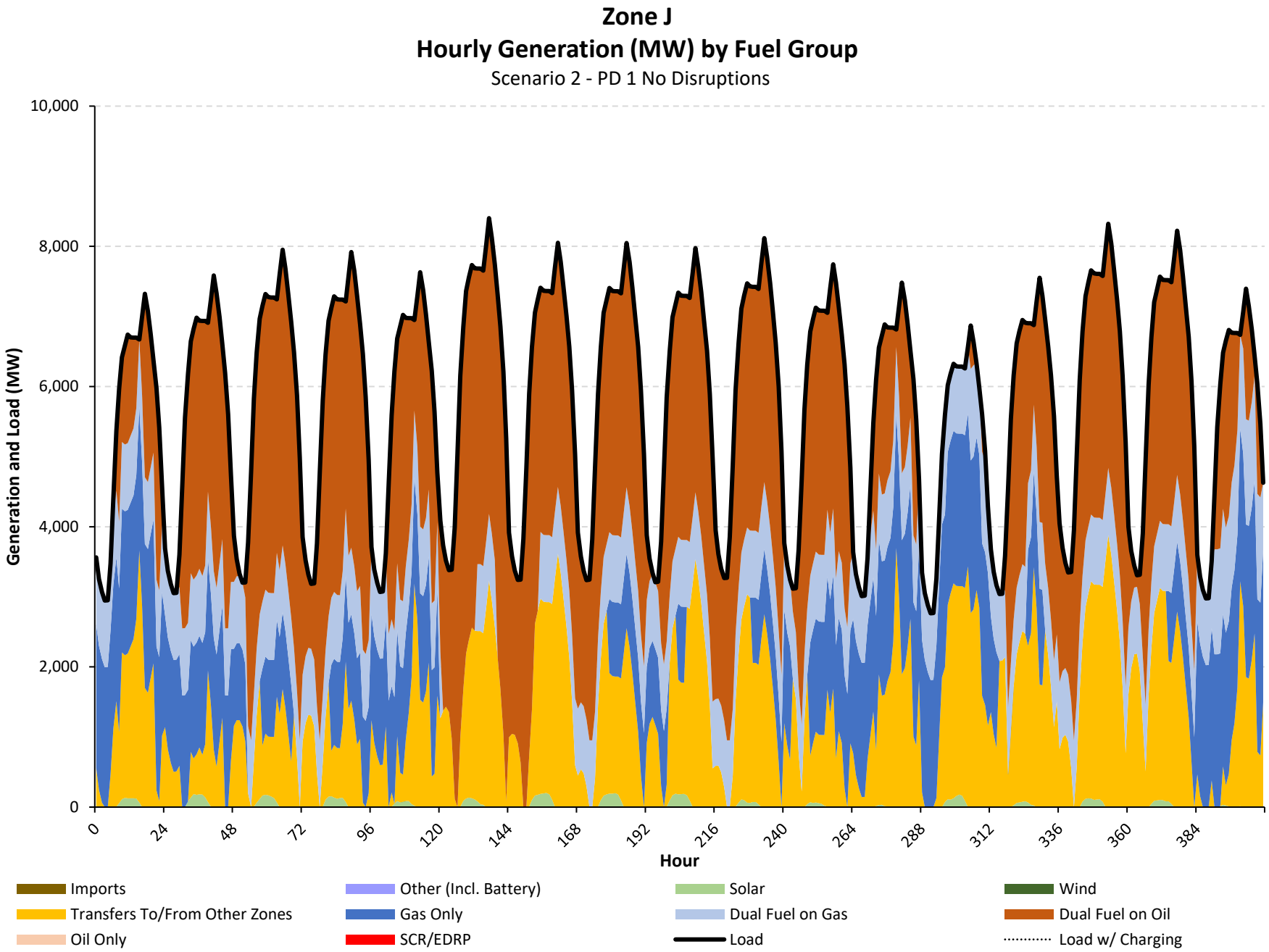




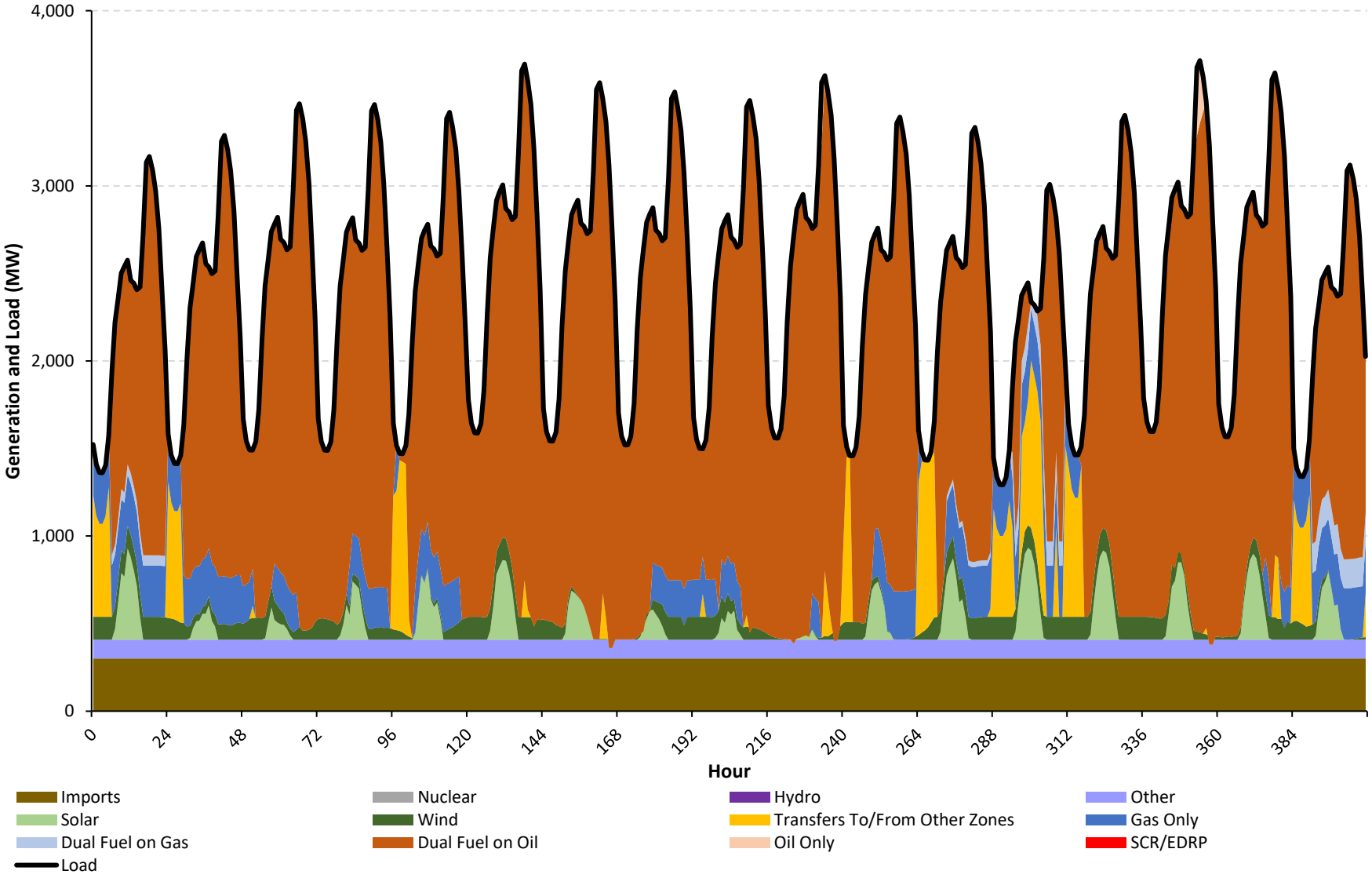


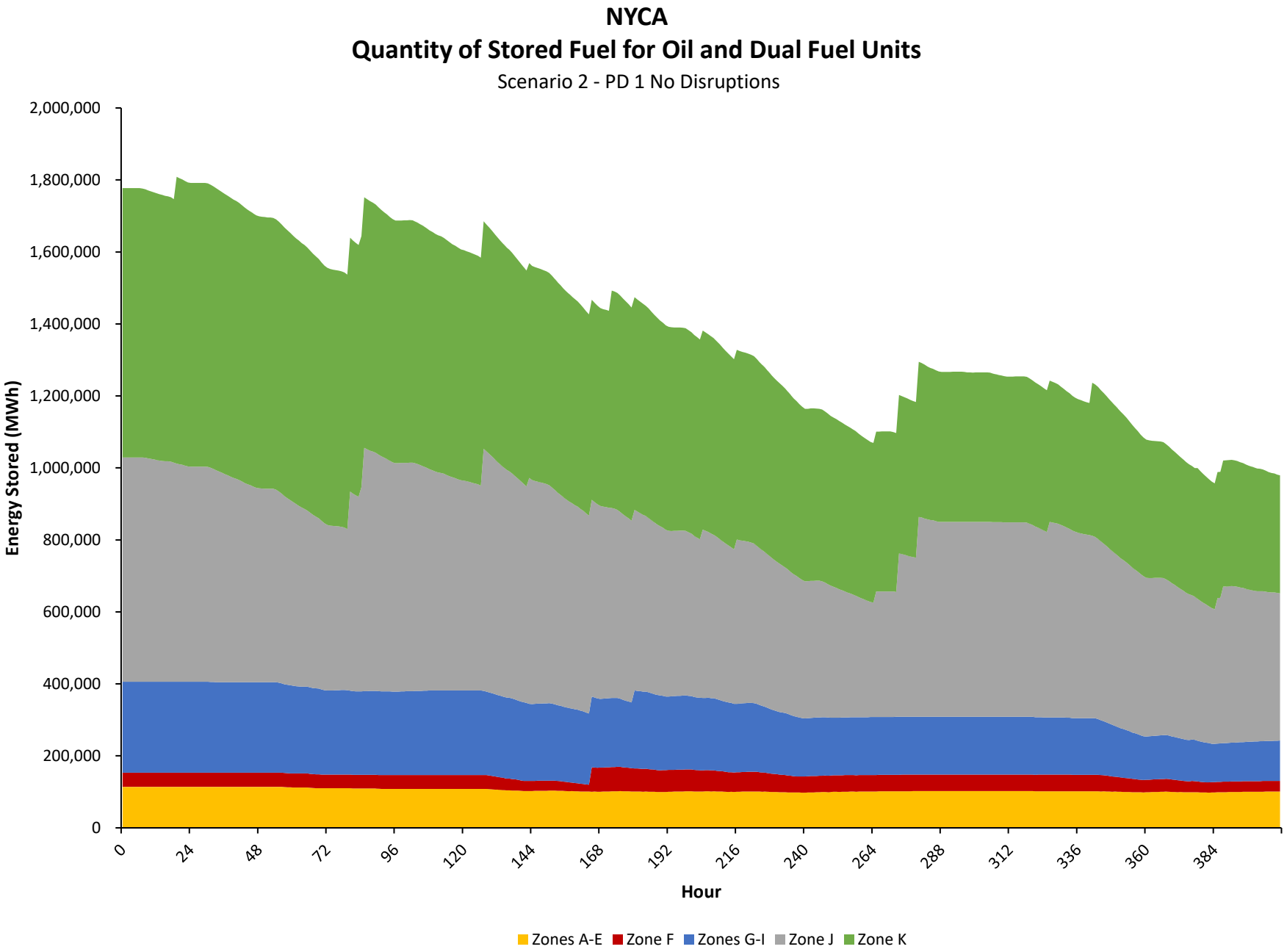


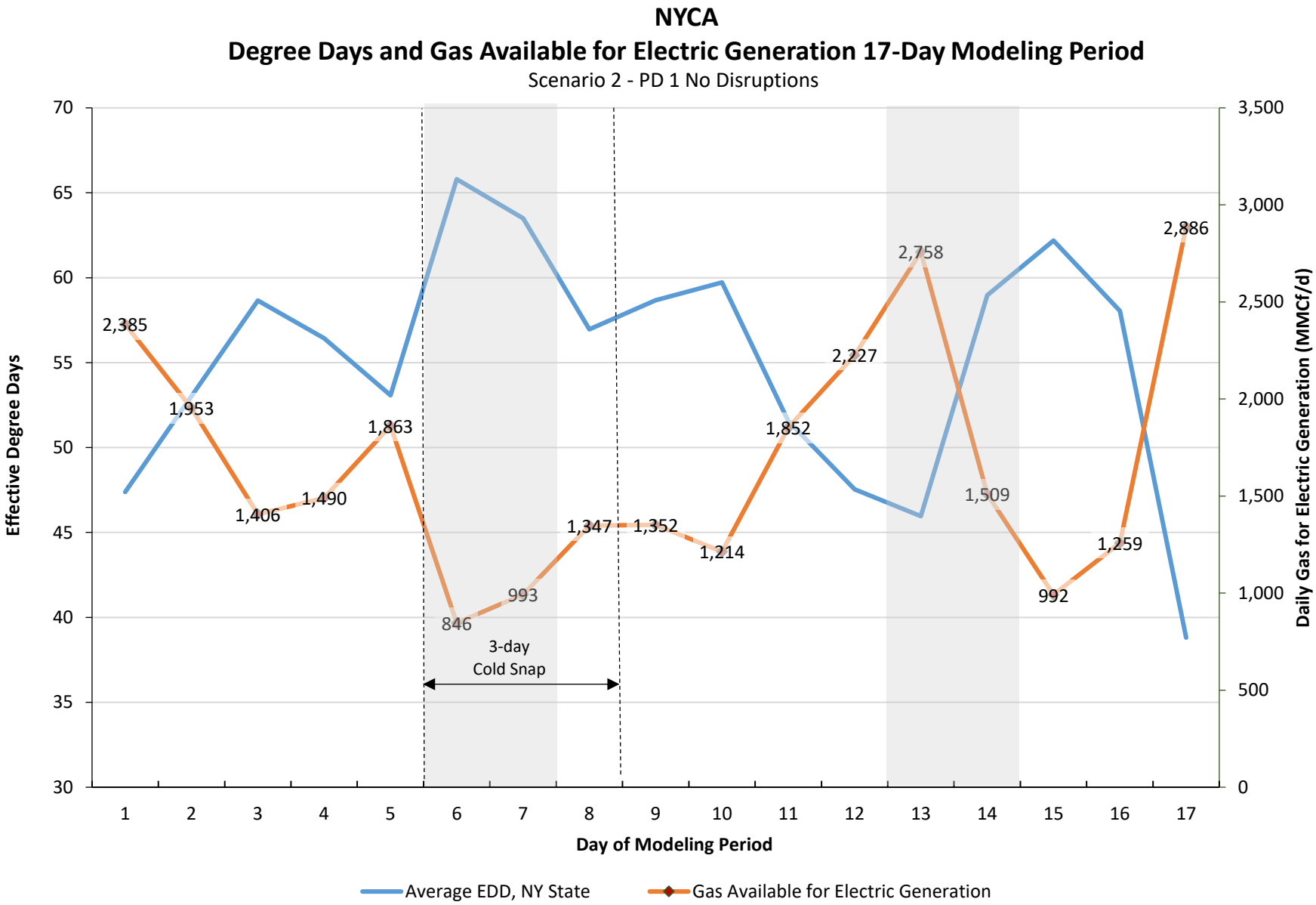

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 1 No Disruptions
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 1 No Disruptions
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

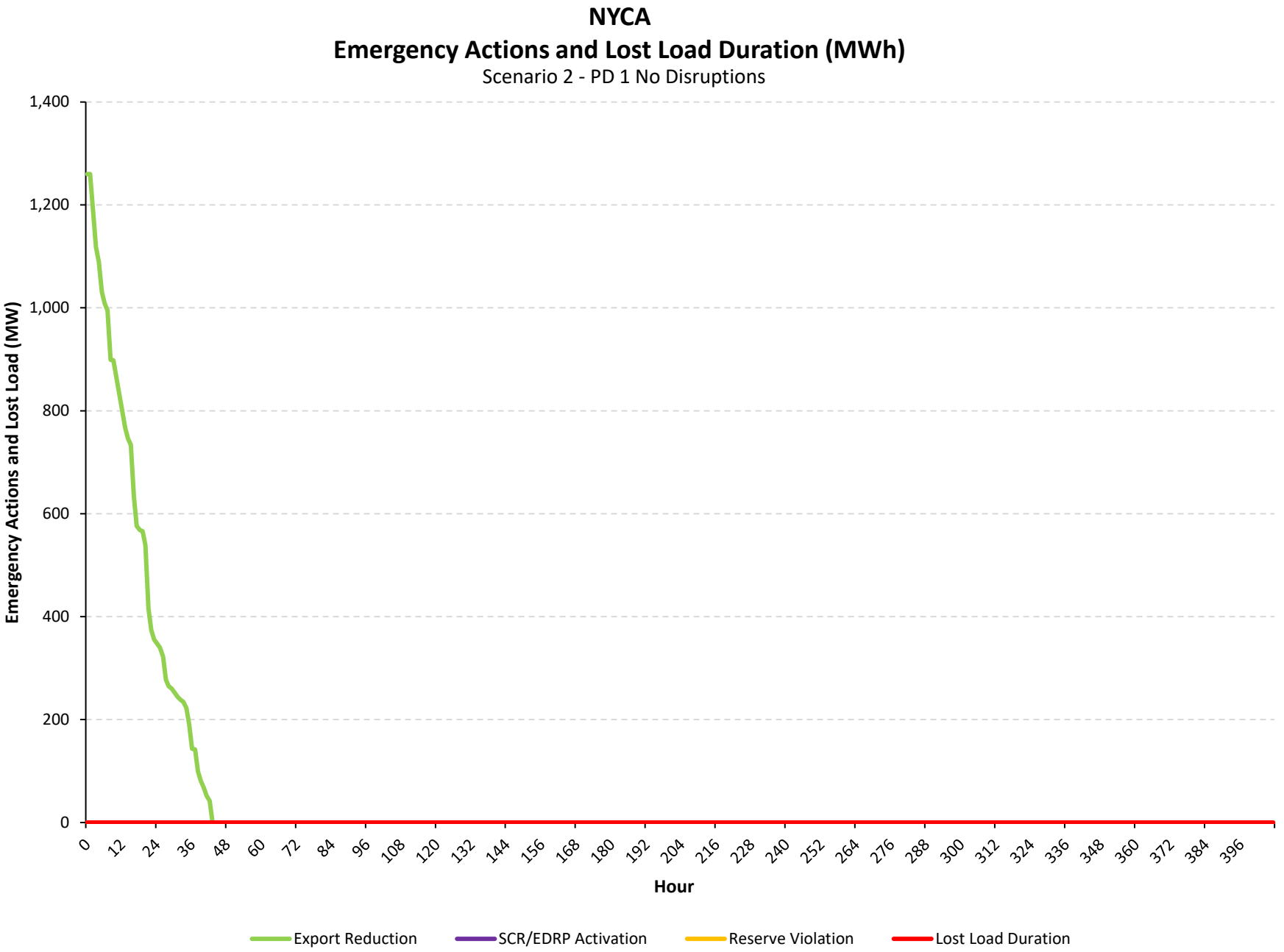
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 1 No Disruptions

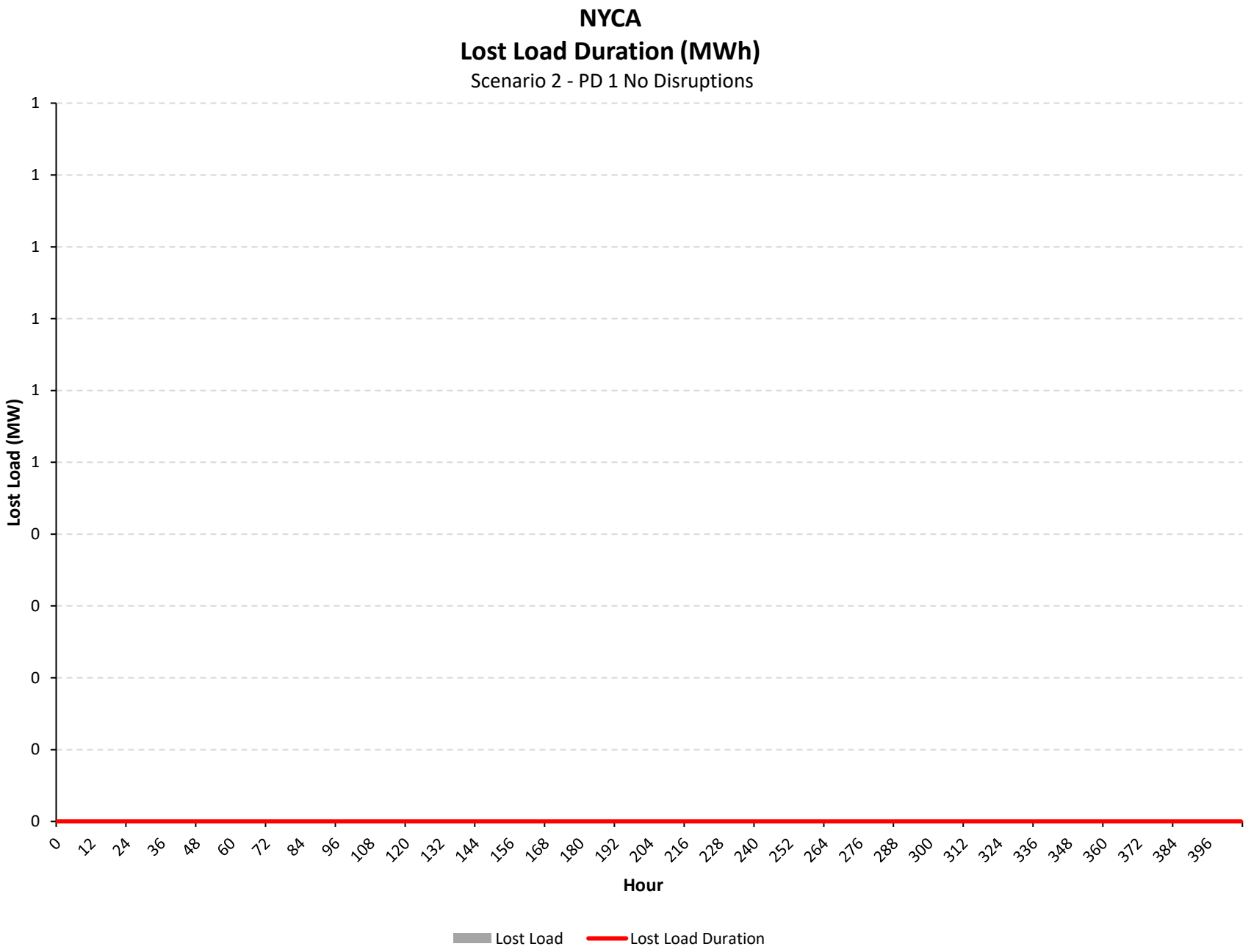



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 2 - PD 1 No Disruptions
Energy Stored (MWh)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 1 No Disruptions
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 1 No Disruptions
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

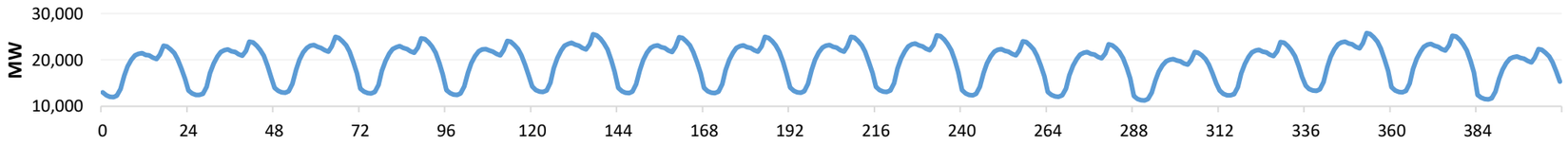
Case: Scenario 2 - PD 2 High Outage (Winter 2023/2024)

Hourly Results Summary

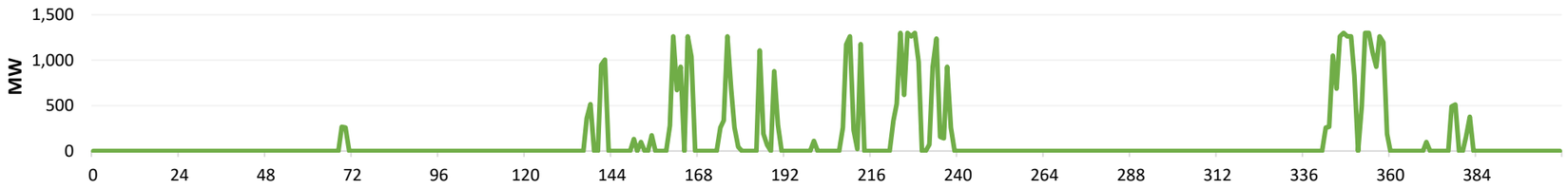
Case Name: Scenario 2 - PD 2 High Outage

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

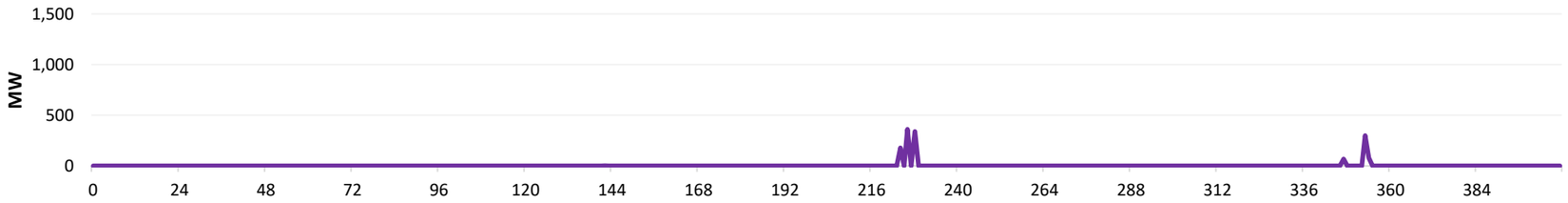


Export to ISO-NE Reduction During Modeling Period



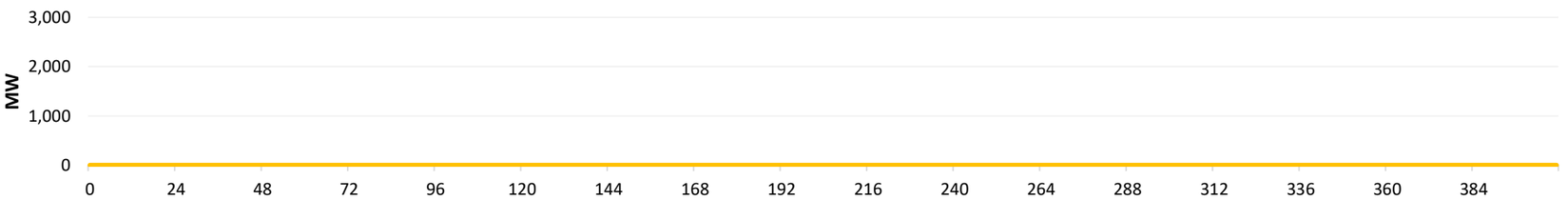
Export Reductions	
Total Hrs.	70
Total MWh	47,698
Avg. MW	116.9

SCR/EDRP Deployed During Modeling Period



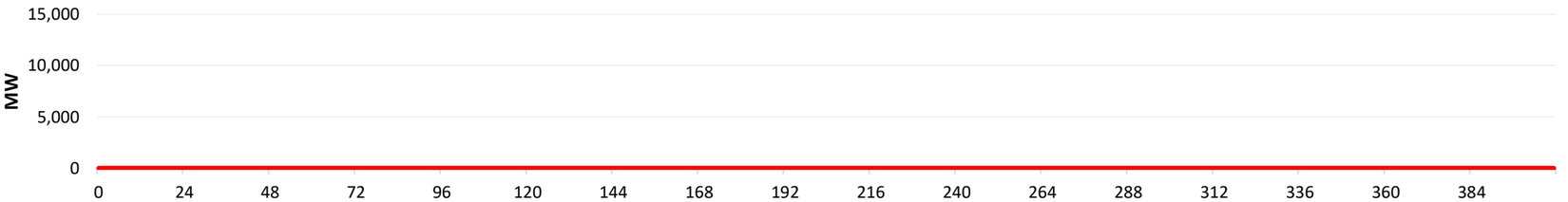
SCR Deployment	
Total Hrs.	6
Total MWh	1,324
Avg. MW	3.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period



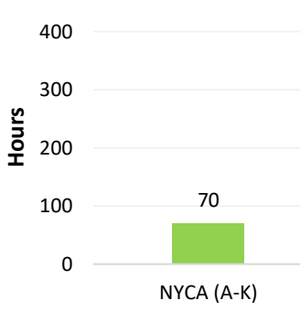
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

Full Period Results Summary

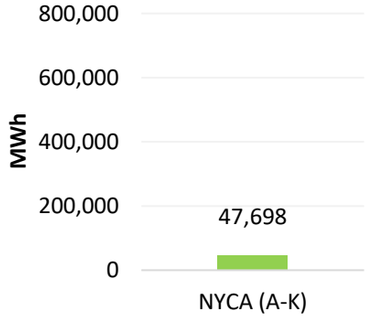
Case Name: Scenario 2 - PD 2 High Outage

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

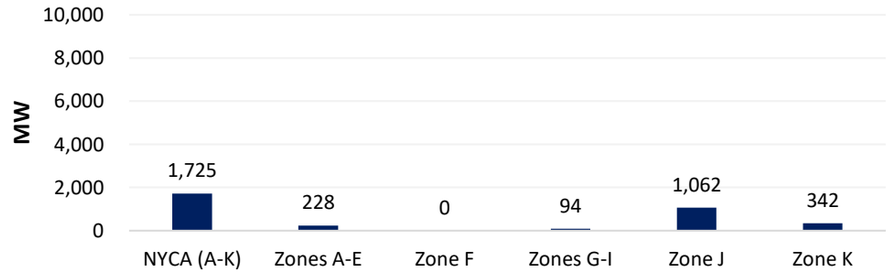
Hours Exports Reduced



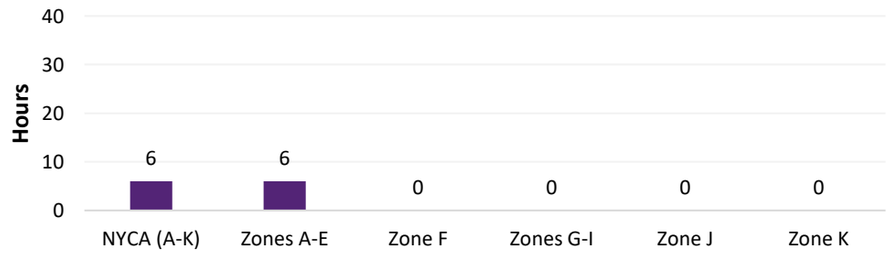
Total MWh of Exports Reduced



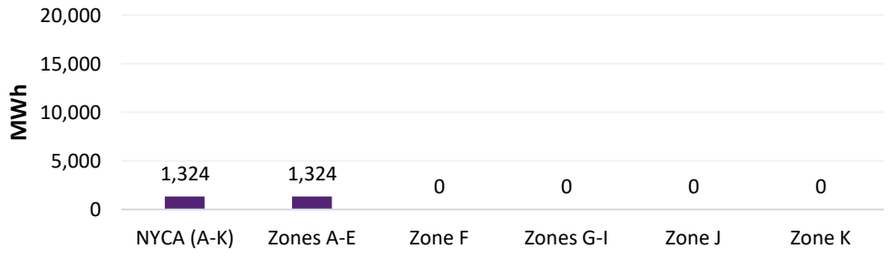
Average Capacity Not Available Due to Exhausted Fuel Inventory



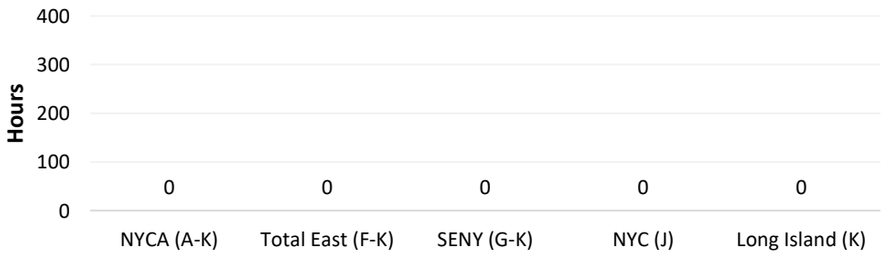
Hours SCR/EDRP Deployed



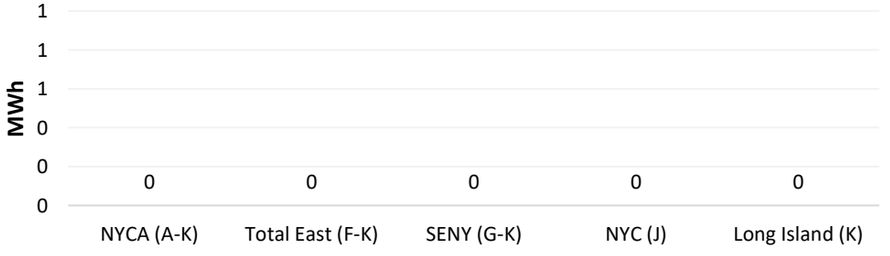
Total MWh SCR/EDRP Deployed



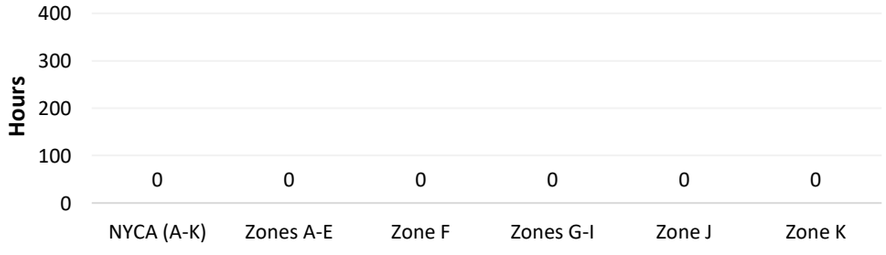
Hours with Reserve Violations



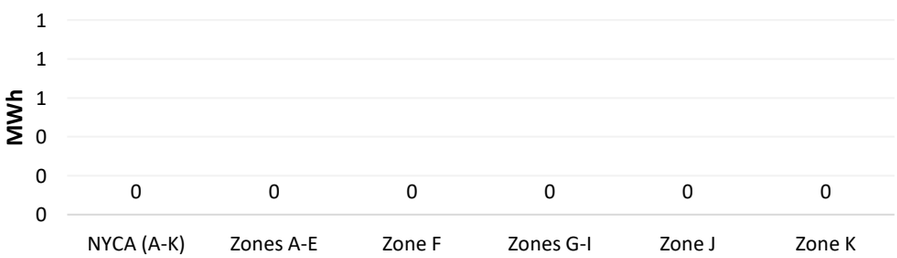
Total MWh of Reserve Violations

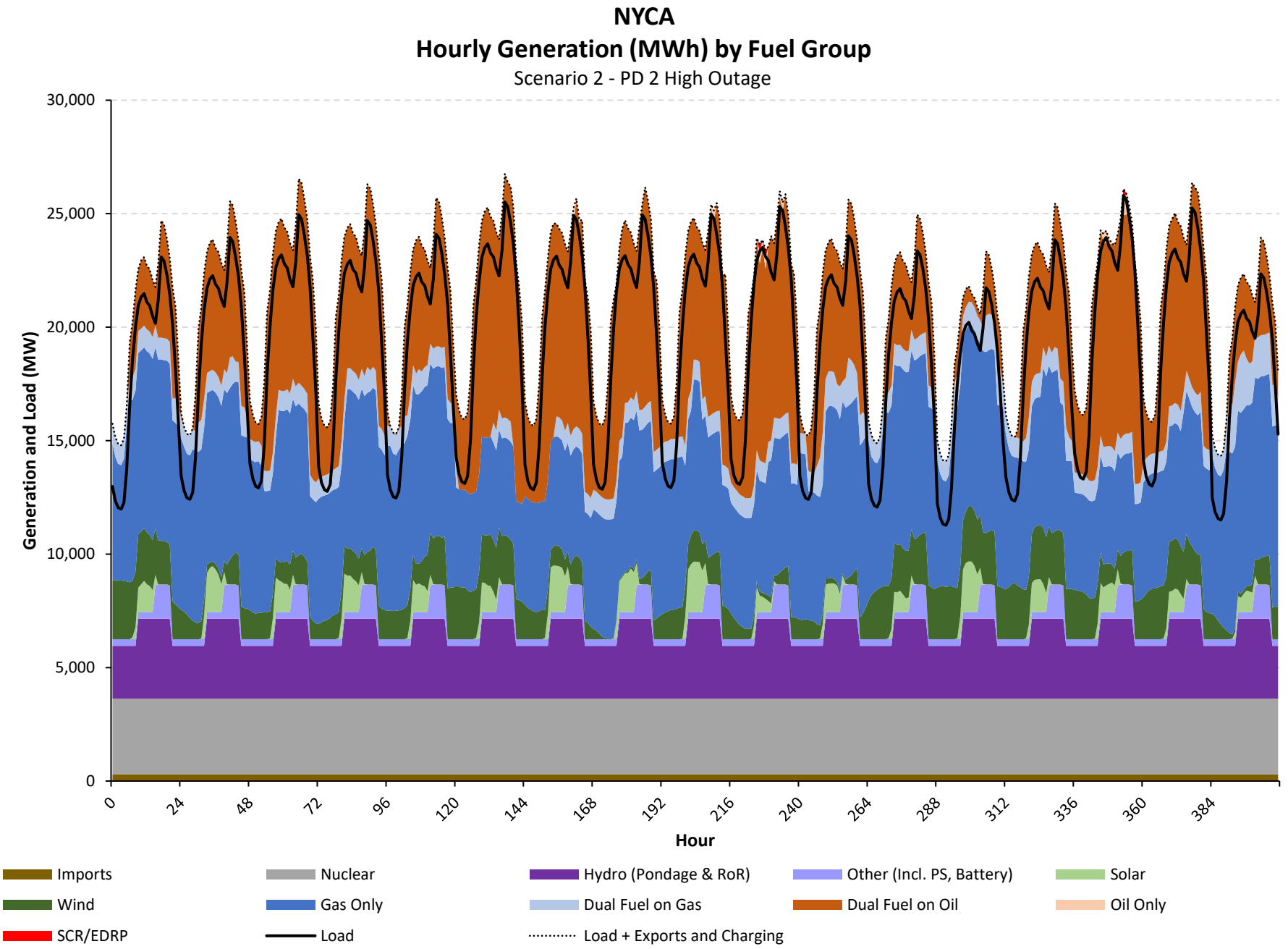


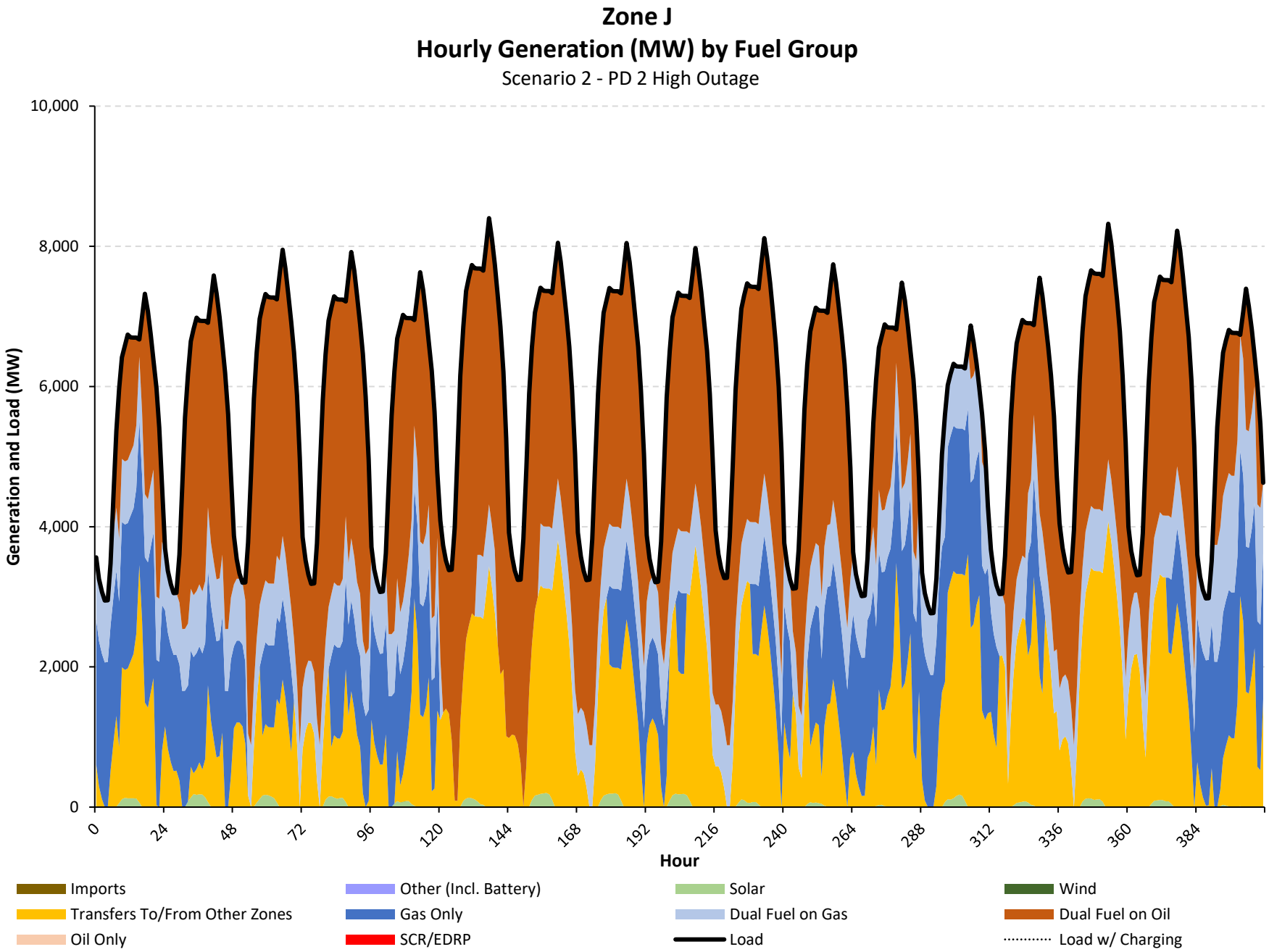
Hours with Loss of Load



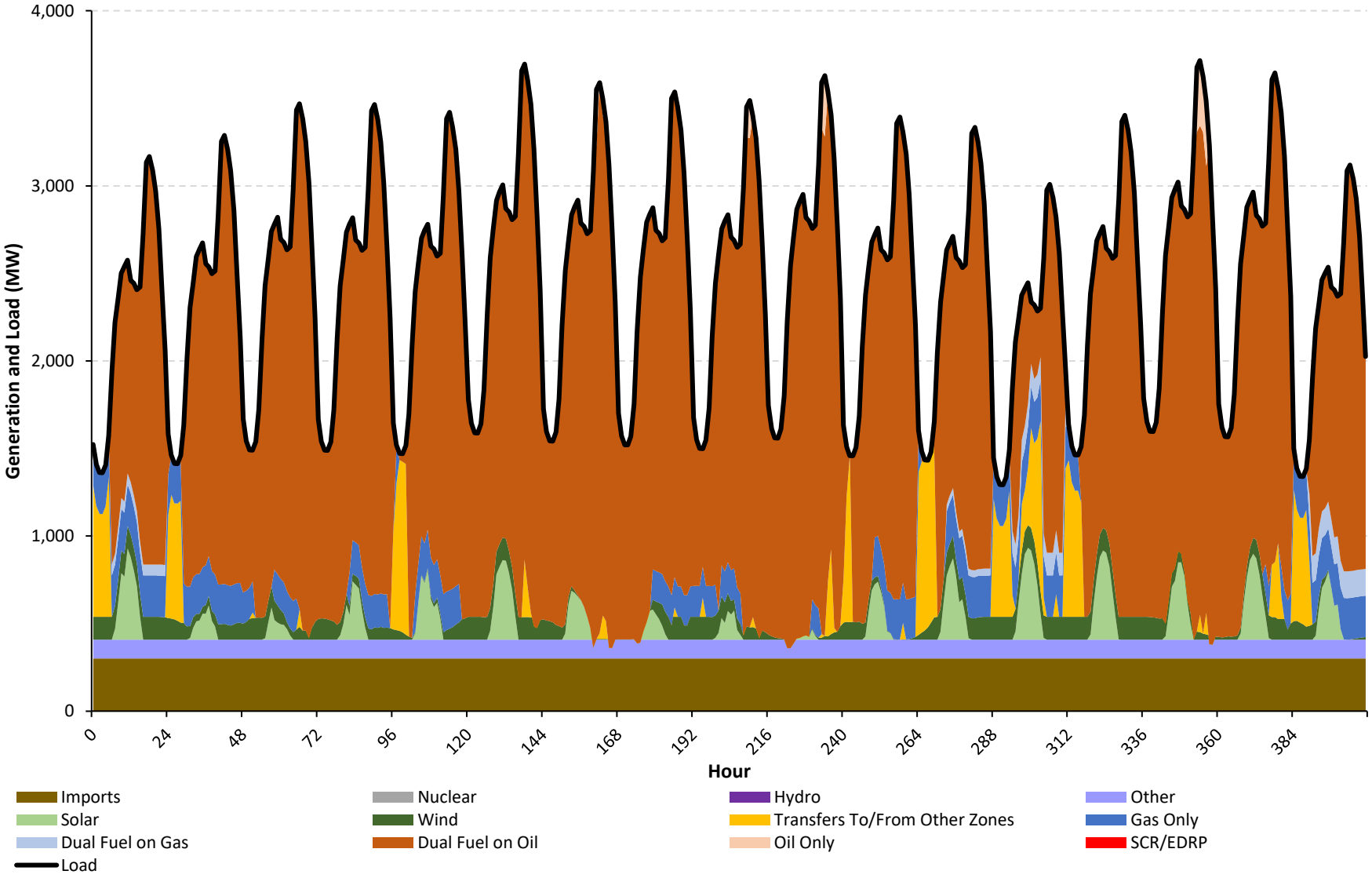
Total MWh of Lost Load



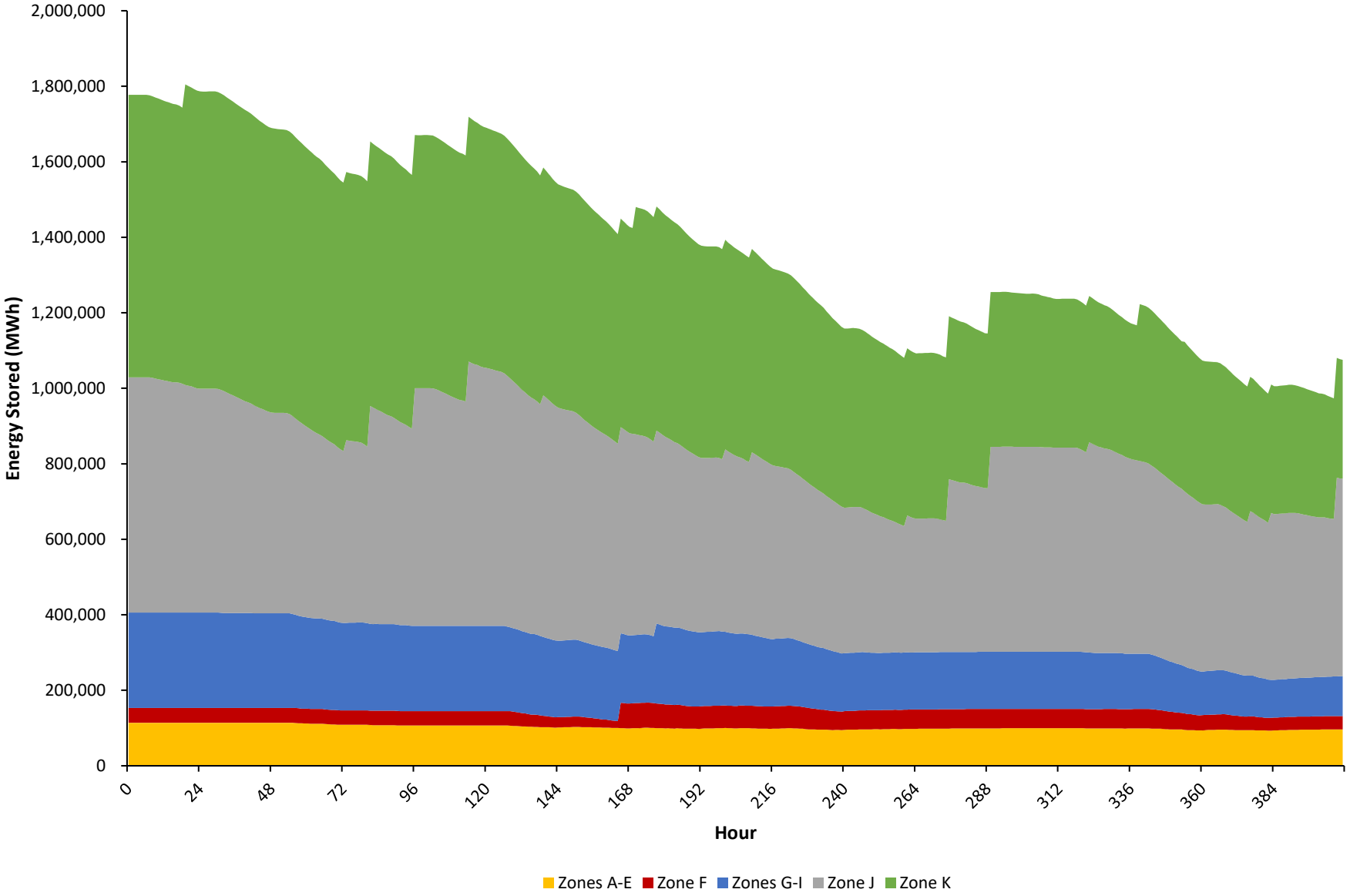

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 2 High Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 2 High Outage
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

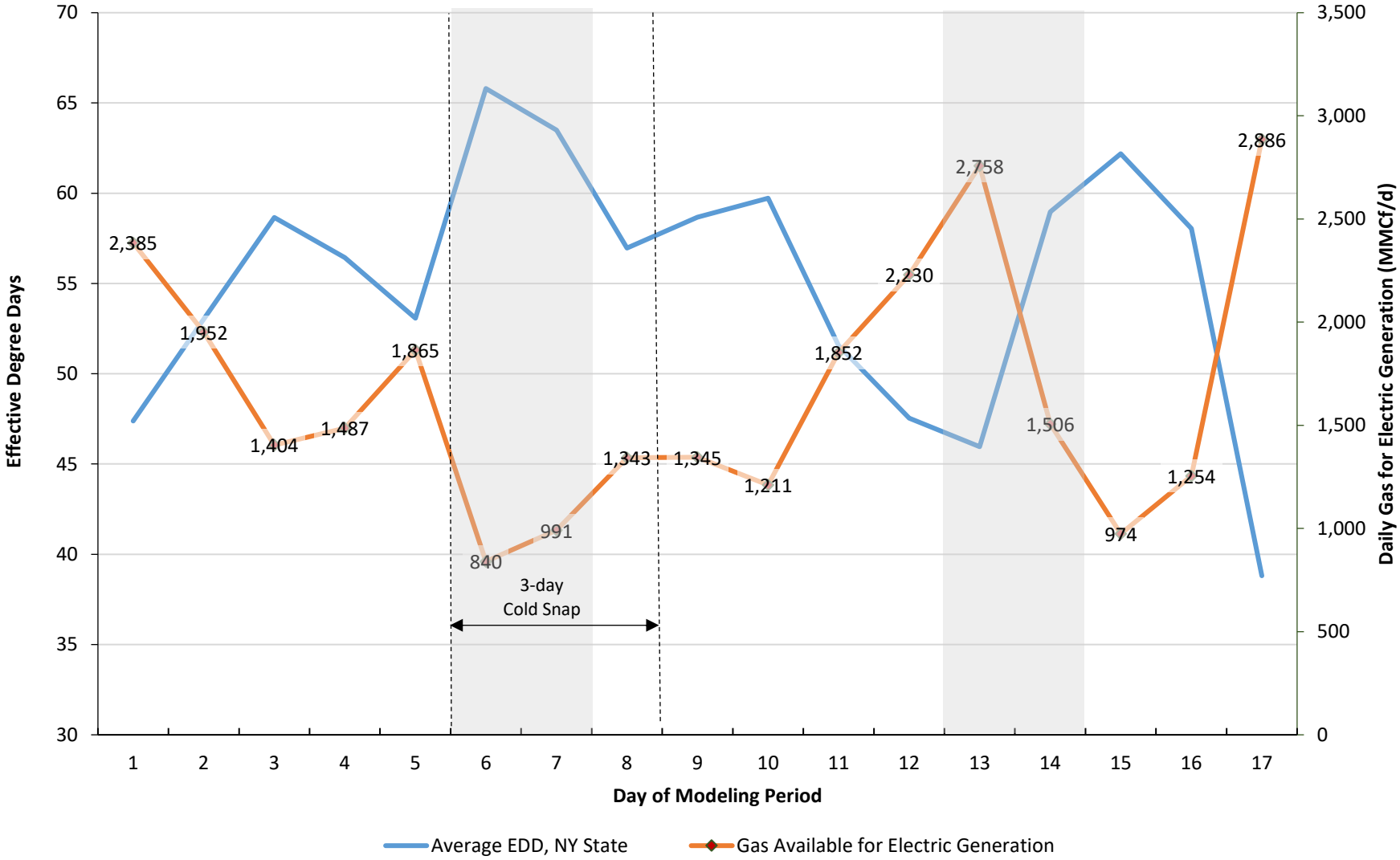
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 2 High Outage



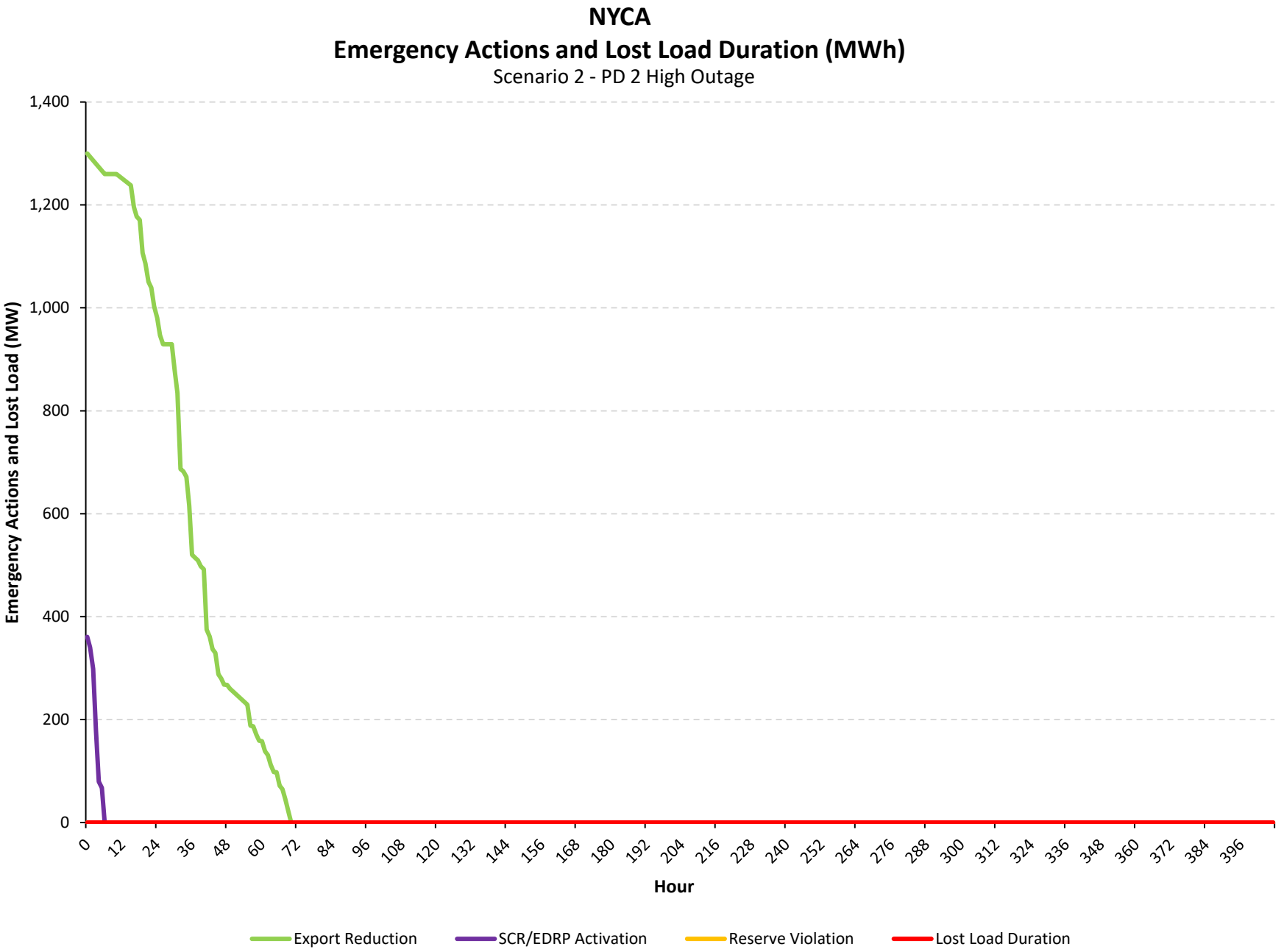
NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 2 - PD 2 High Outage

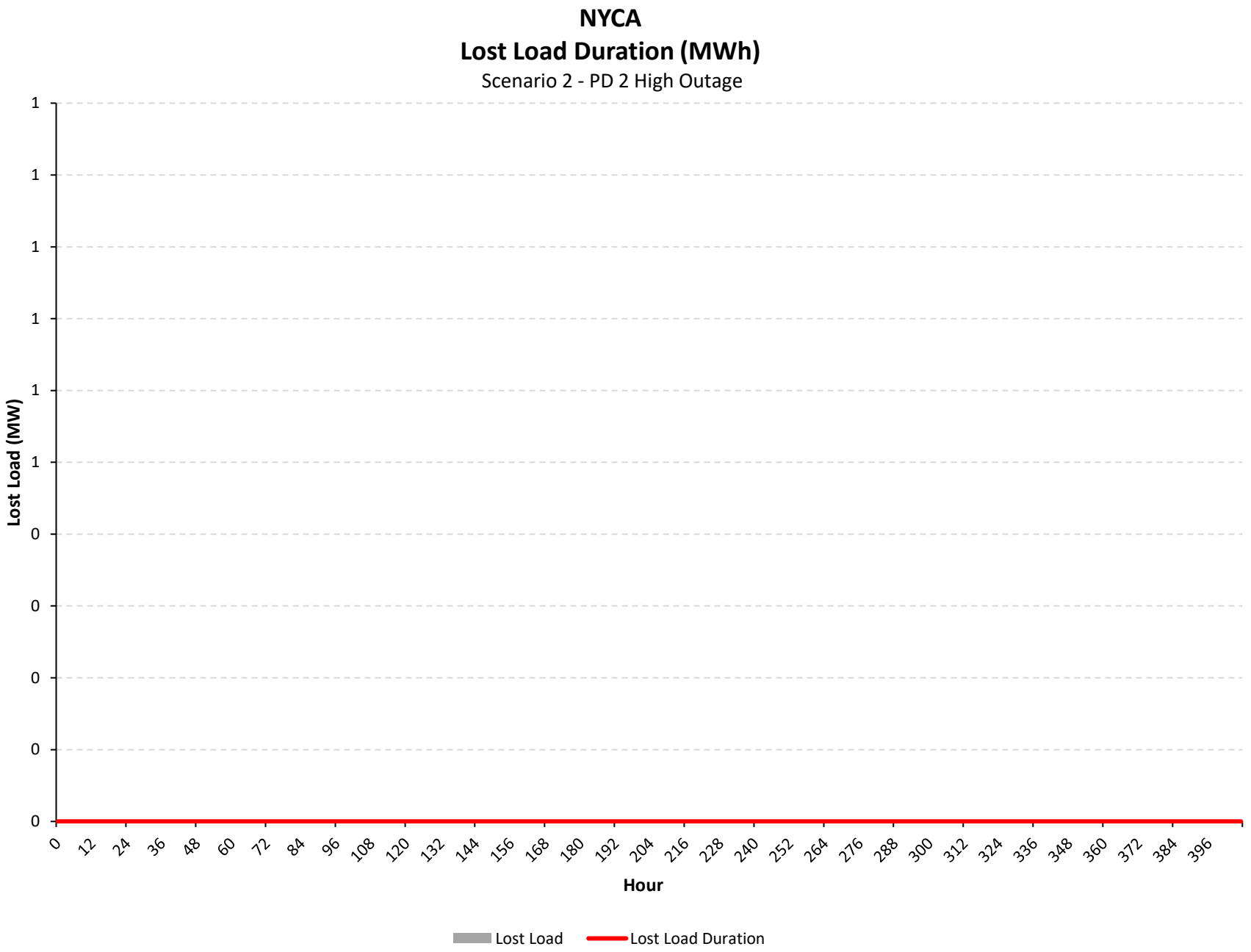


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 2 High Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 2 High Outage
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 2 High Outage
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

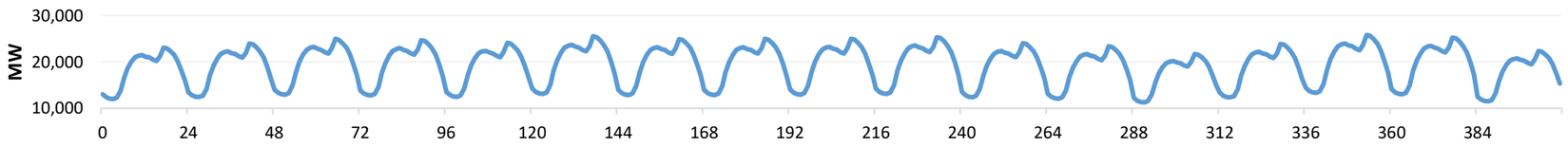
Case: Scenario 2 - PD 3 SENY Deactivation (Winter 2023/2024)

Hourly Results Summary

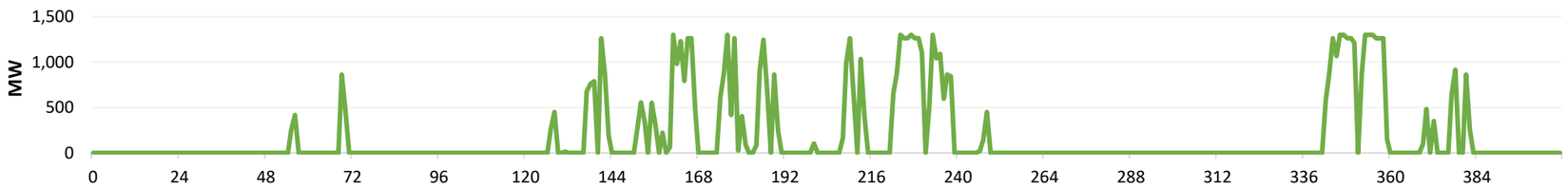
Case Name: Scenario 2 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	Net Zero

Load During Modeling Period

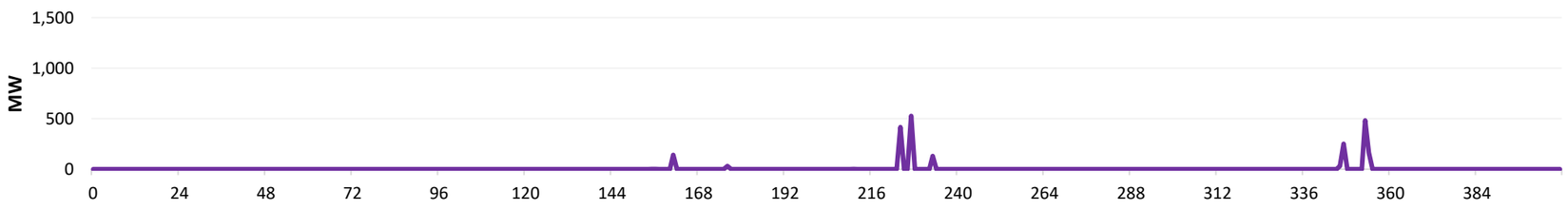


Export to ISO-NE Reduction During Modeling Period



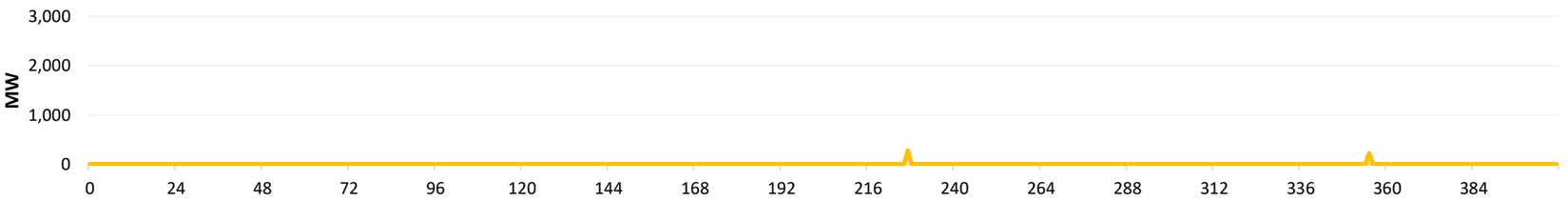
Export Reductions	
Total Hrs.	91
Total MWh	70,073
Avg. MW	171.7

SCR/EDRP Deployed During Modeling Period



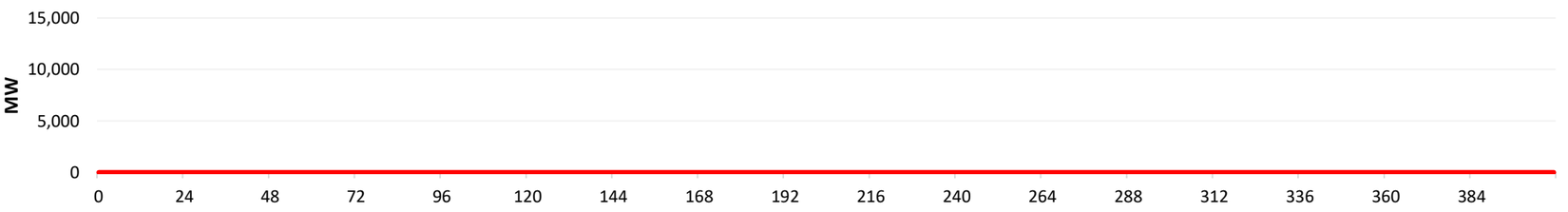
SCR Deployment	
Total Hrs.	9
Total MWh	2,176
Avg. MW	5.3

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	2
Total MWh	502
Avg. MW	1.2
First Hour with Viol.	227

Loss of Load During Modeling Period

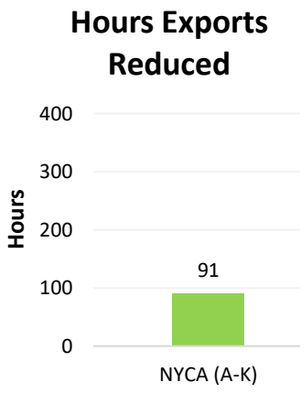


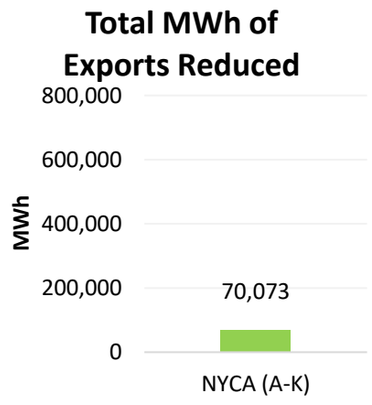
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

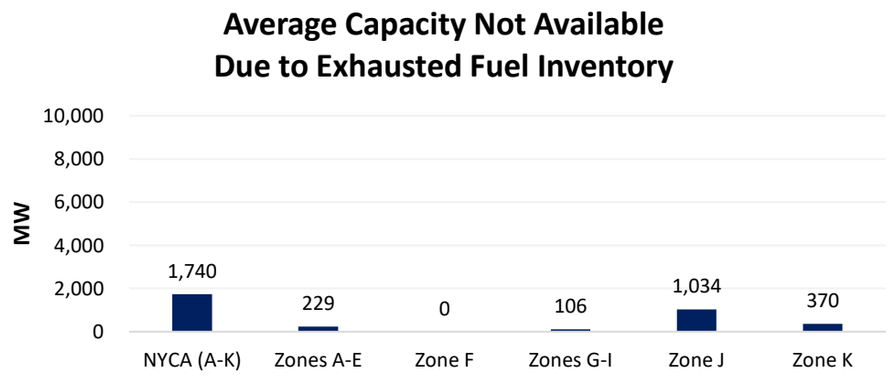
Full Period Results Summary

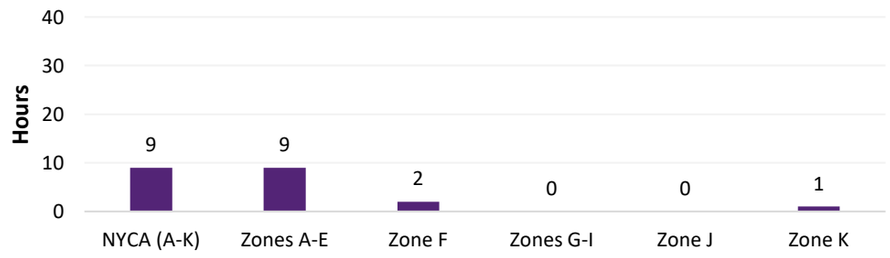
Case Name: Scenario 2 - PD 3 SENY Deactivation

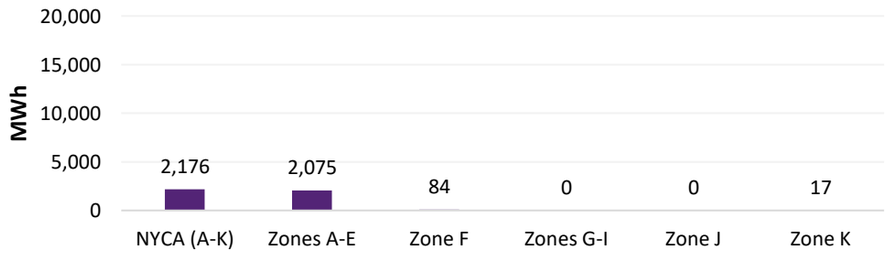
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	Net Zero

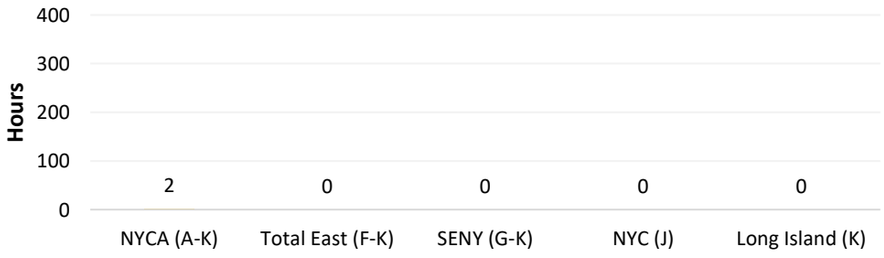


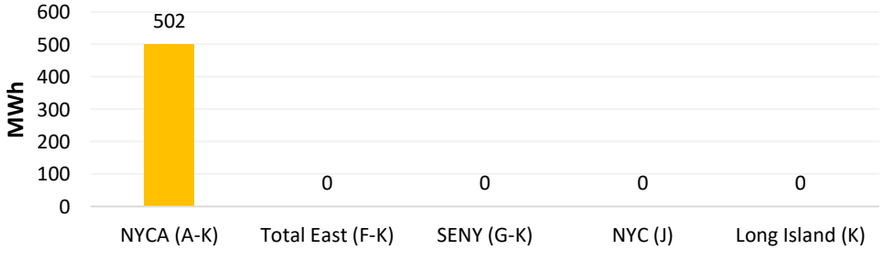


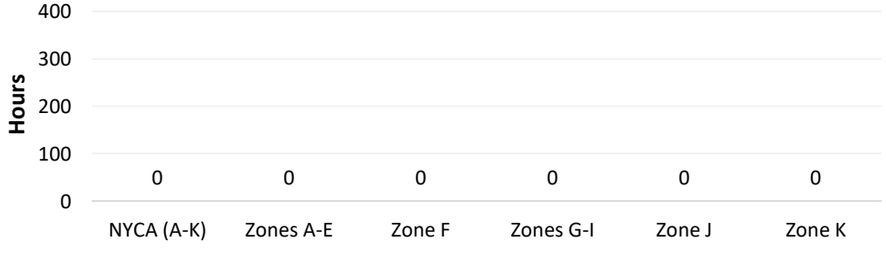


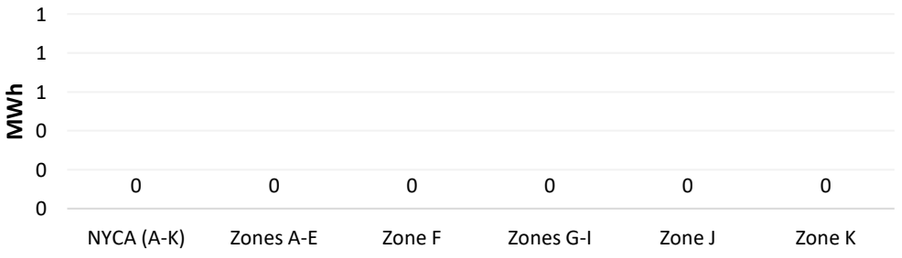


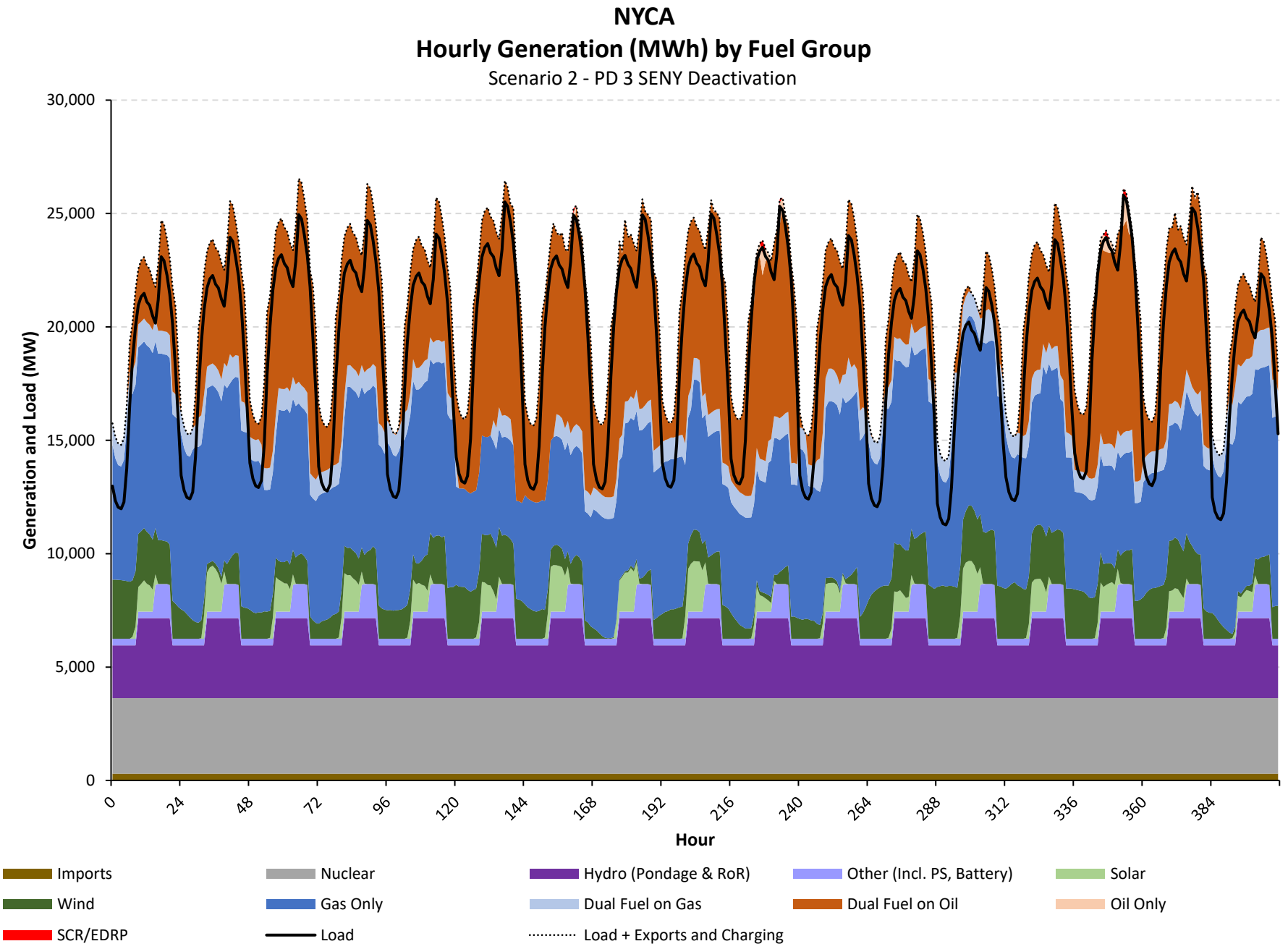




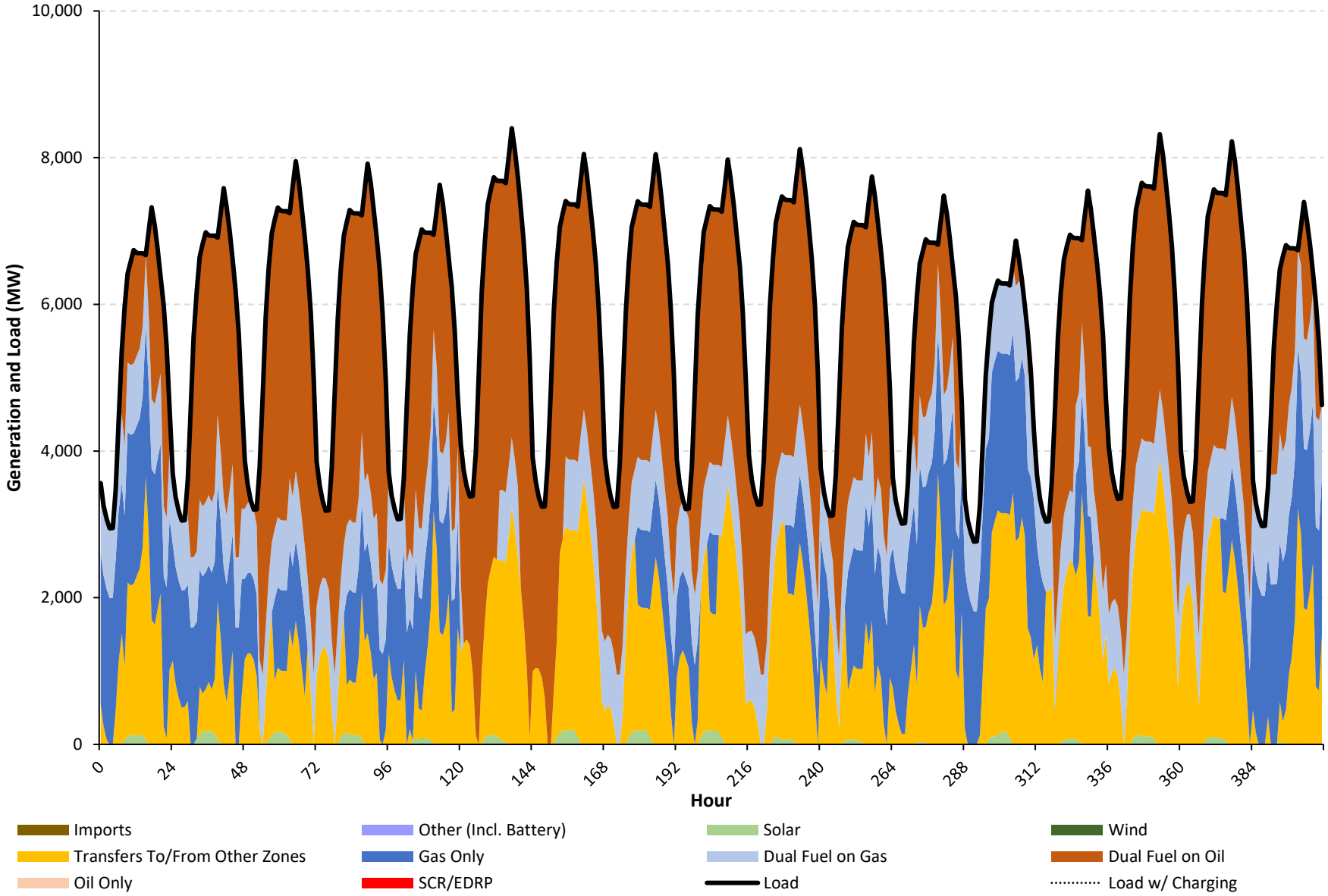




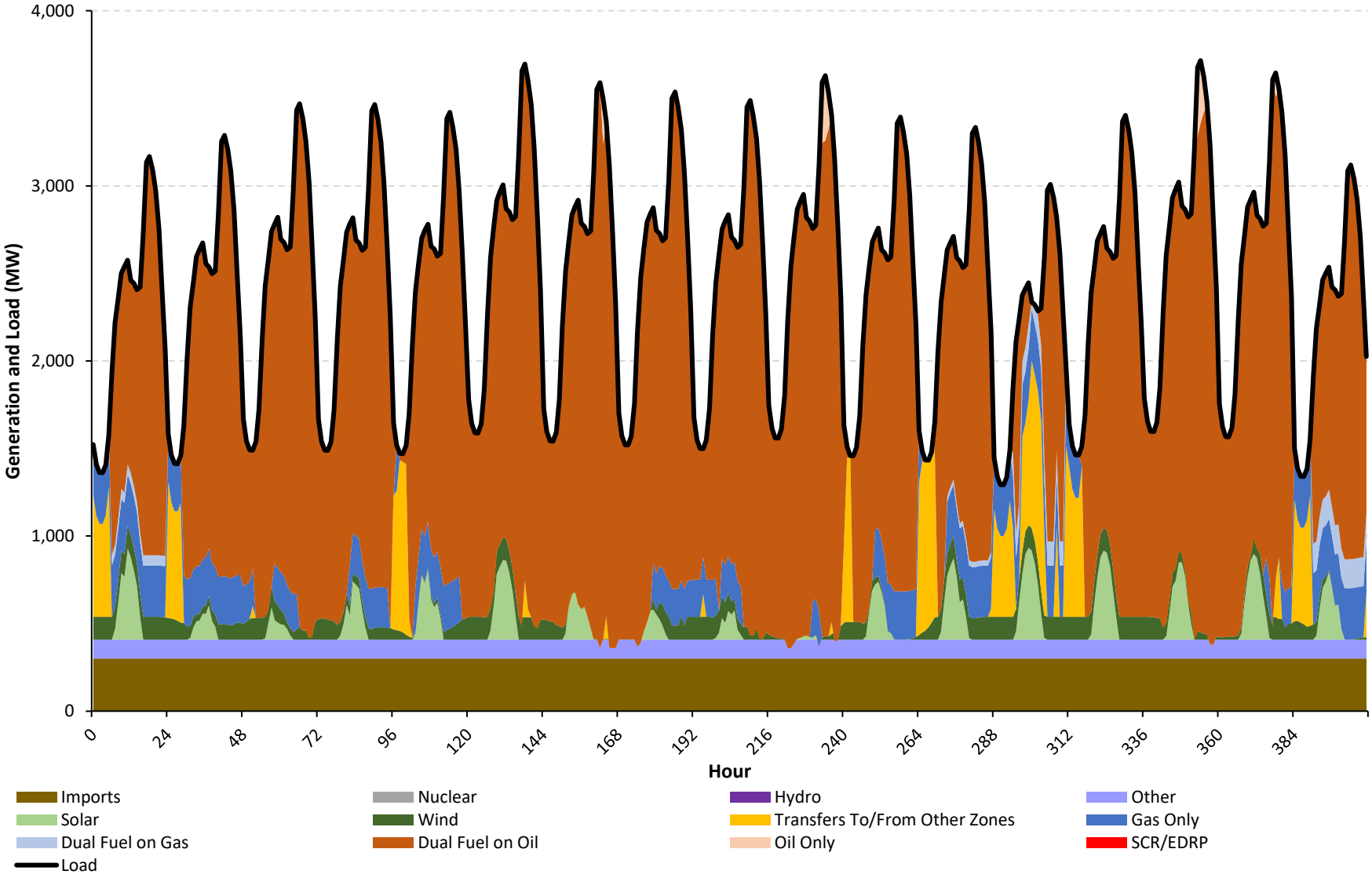



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 3 SENY Deactivation
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 3 SENY Deactivation



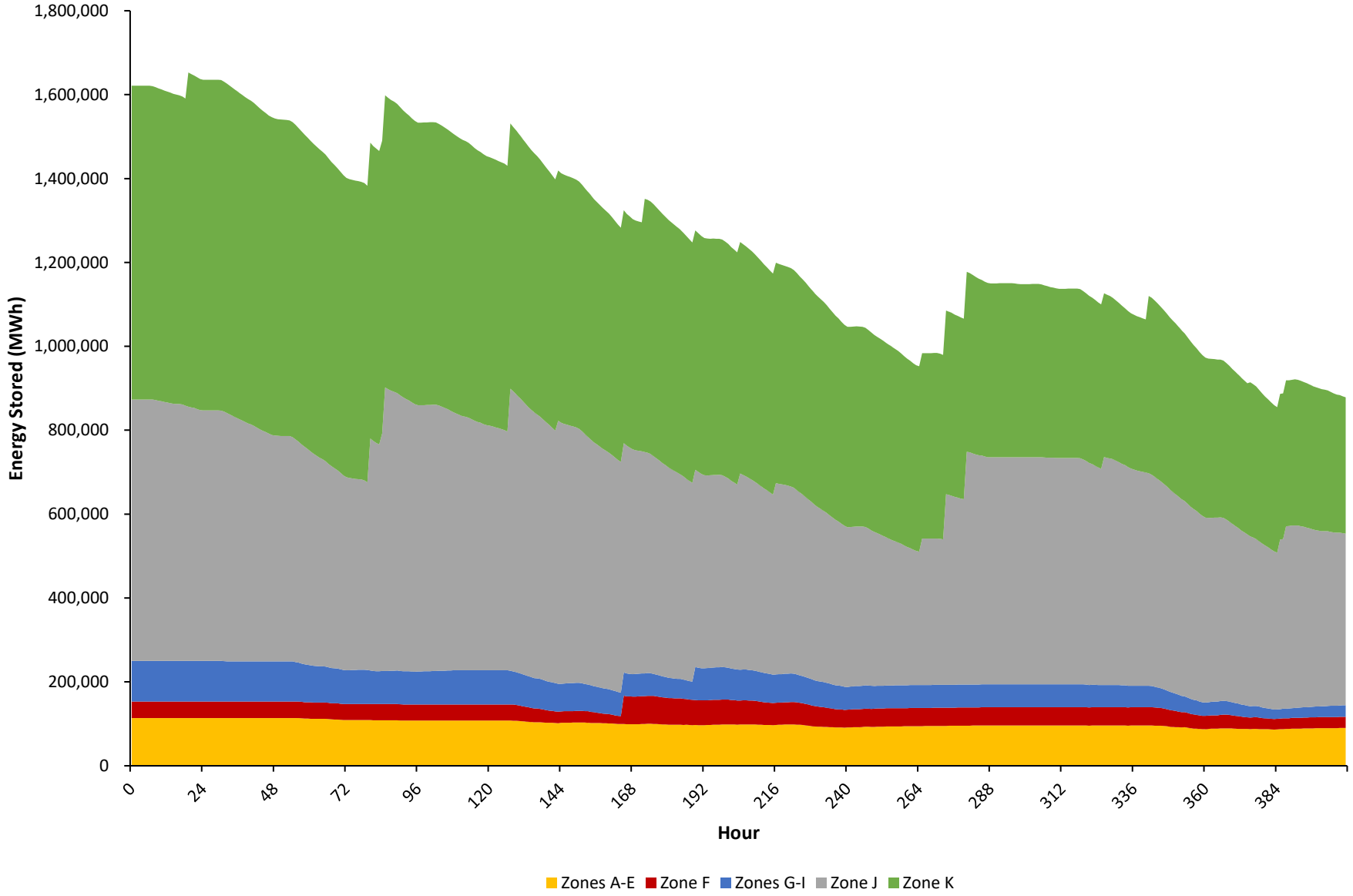
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 3 SENY Deactivation



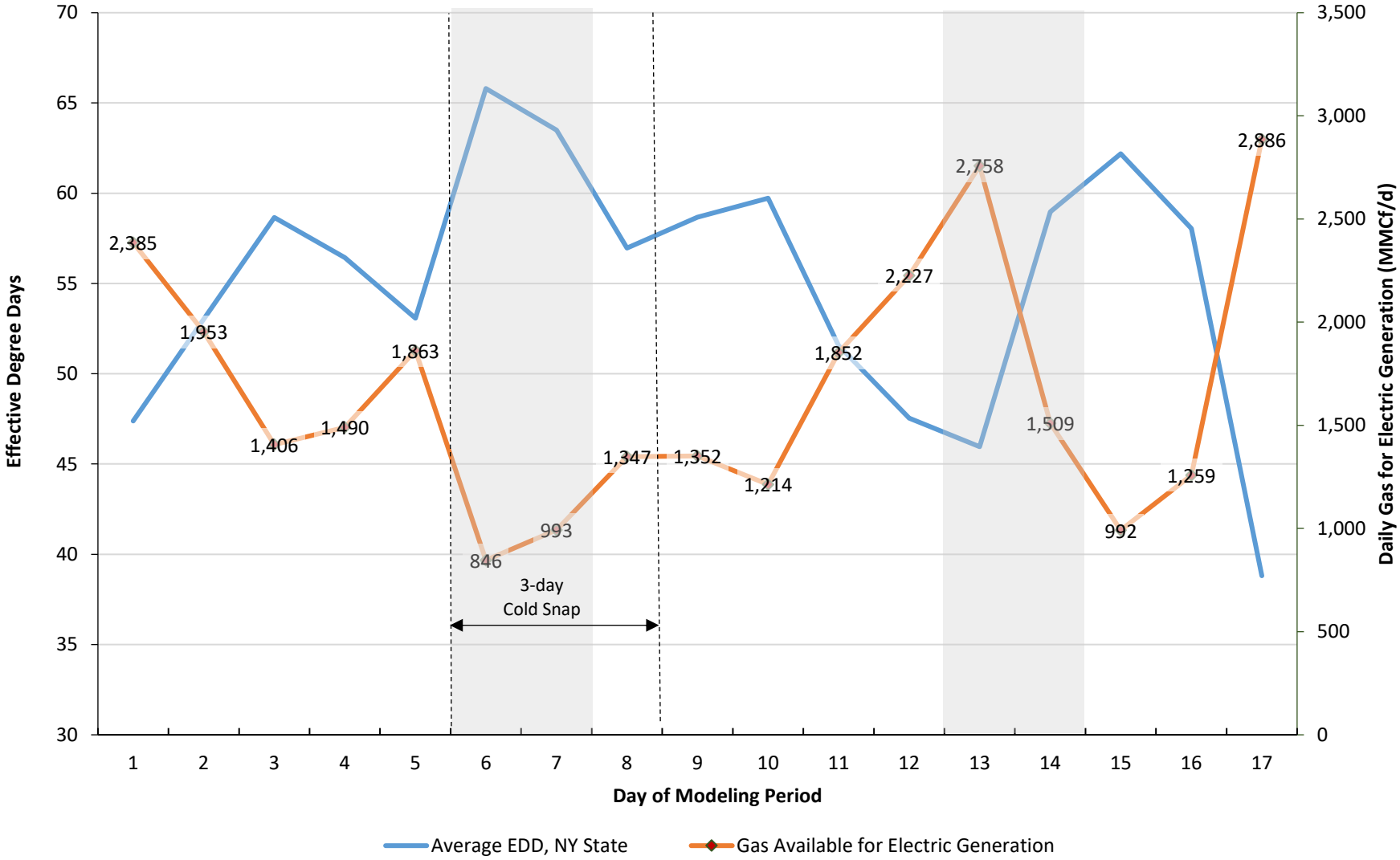
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

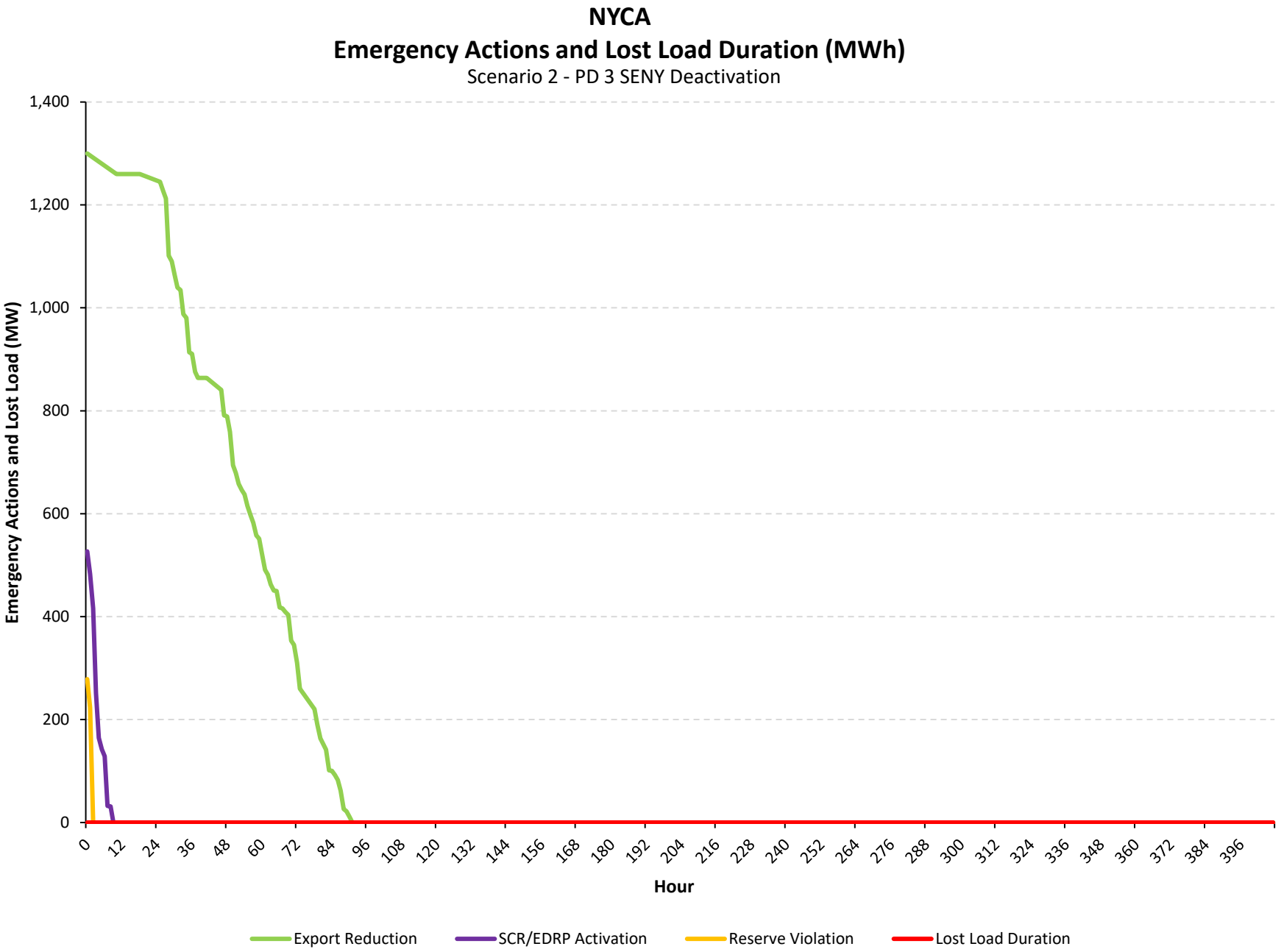
Scenario 2 - PD 3 SENY Deactivation

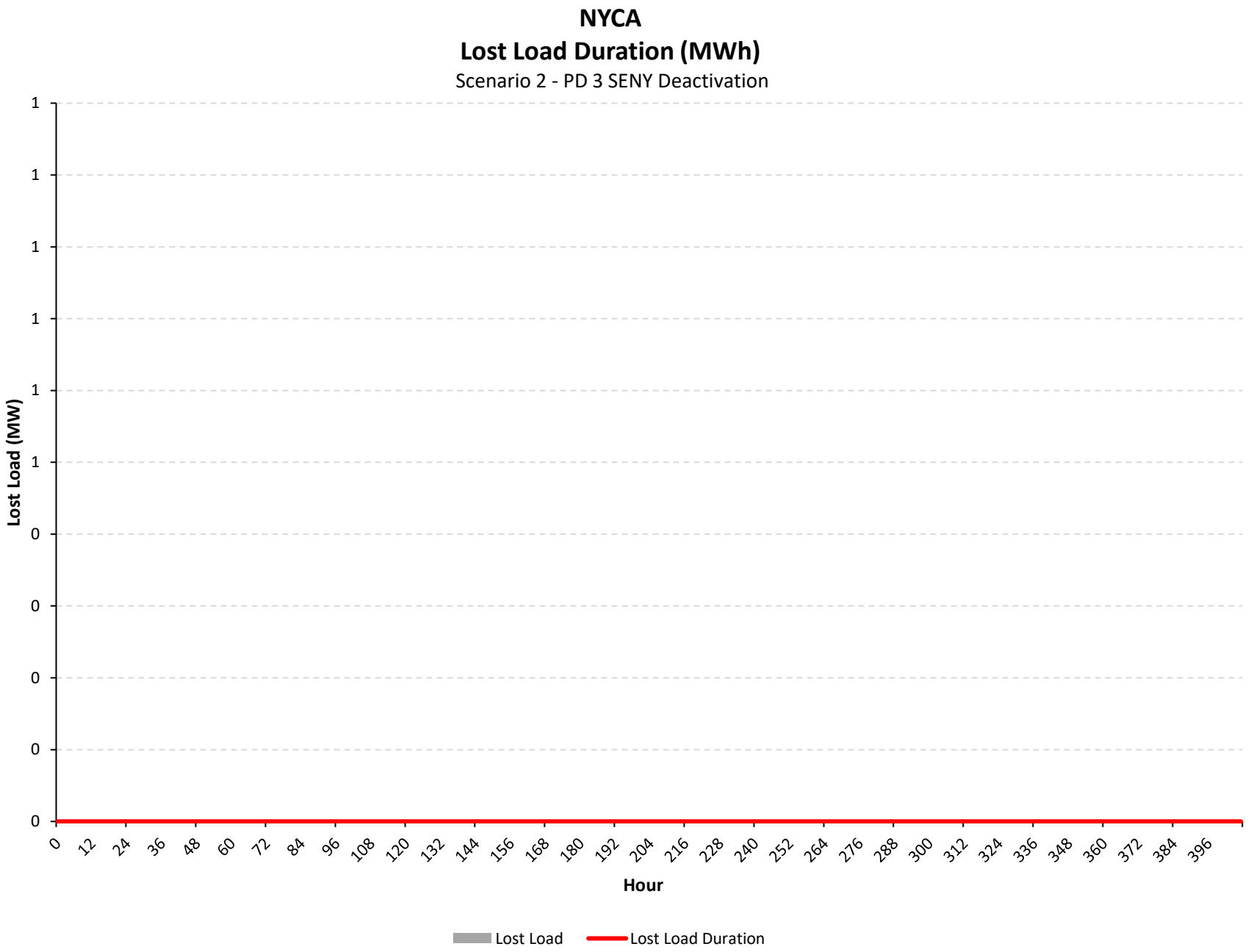


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 3 SENY Deactivation



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 3 SENY Deactivation
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 3 SENY Deactivation
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

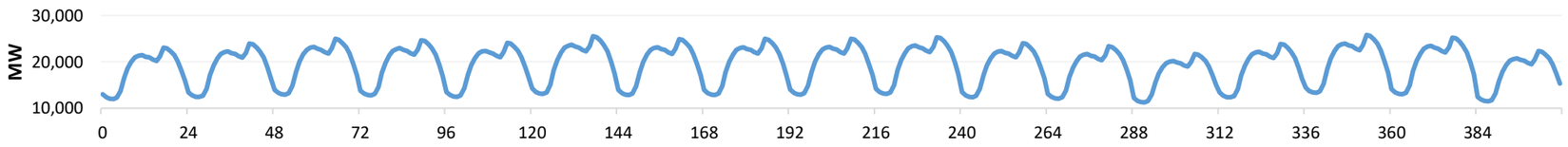
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 2 - PD 4 Nuclear Station Outage (Winter 2023/2024)

Hourly Results Summary

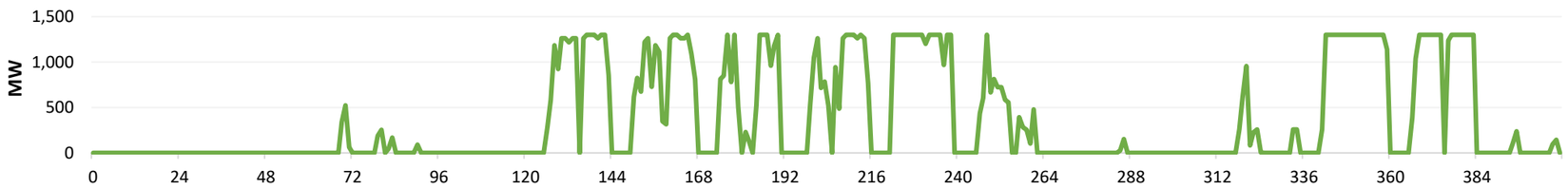
Case Name: Scenario 2 - PD 4 Nuclear Station Outage

Load During Modeling Period



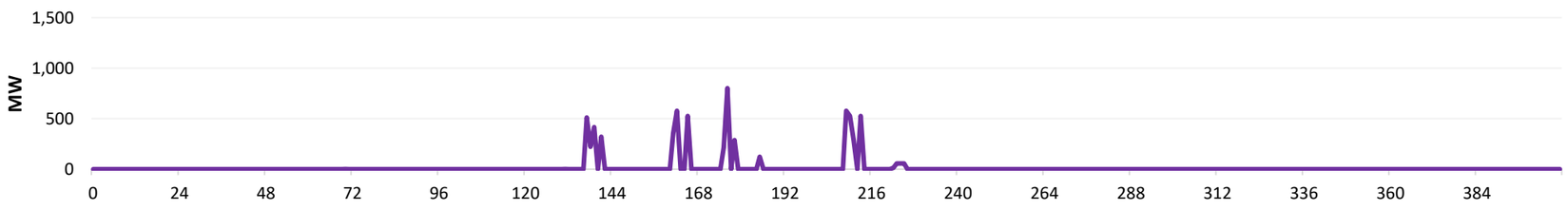
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	Net Zero

Export to ISO-NE Reduction During Modeling Period



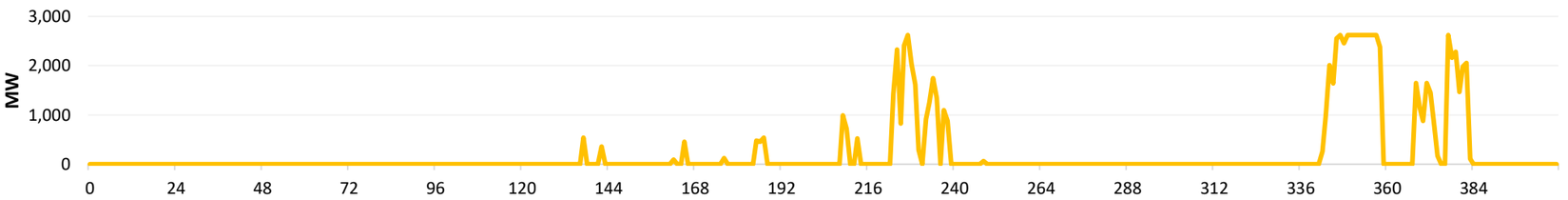
Export Reductions	
Total Hrs.	156
Total MWh	146,080
Avg. MW	358.0

SCR/EDRP Deployed During Modeling Period



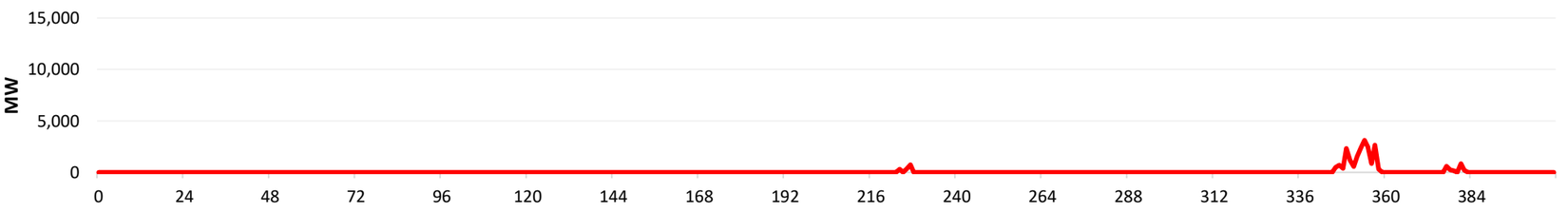
SCR Deployment	
Total Hrs.	19
Total MWh	6,459
Avg. MW	15.8

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	57
Total MWh	84,980
Avg. MW	208.3
First Hour with Viol.	137

Loss of Load During Modeling Period

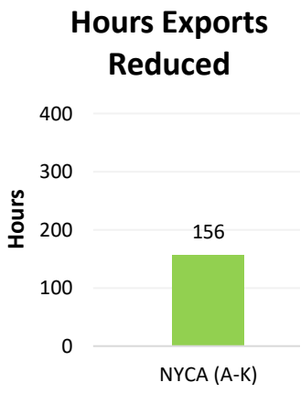


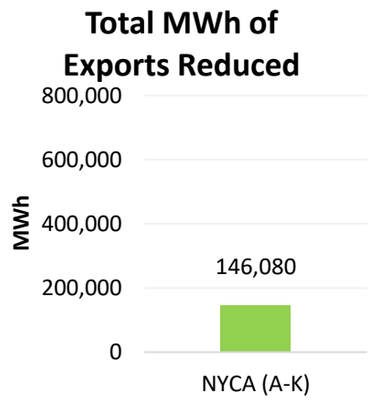
Loss of Load	
Total Hrs.	21
Total MWh	22,359
Avg. MW	54.8
First Hour with Losses	224

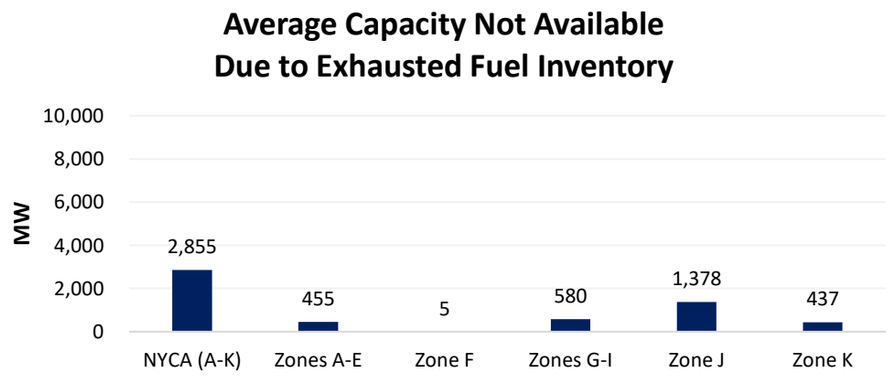
Full Period Results Summary

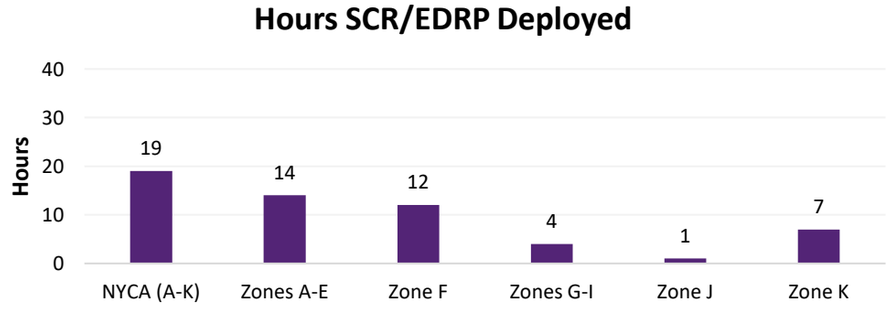
Case Name: Scenario 2 - PD 4 Nuclear Station Outage

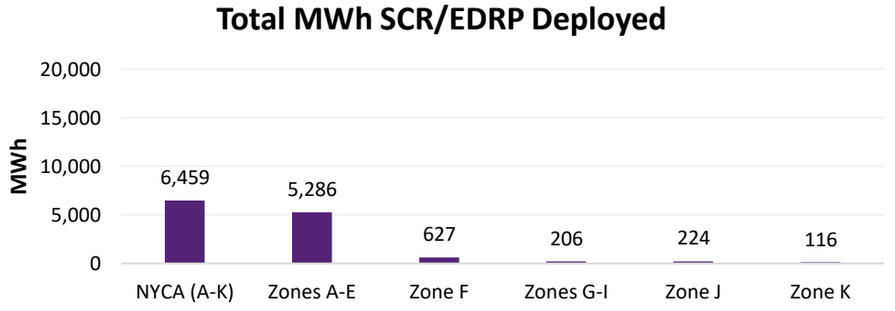
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	Net Zero

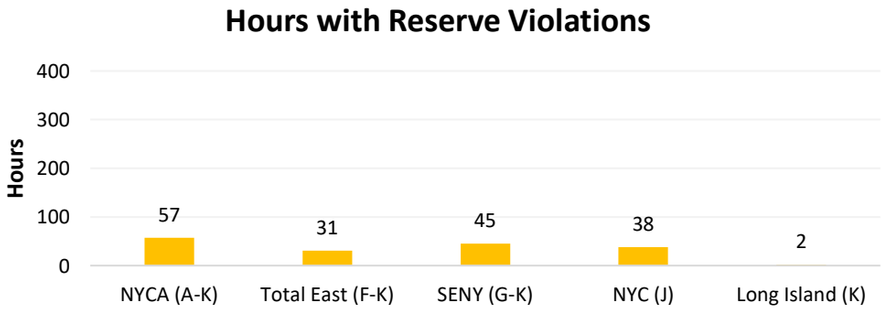


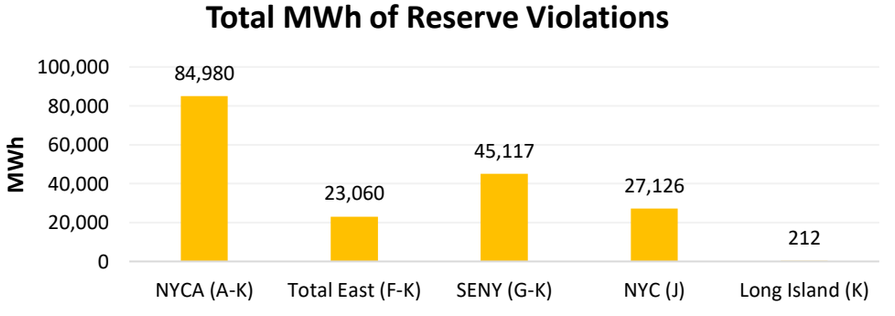


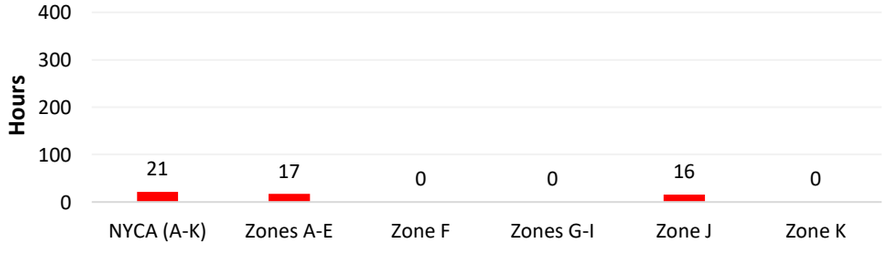


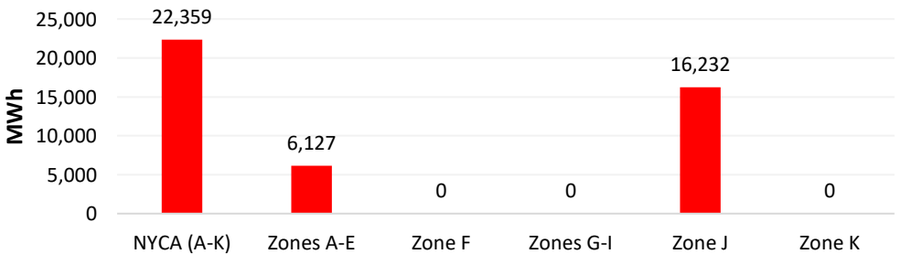


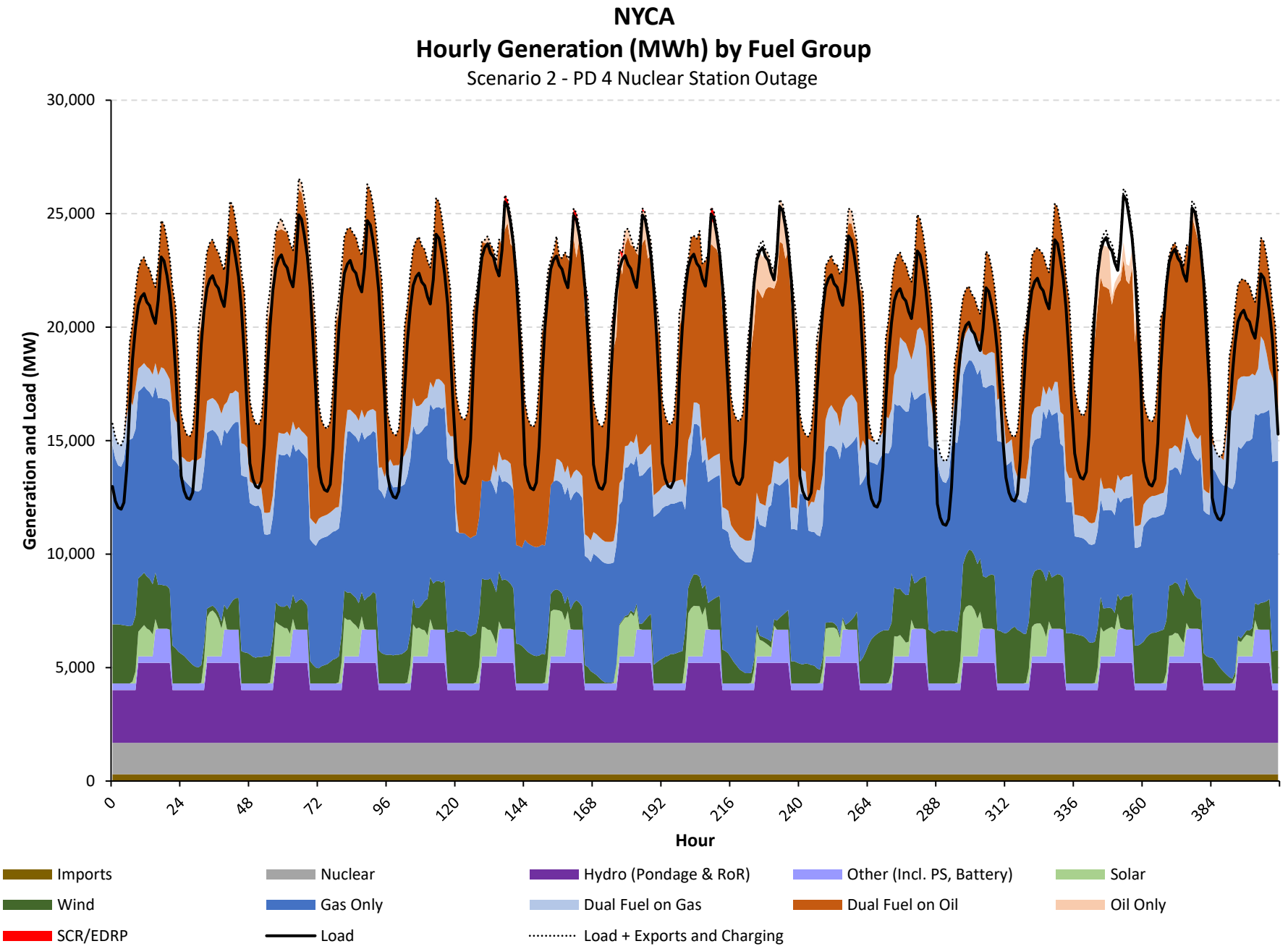




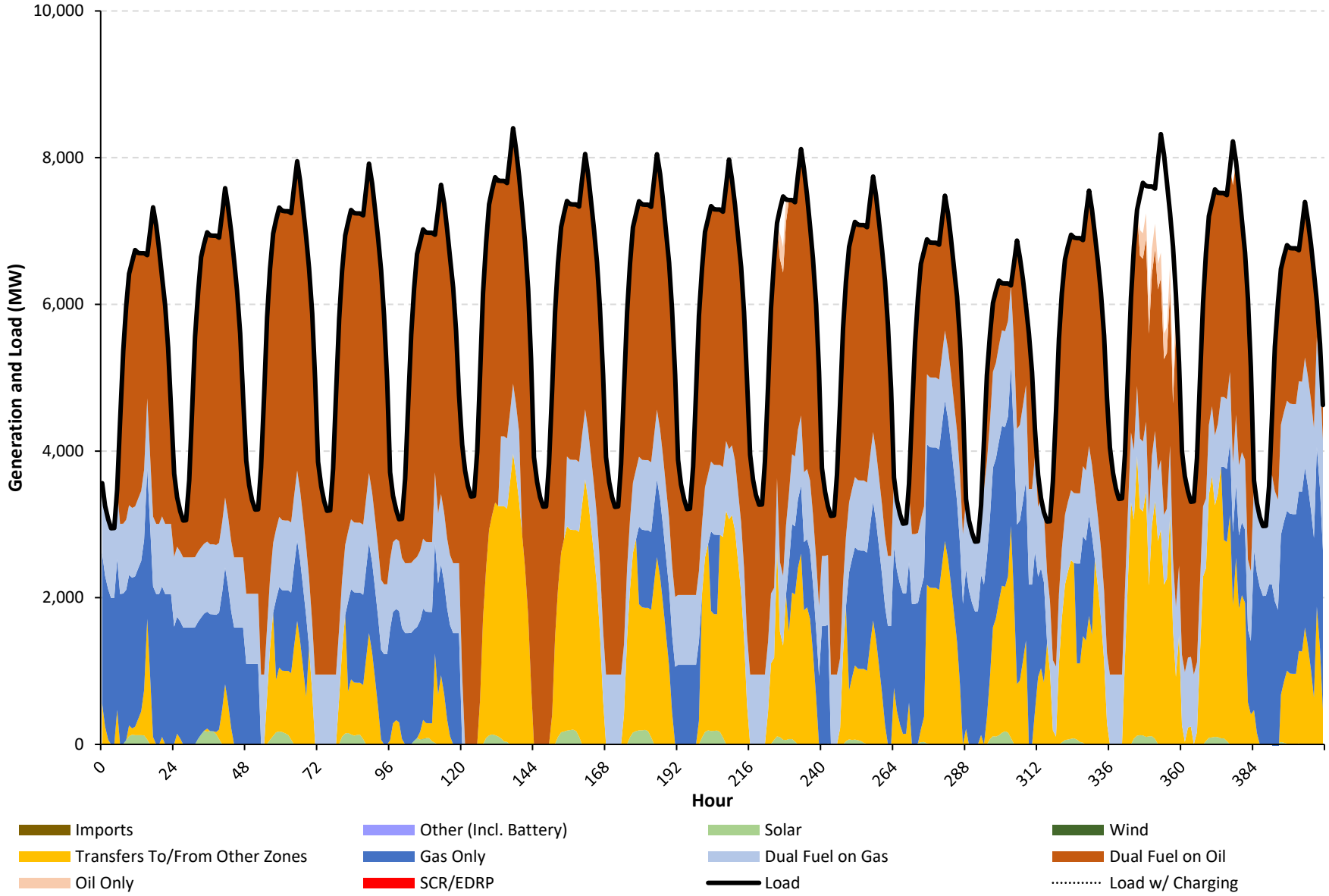




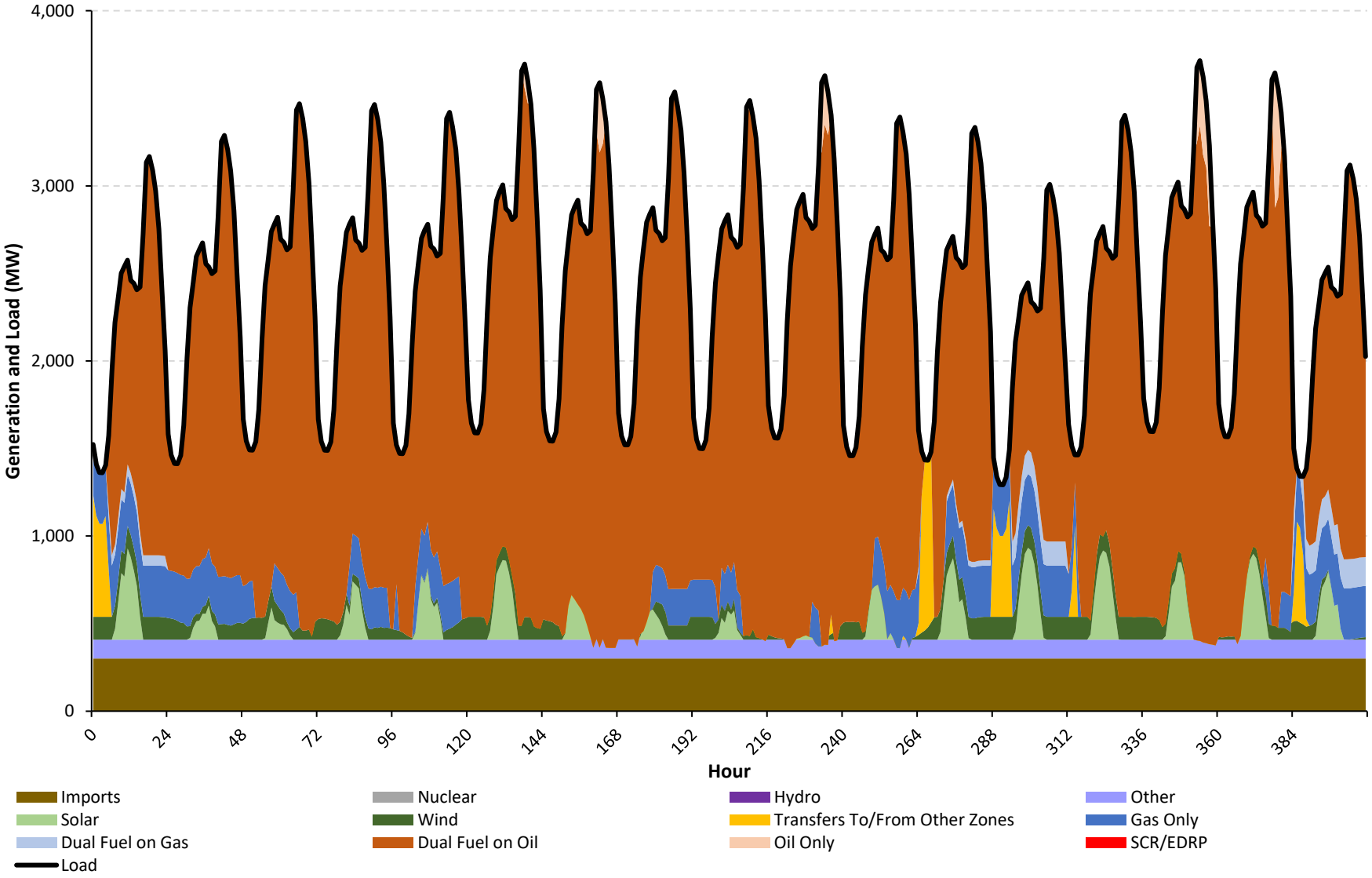



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 4 Nuclear Station Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 4 Nuclear Station Outage



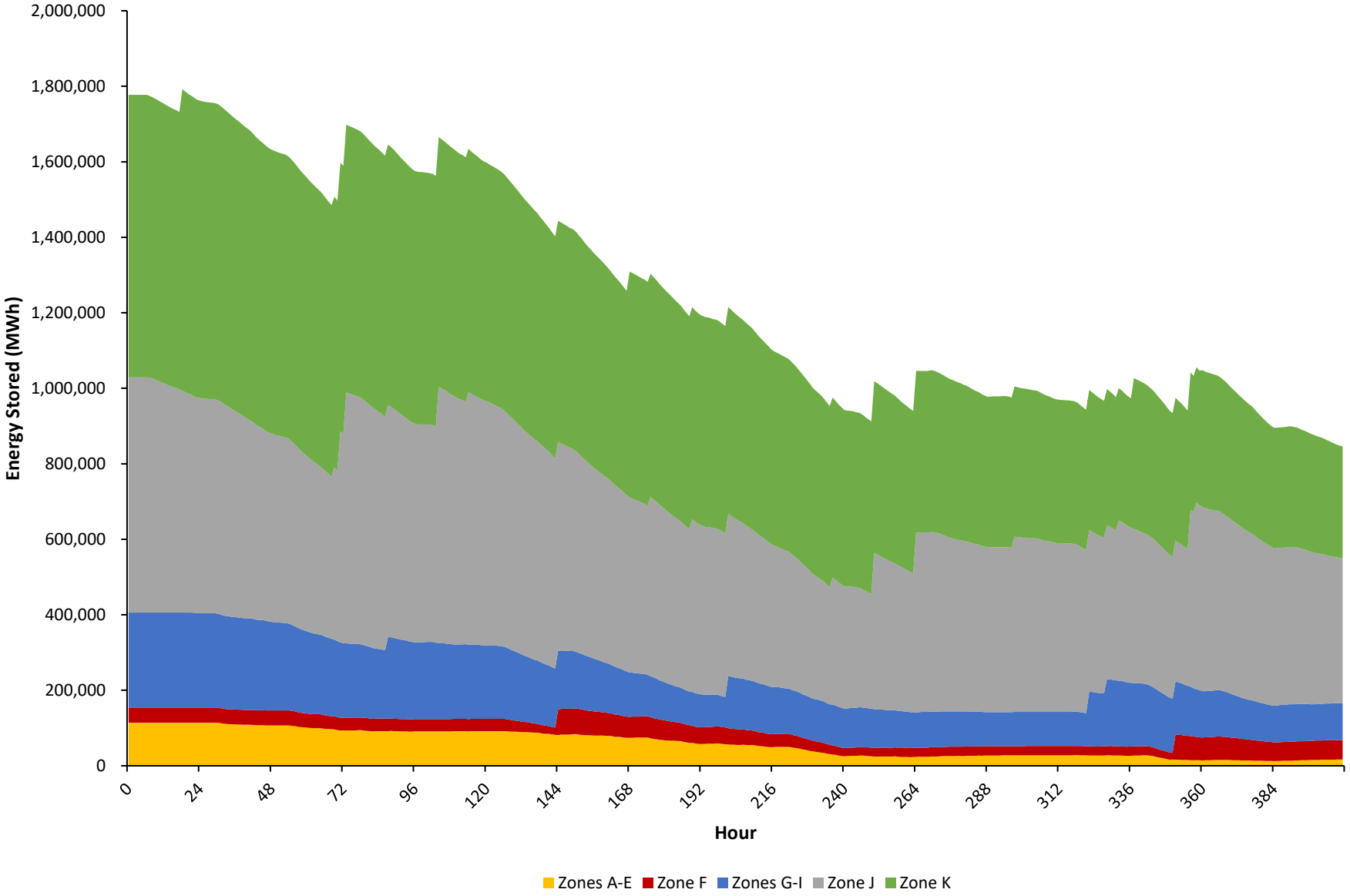
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 4 Nuclear Station Outage



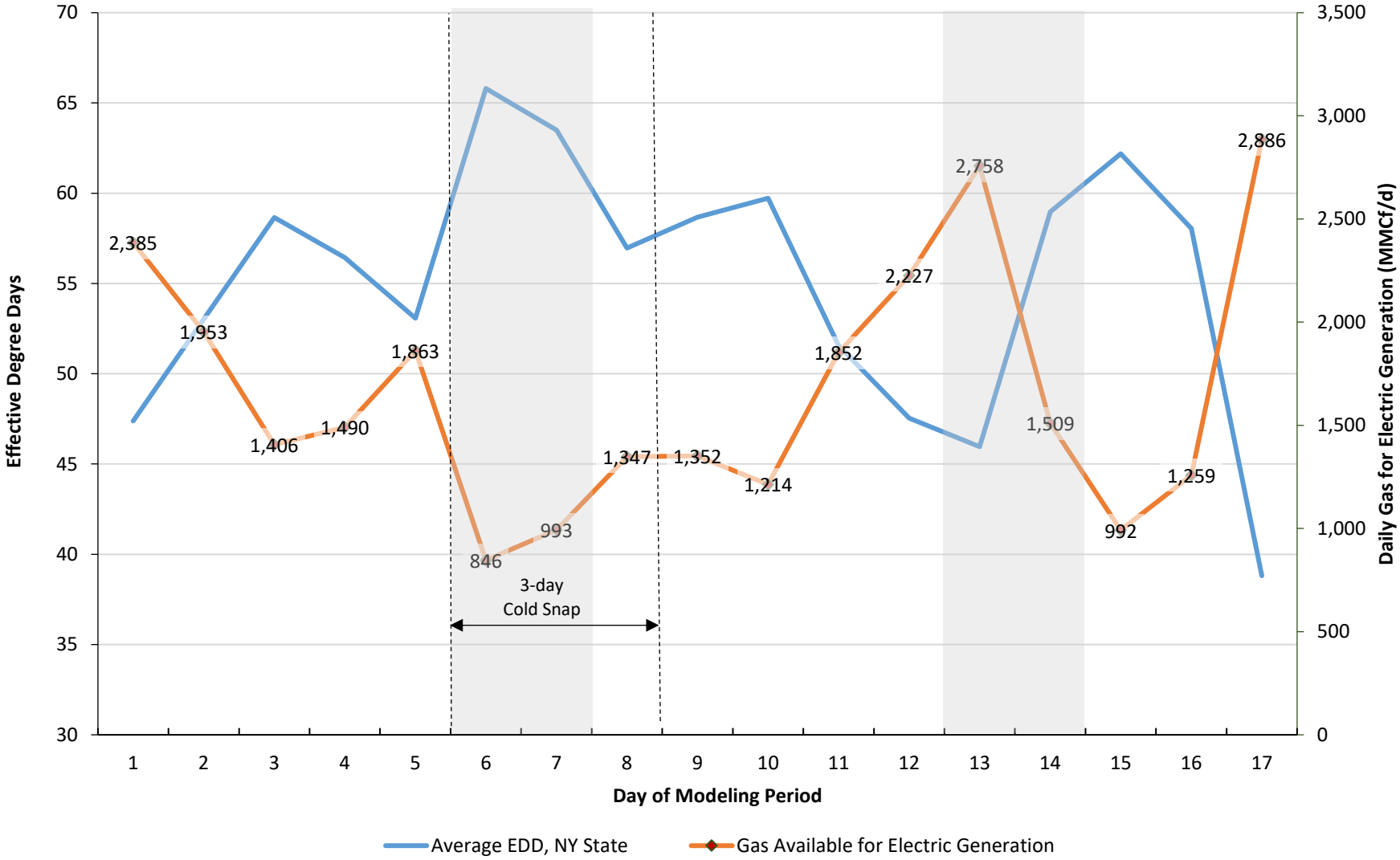
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

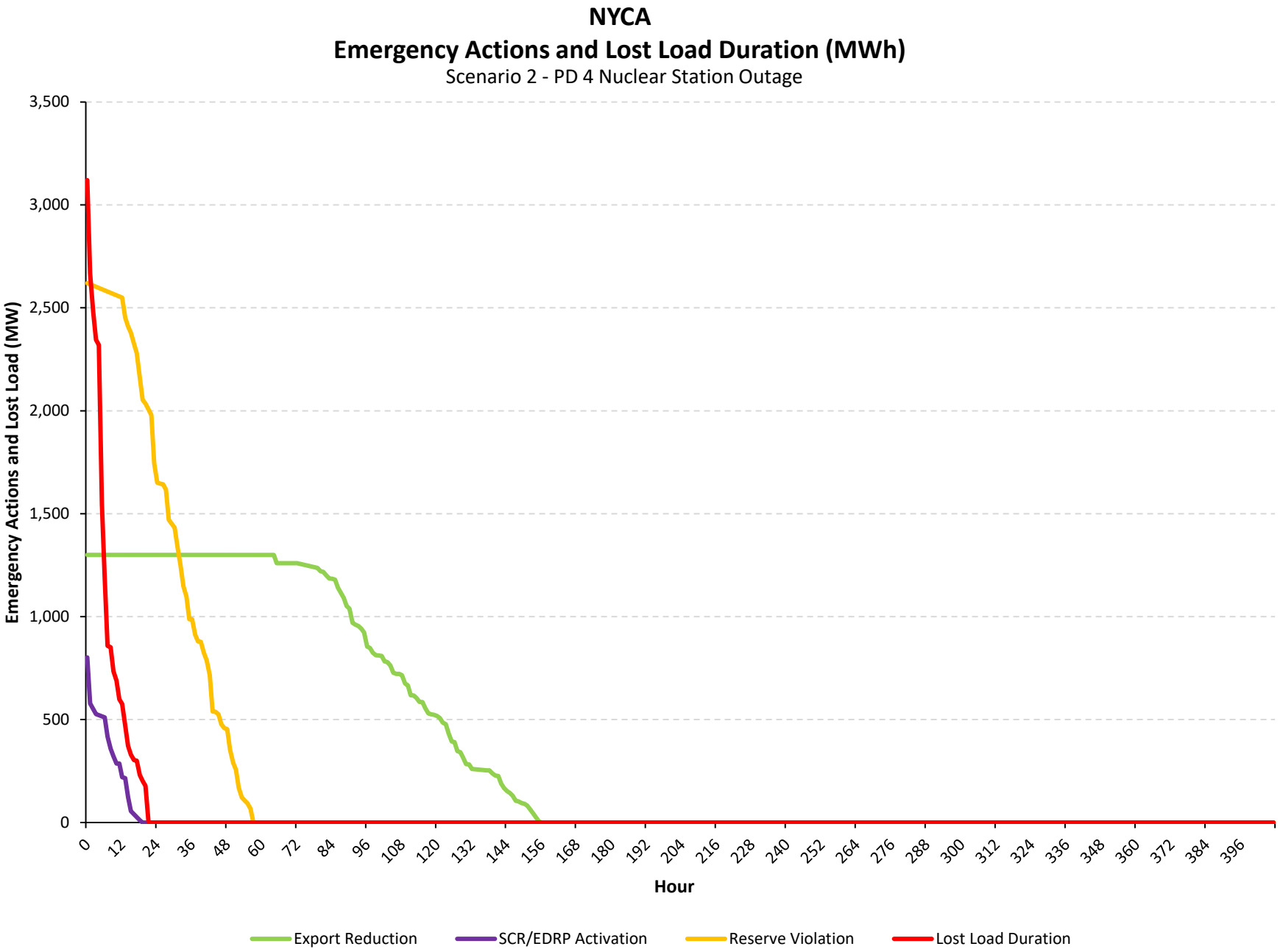
Scenario 2 - PD 4 Nuclear Station Outage

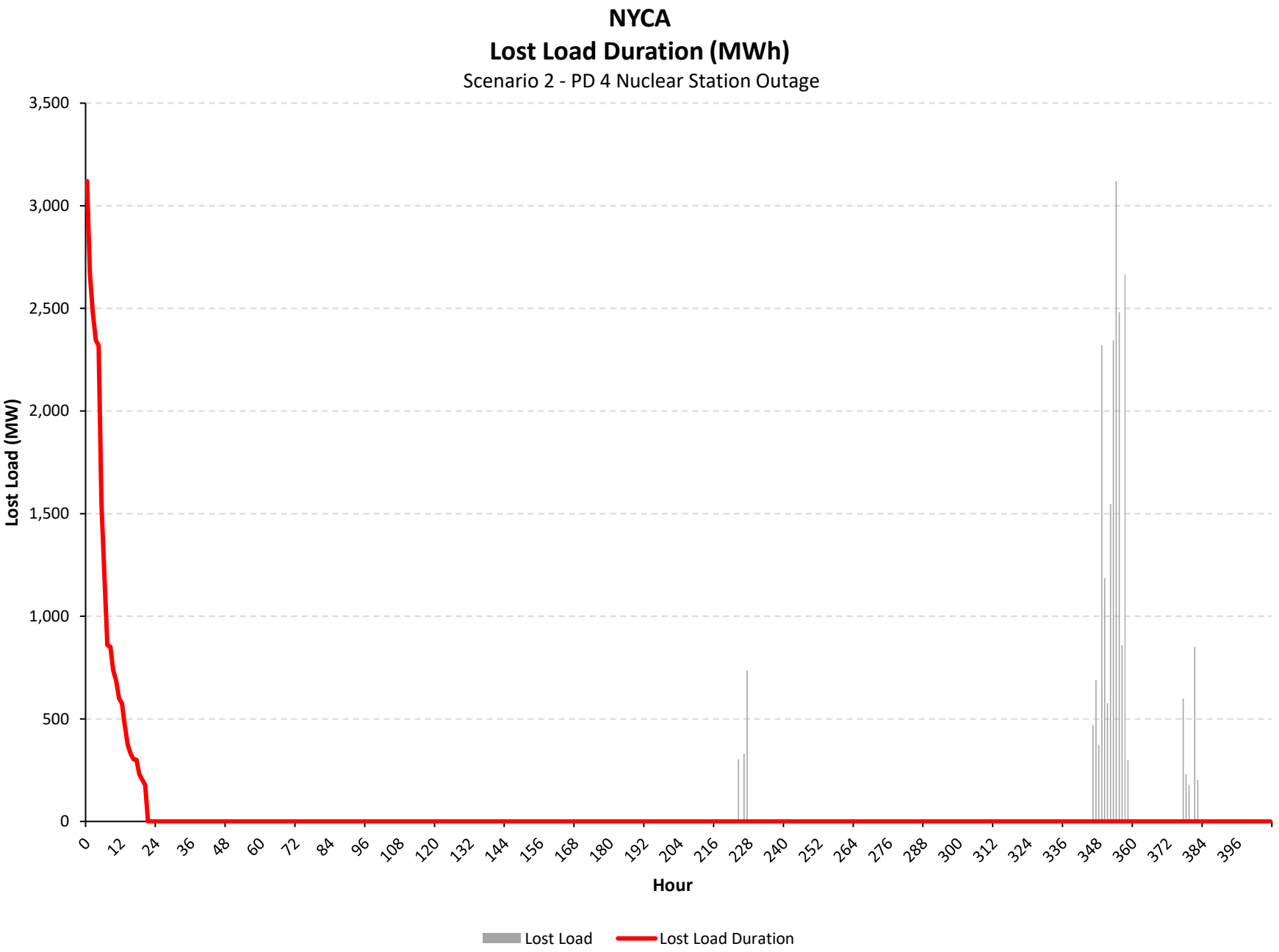


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 4 Nuclear Station Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 4 Nuclear Station Outage
Emergency Actions and Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 4 Nuclear Station Outage
Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

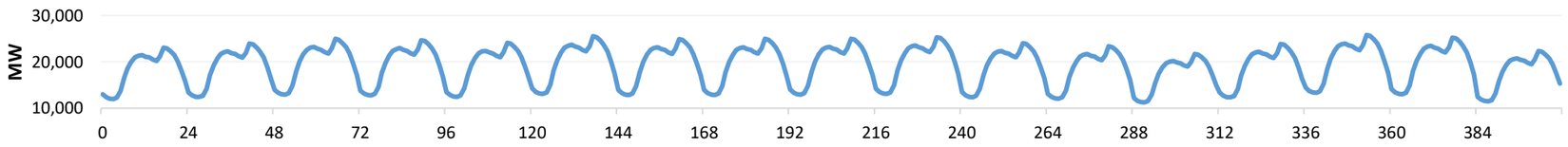
Case: Scenario 2 - PD 5 No Truck Refill (Winter 2023/2024)

Hourly Results Summary

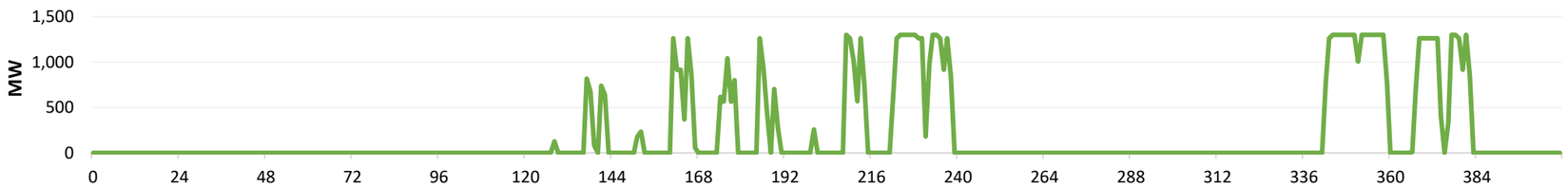
Case Name: Scenario 2 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

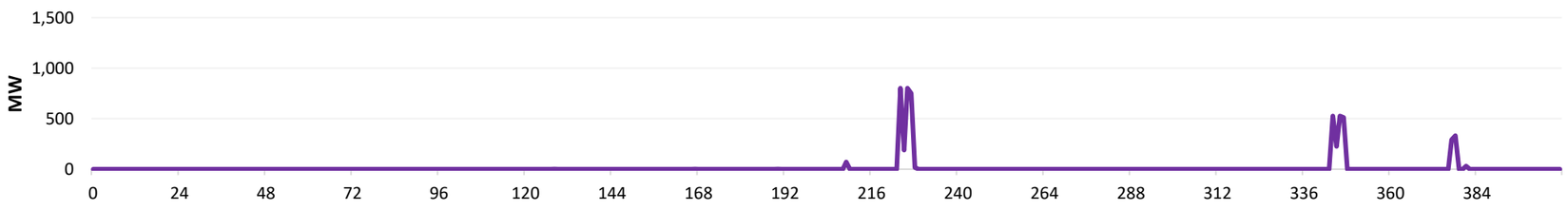


Export to ISO-NE Reduction During Modeling Period



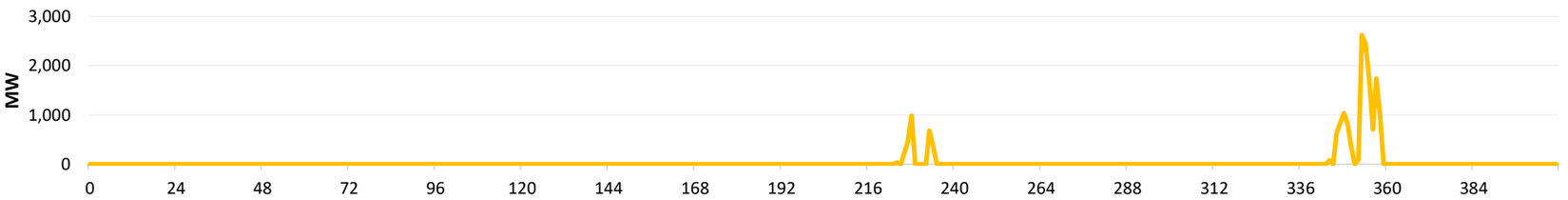
Export Reductions	
Total Hrs.	83
Total MWh	79,602
Avg. MW	195.1

SCR/EDRP Deployed During Modeling Period



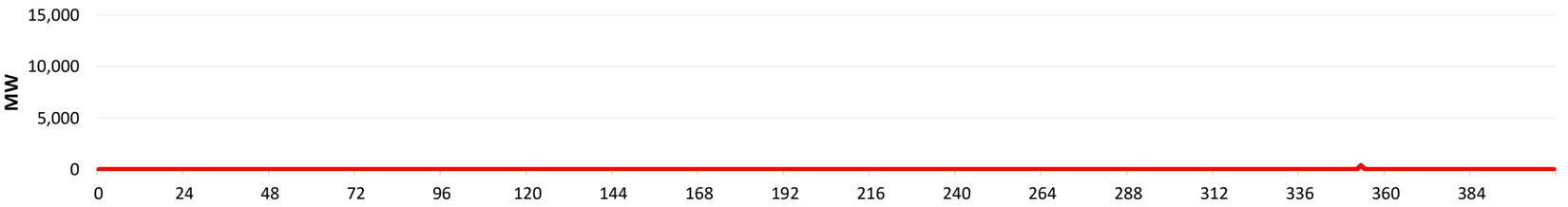
SCR Deployment	
Total Hrs.	13
Total MWh	5,075
Avg. MW	12.4

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	19
Total MWh	16,842
Avg. MW	41.3
First Hour with Viol.	224

Loss of Load During Modeling Period

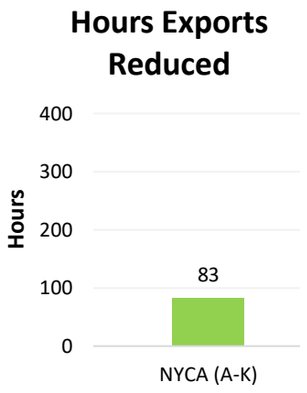


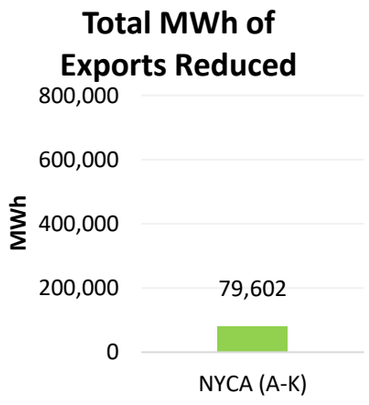
Loss of Load	
Total Hrs.	2
Total MWh	462
Avg. MW	1.1
First Hour with Losses	353

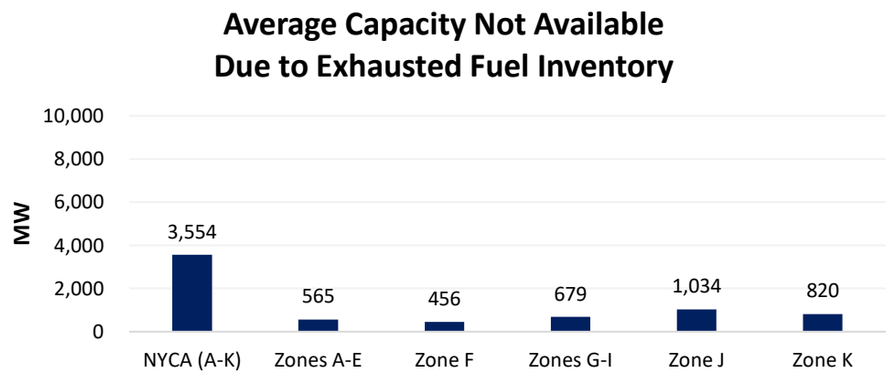
Full Period Results Summary

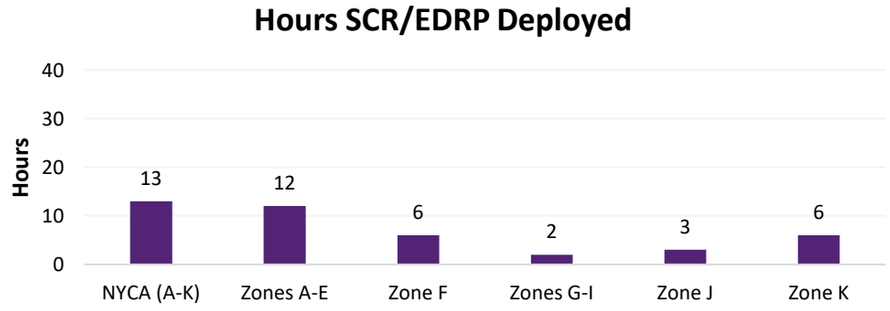
Case Name: Scenario 2 - PD 5 No Truck Refill

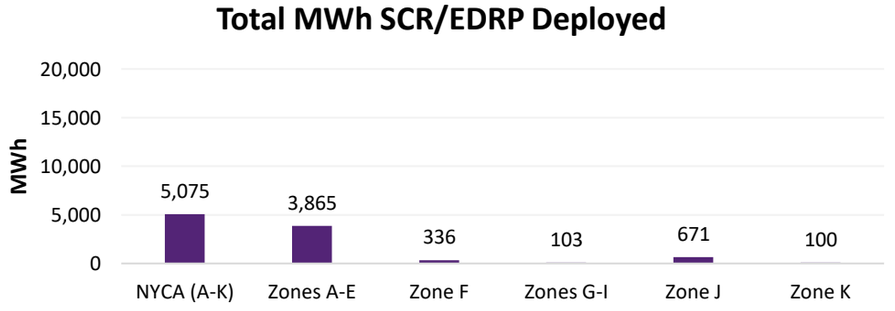
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

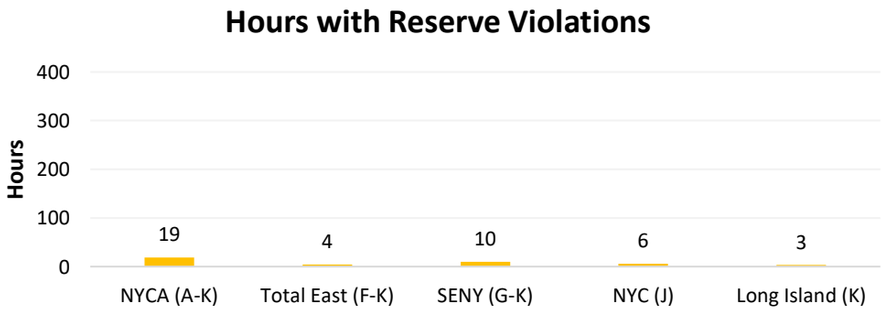


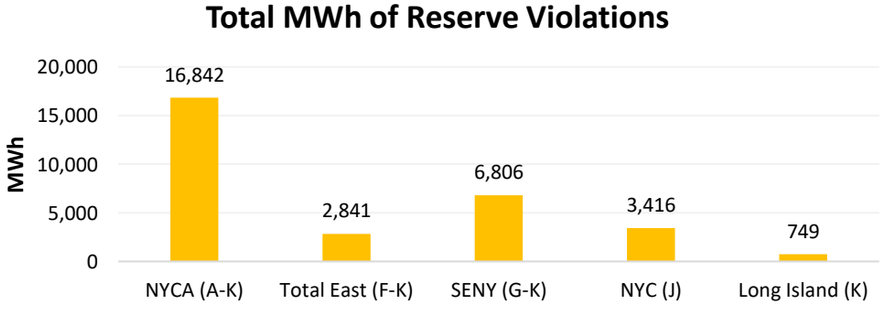


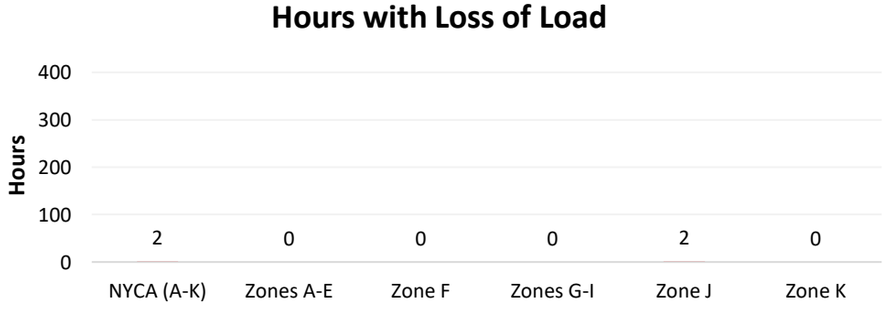


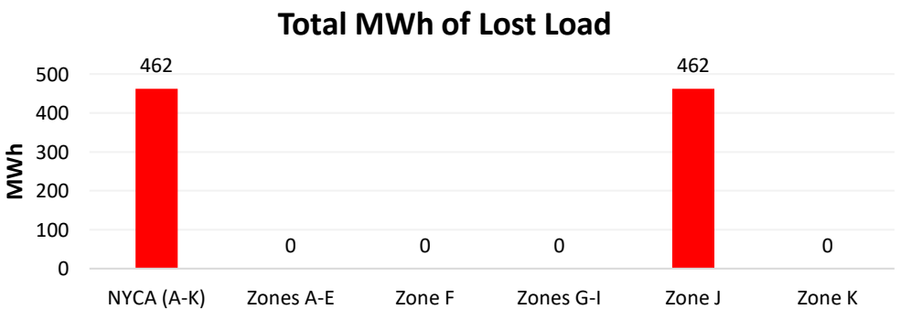


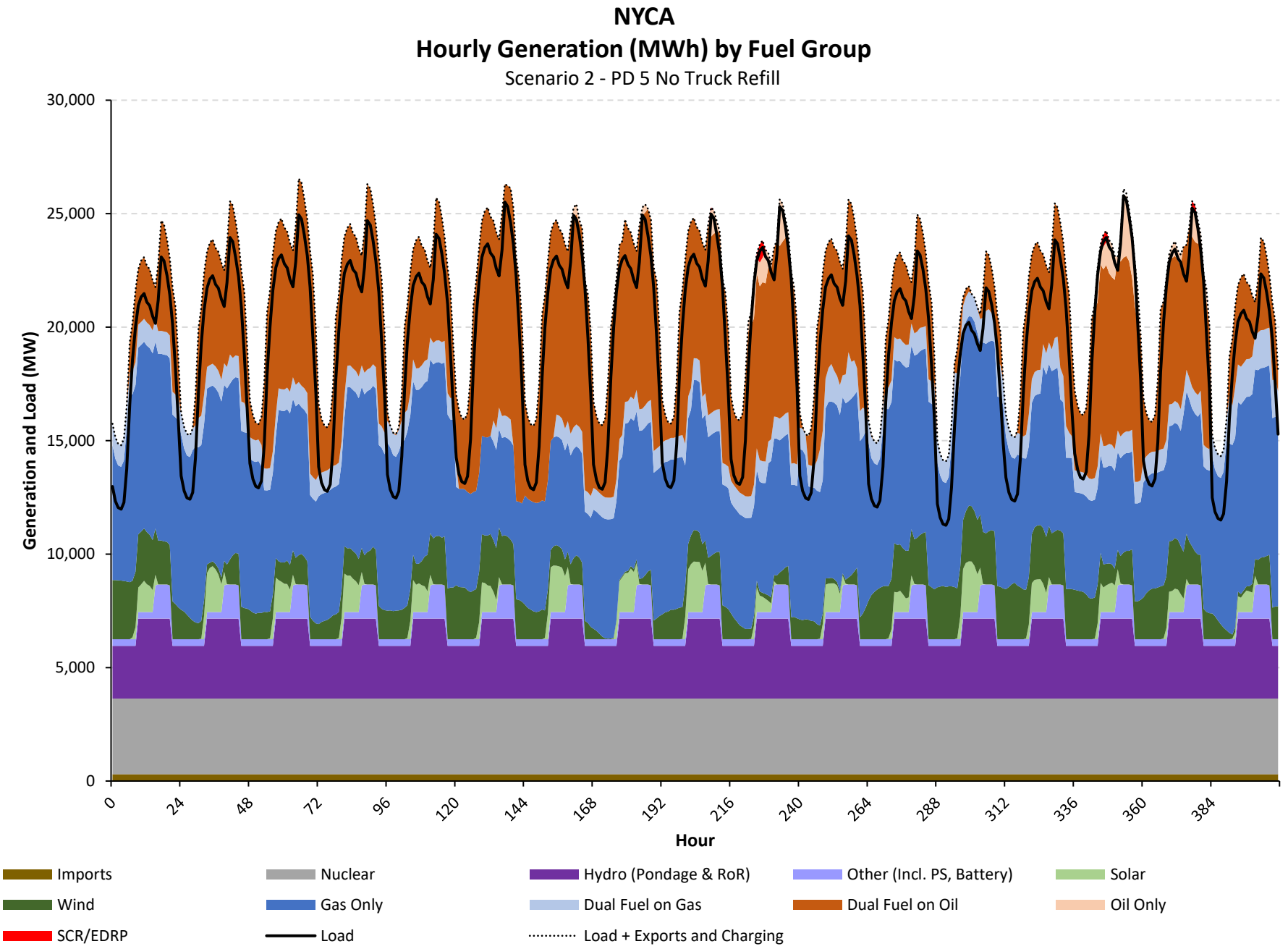


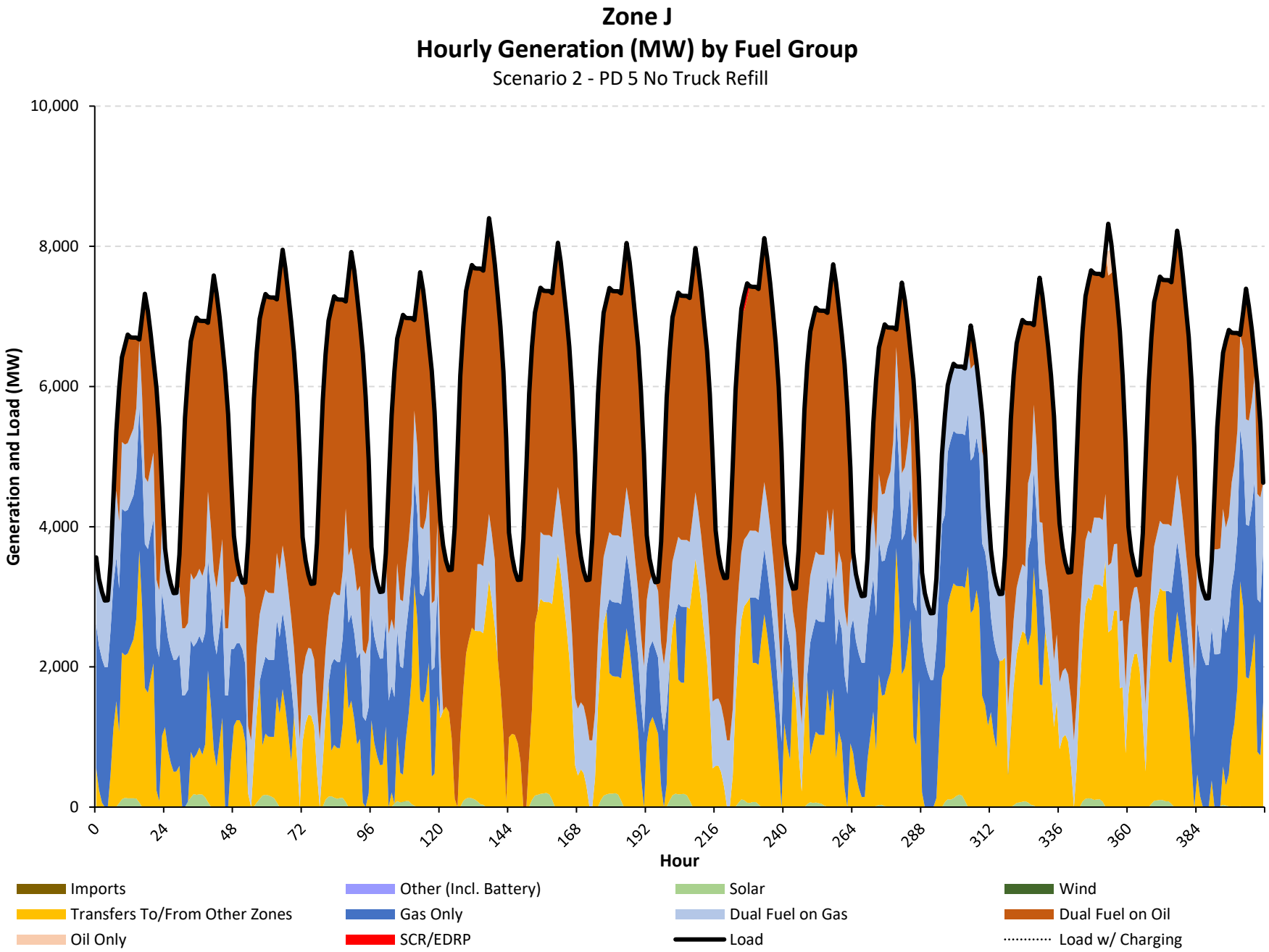




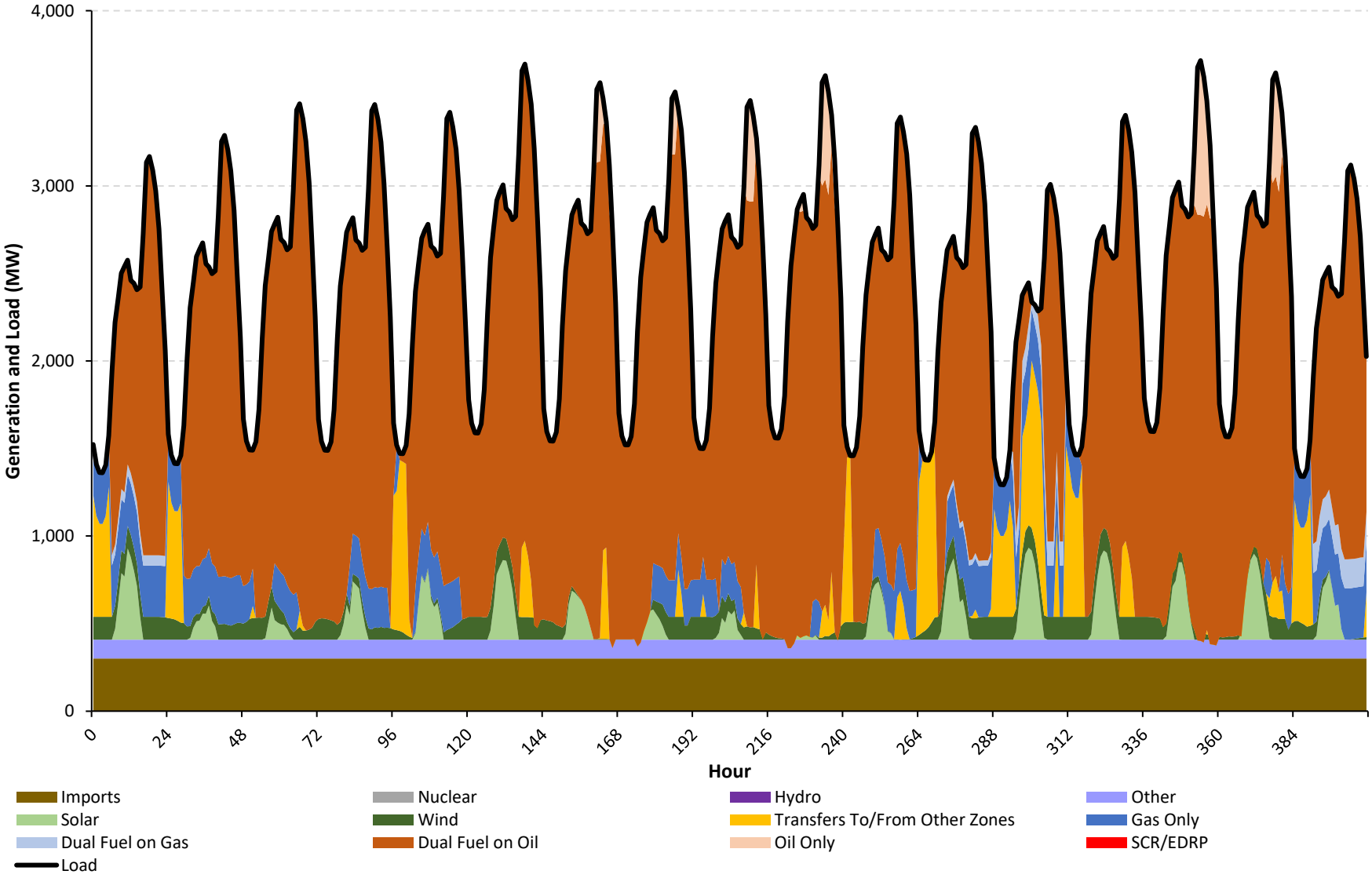





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 5 No Truck Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 5 No Truck Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

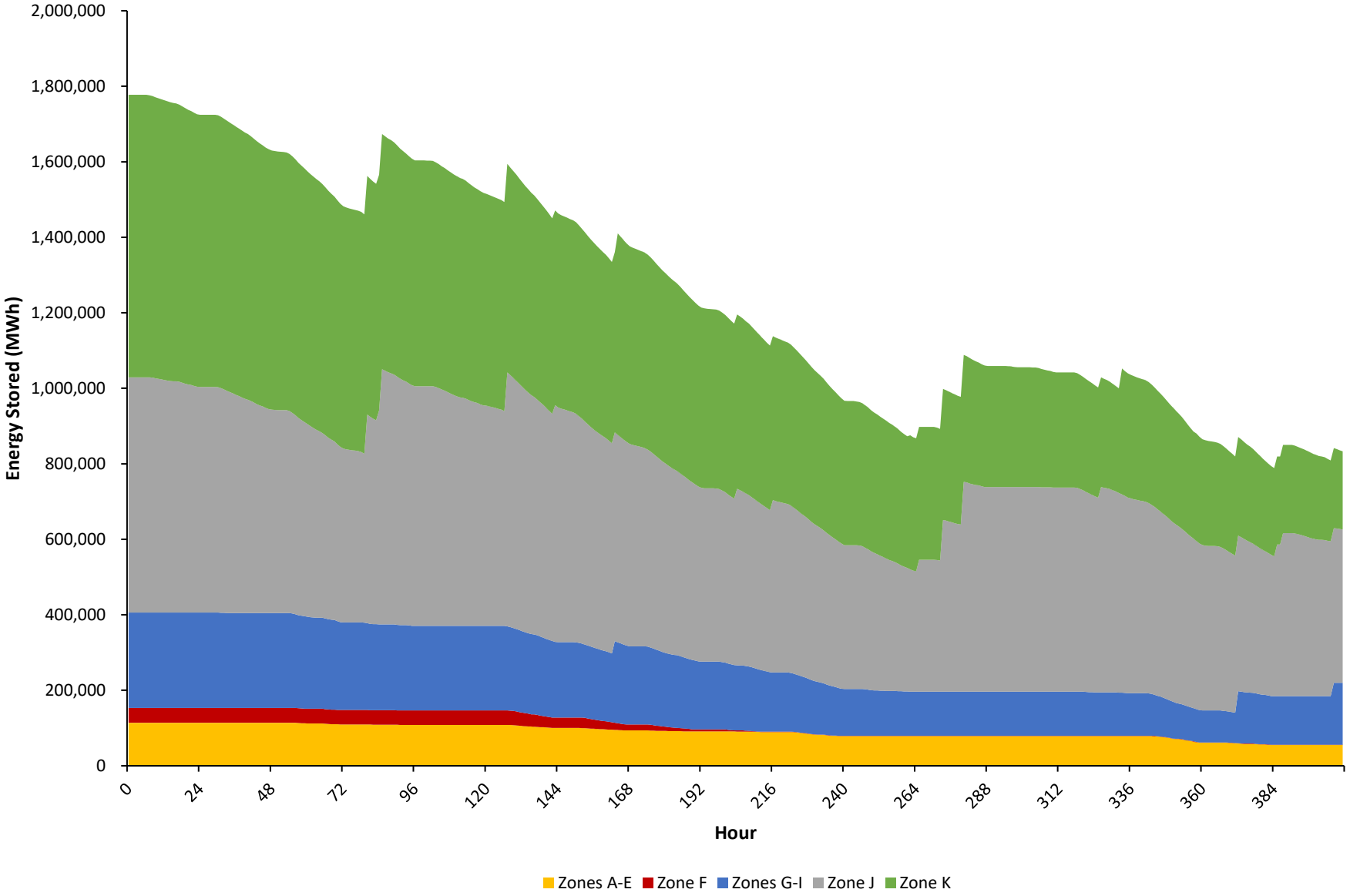
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 5 No Truck Refill

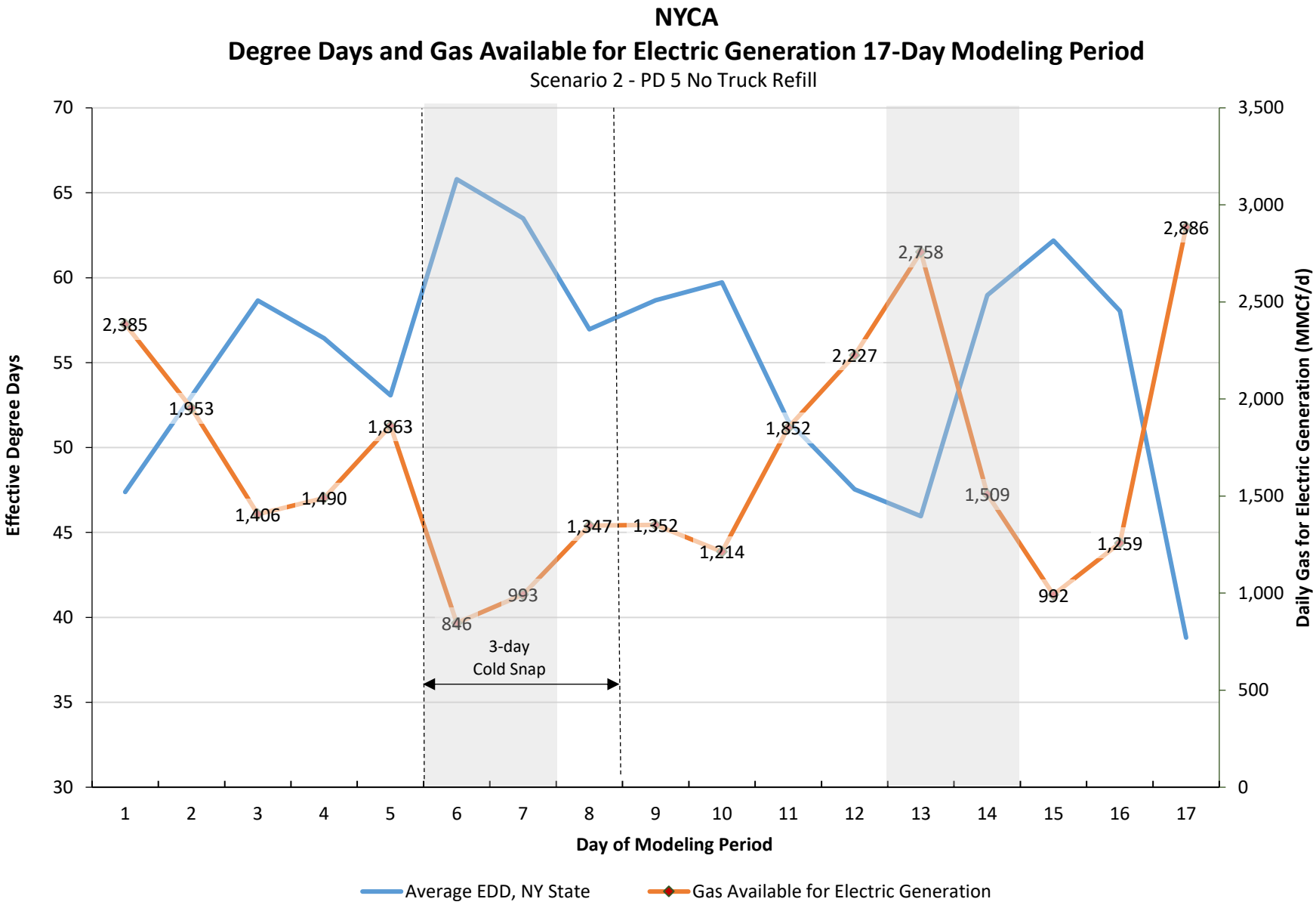


NYCA

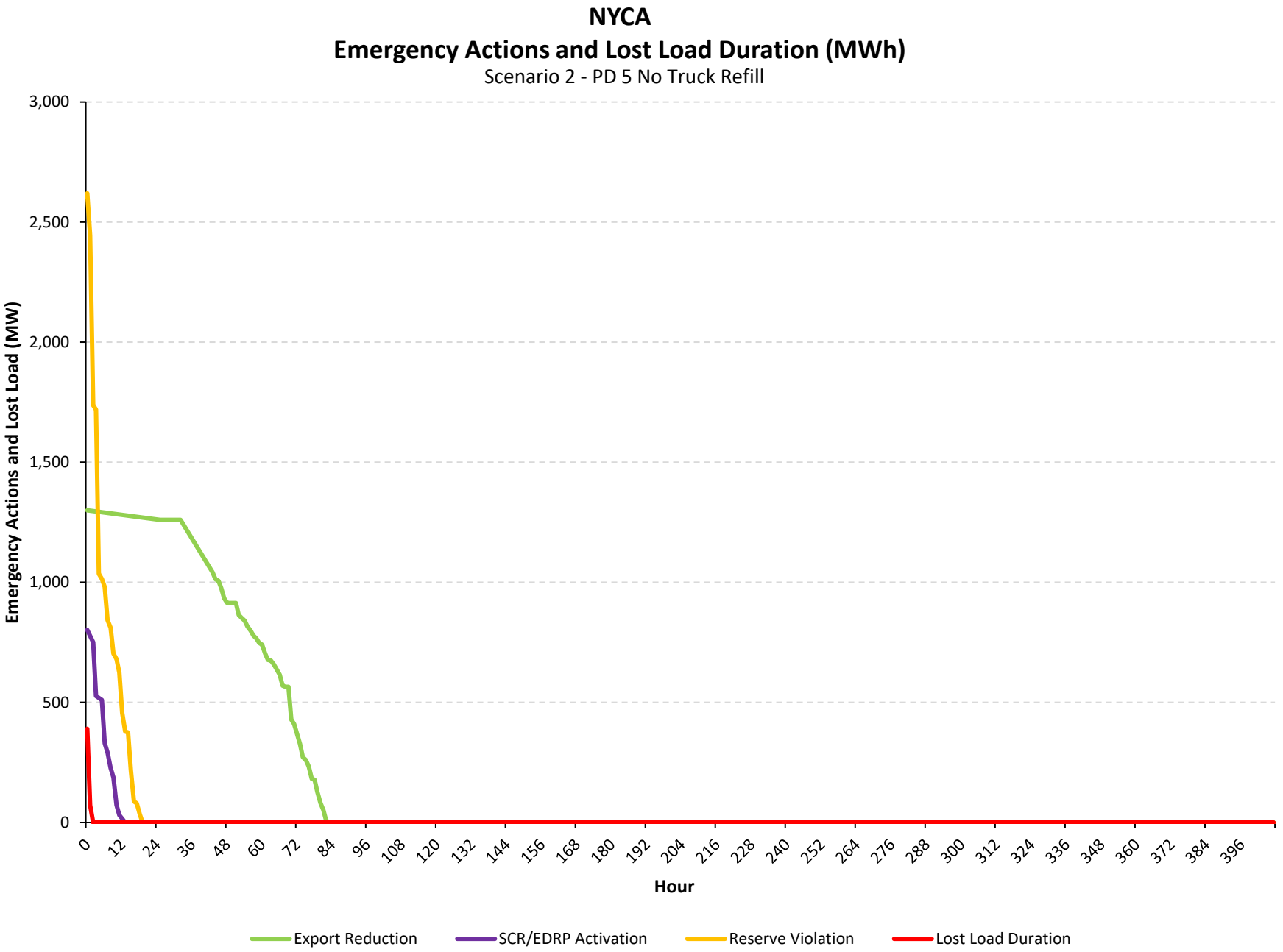
Quantity of Stored Fuel for Oil and Dual Fuel Units

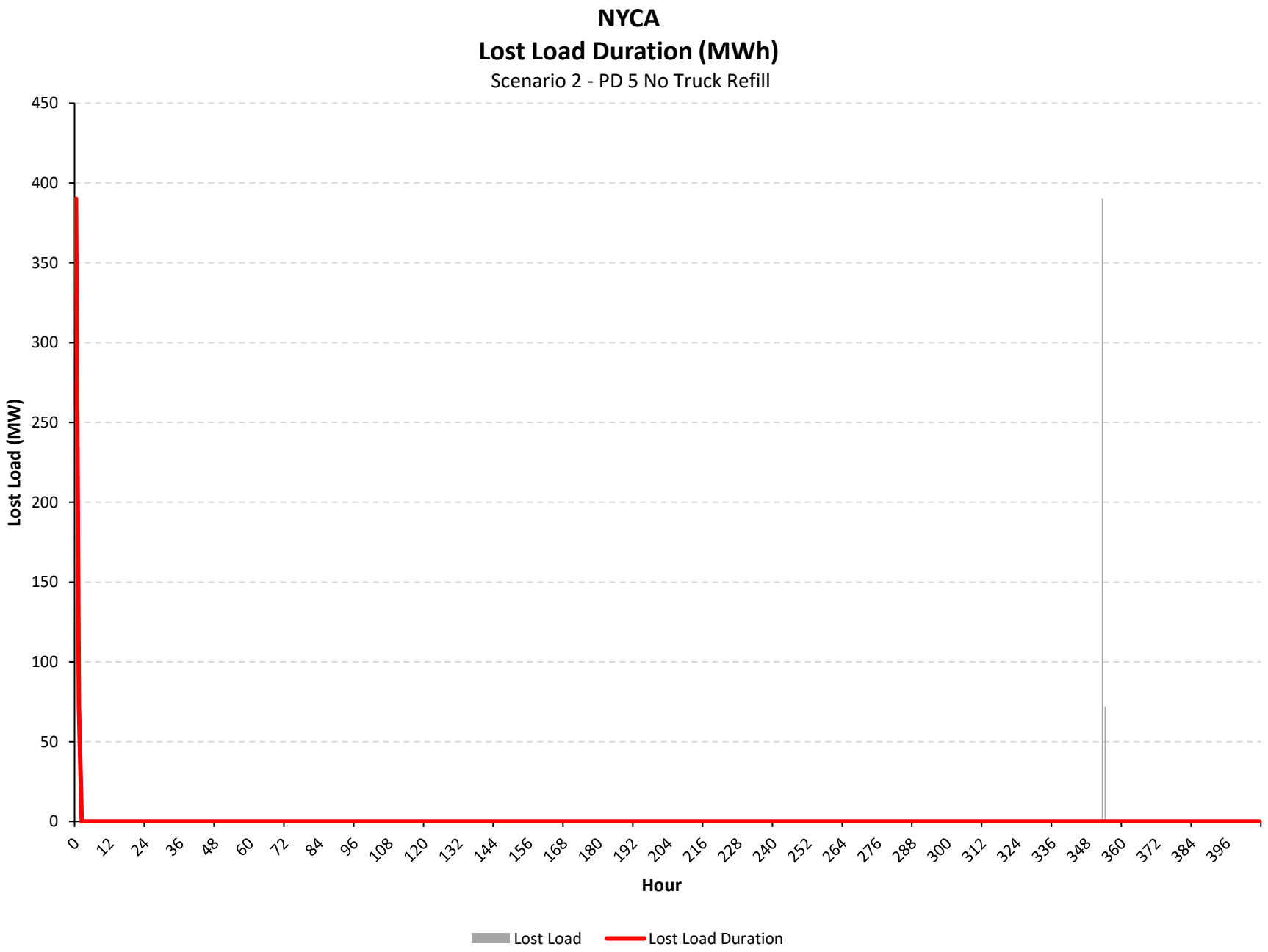
Scenario 2 - PD 5 No Truck Refill





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 5 No Truck Refill
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 5 No Truck Refill
Lost Load (MW)
450
400
350
300
250
200
150
100
50
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

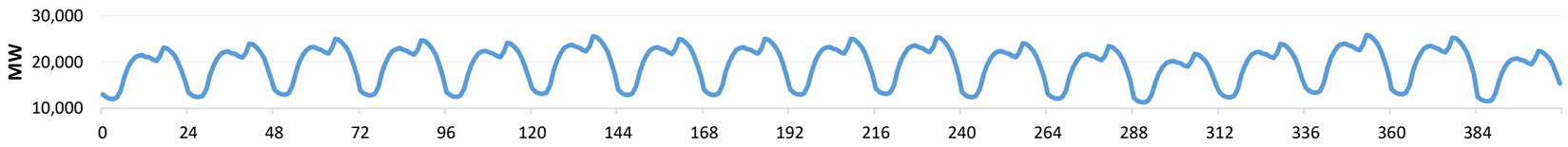
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 2 - PD 6 No Barge Refill (Winter 2023/2024)

Hourly Results Summary

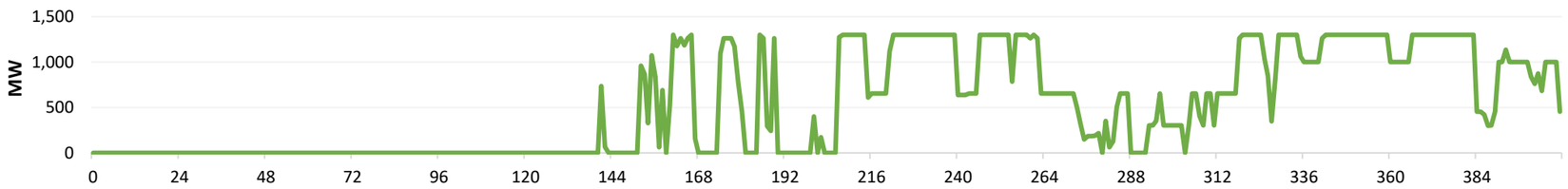
Case Name: Scenario 2 - PD 6 No Barge Refill

Load During Modeling Period



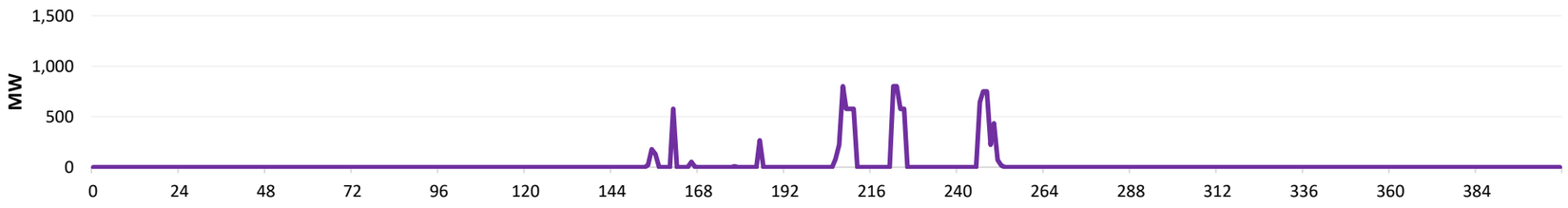
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Export to ISO-NE Reduction During Modeling Period



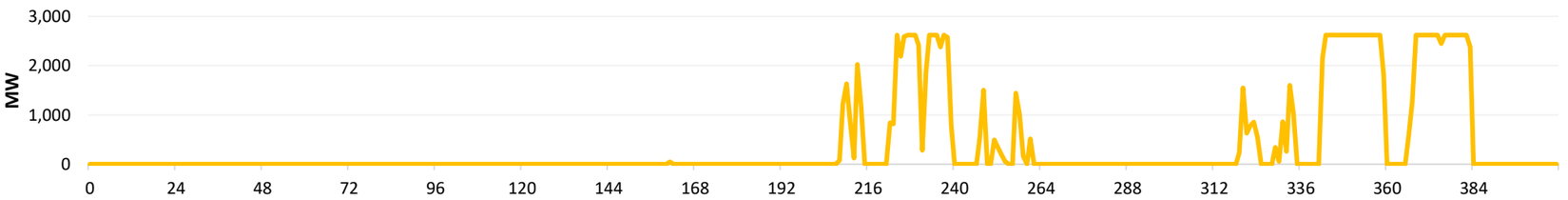
Export Reductions	
Total Hrs.	225
Total MWh	211,864
Avg. MW	519.3

SCR/EDRP Deployed During Modeling Period



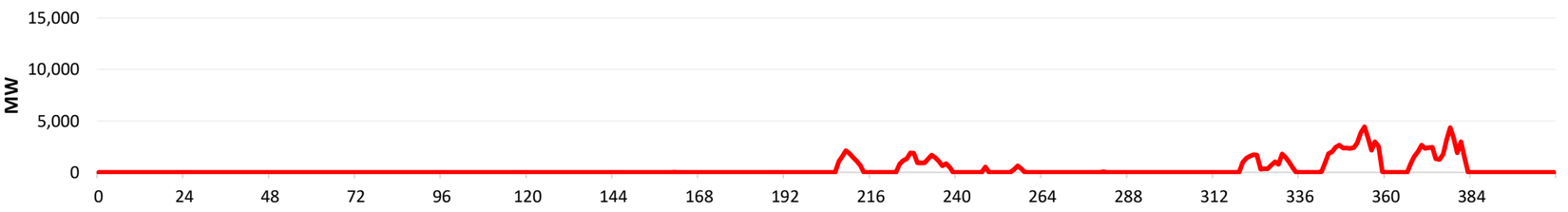
SCR Deployment	
Total Hrs.	24
Total MWh	9,729
Avg. MW	23.8

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	84
Total MWh	149,117
Avg. MW	365.5
First Hour with Viol.	157

Loss of Load During Modeling Period



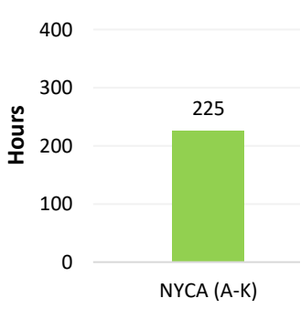
Loss of Load	
Total Hrs.	81
Total MWh	121,766
Avg. MW	298.4
First Hour with Losses	161

Full Period Results Summary

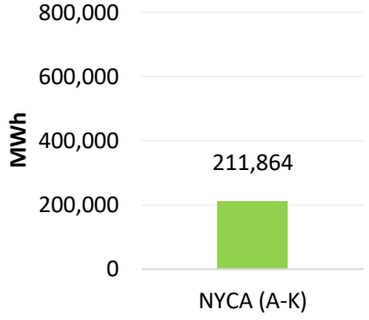
Case Name: Scenario 2 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

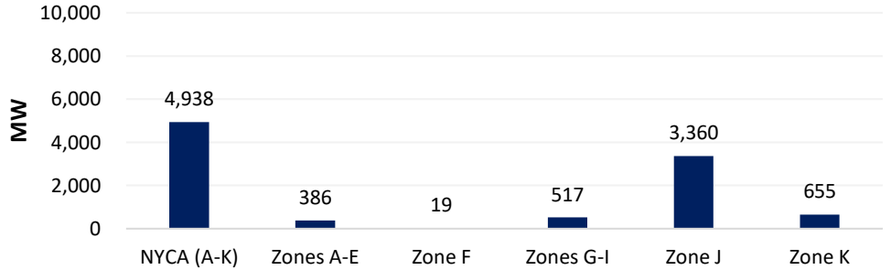
Hours Exports Reduced



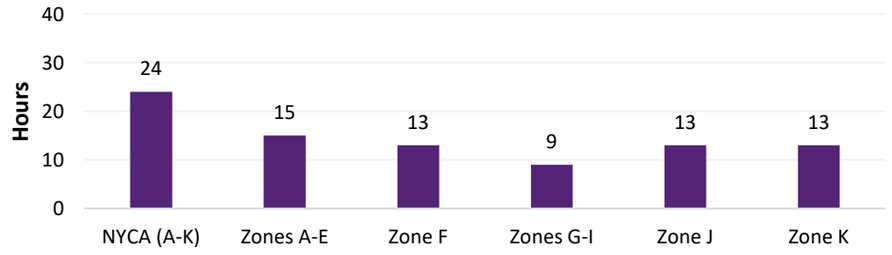
Total MWh of Exports Reduced



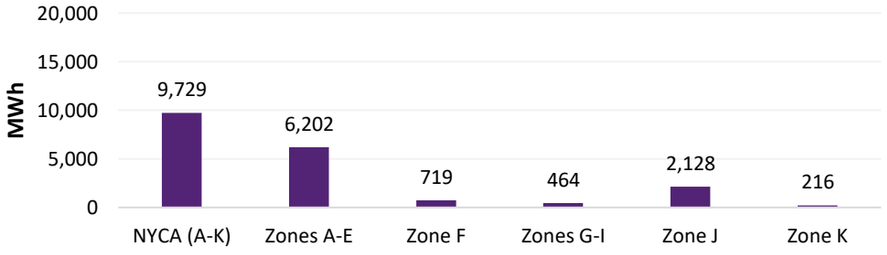
Average Capacity Not Available Due to Exhausted Fuel Inventory



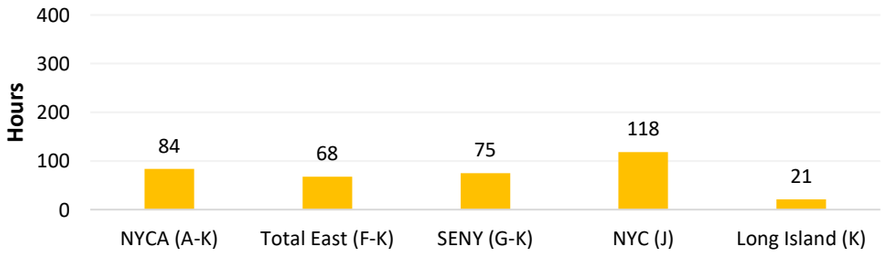
Hours SCR/EDRP Deployed



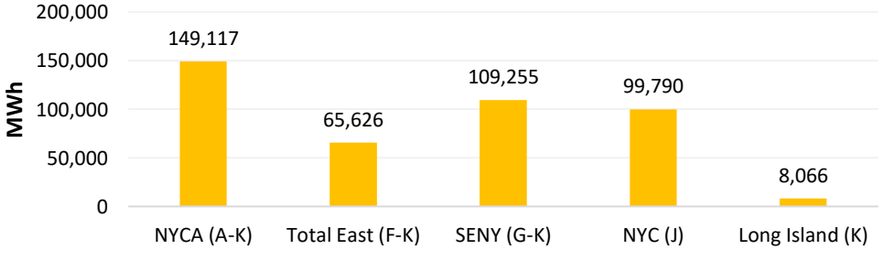
Total MWh SCR/EDRP Deployed



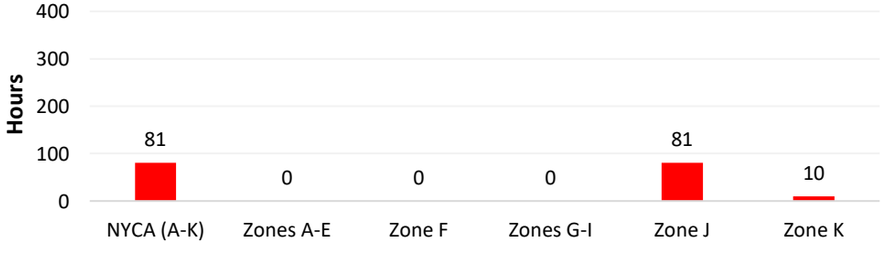
Hours with Reserve Violations



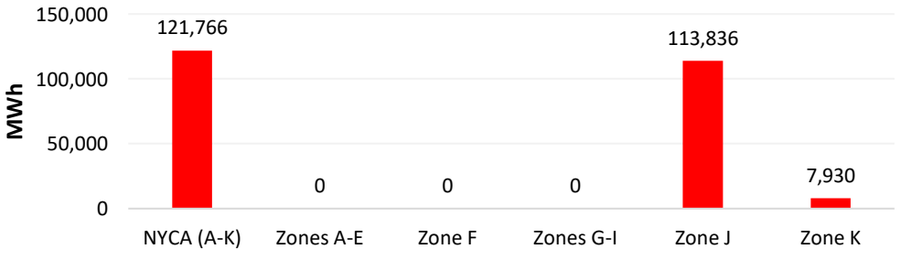
Total MWh of Reserve Violations

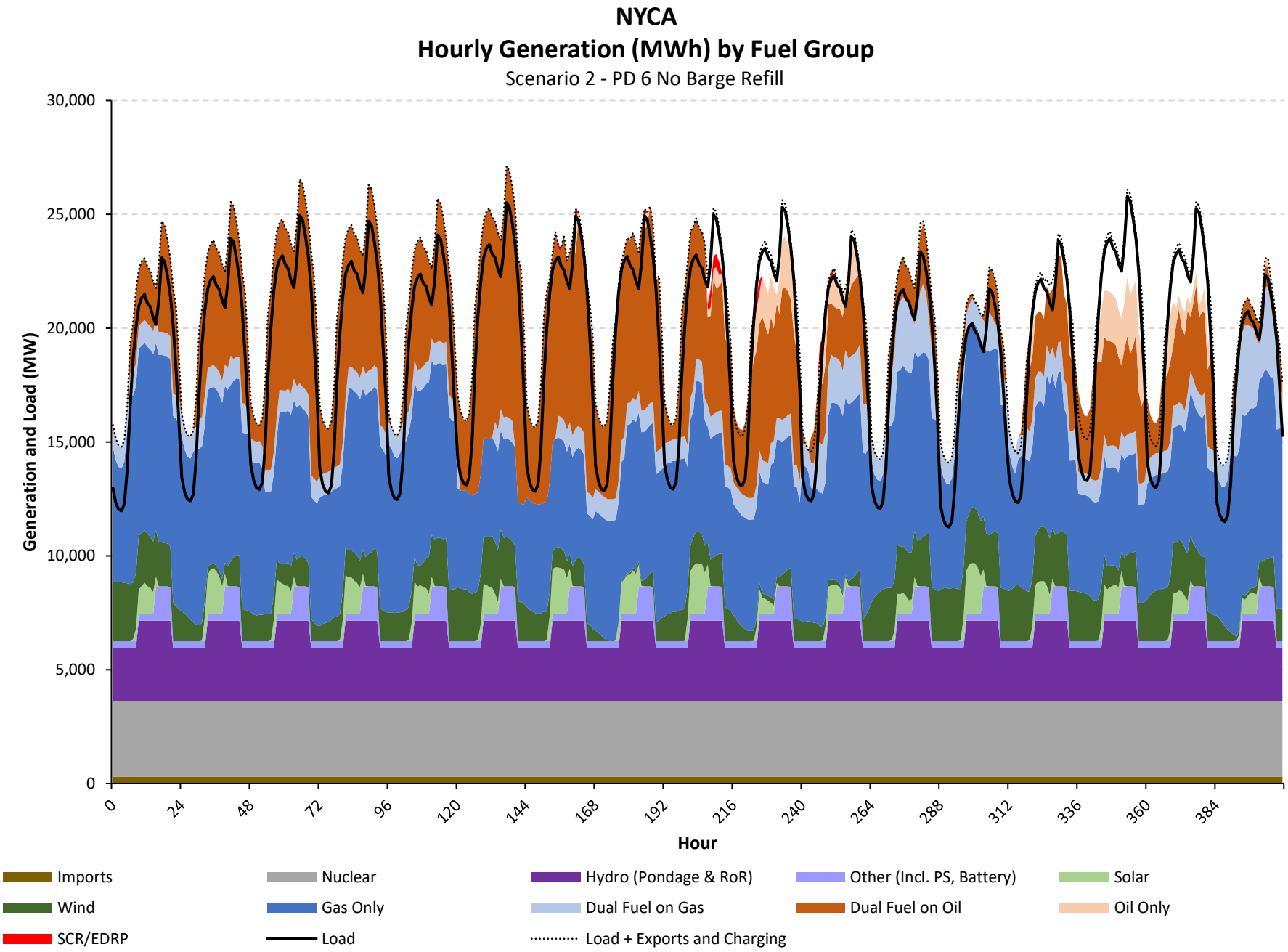


Hours with Loss of Load

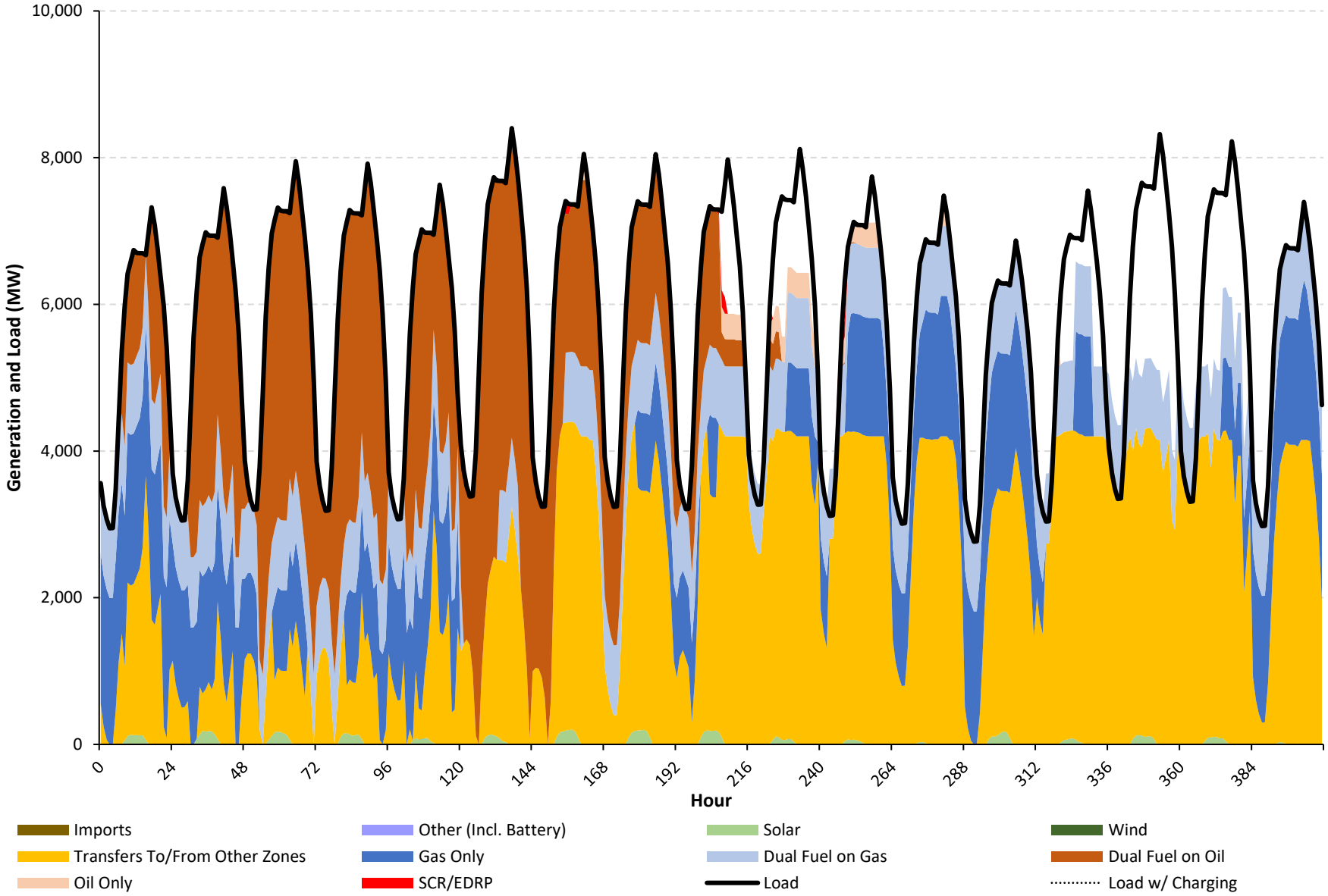


Total MWh of Lost Load

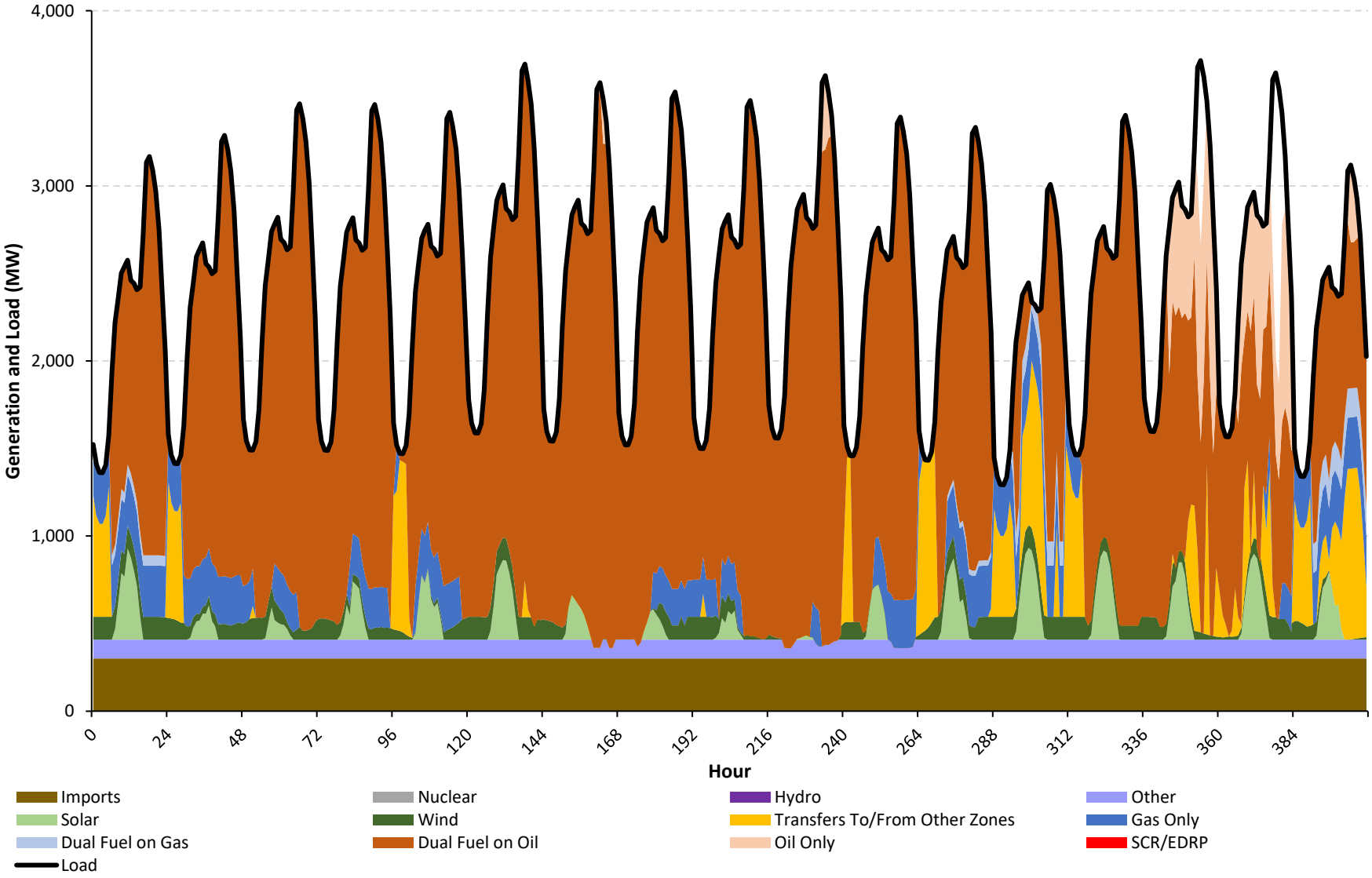



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 6 No Barge Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 6 No Barge Refill



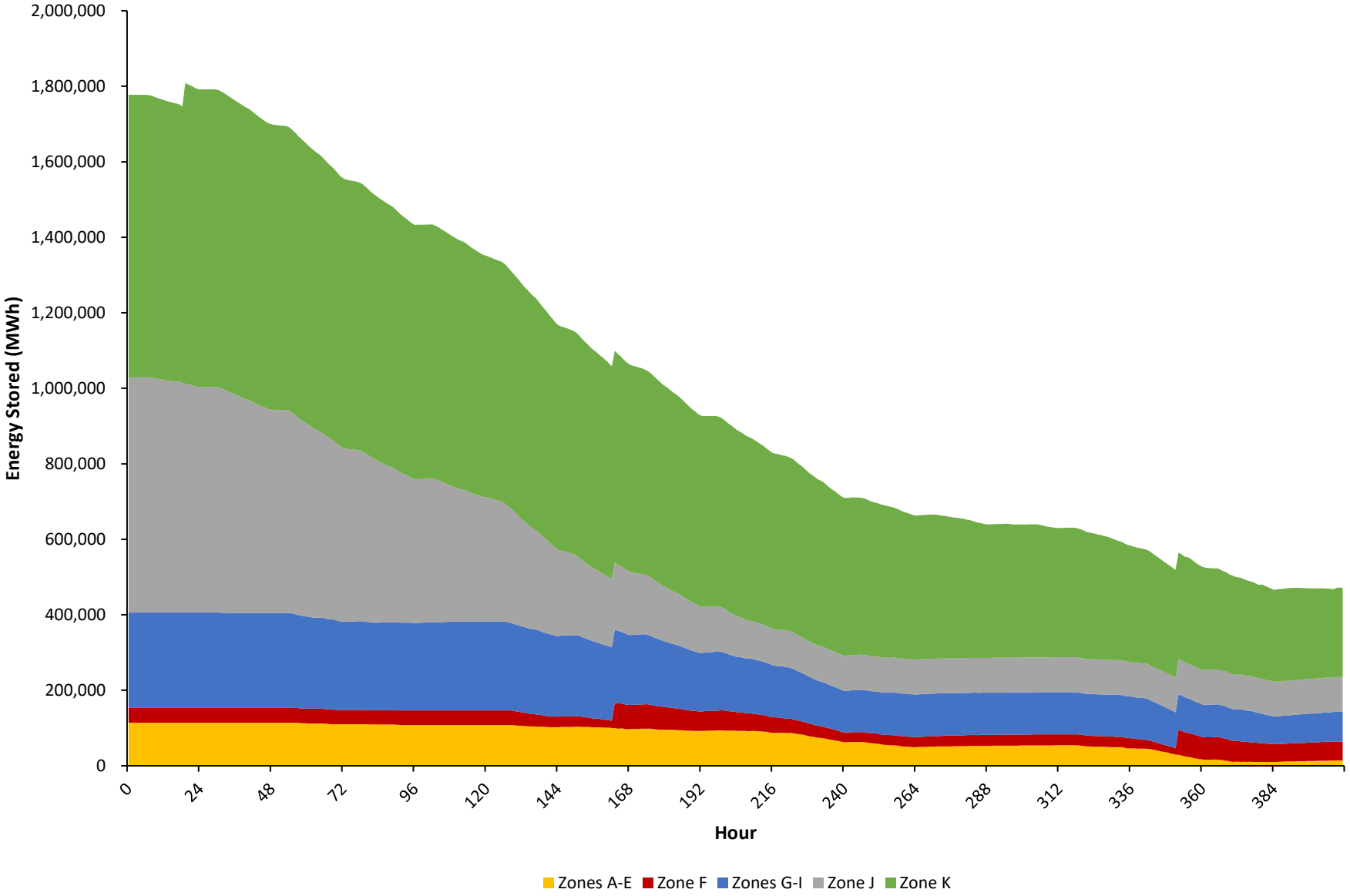
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 6 No Barge Refill



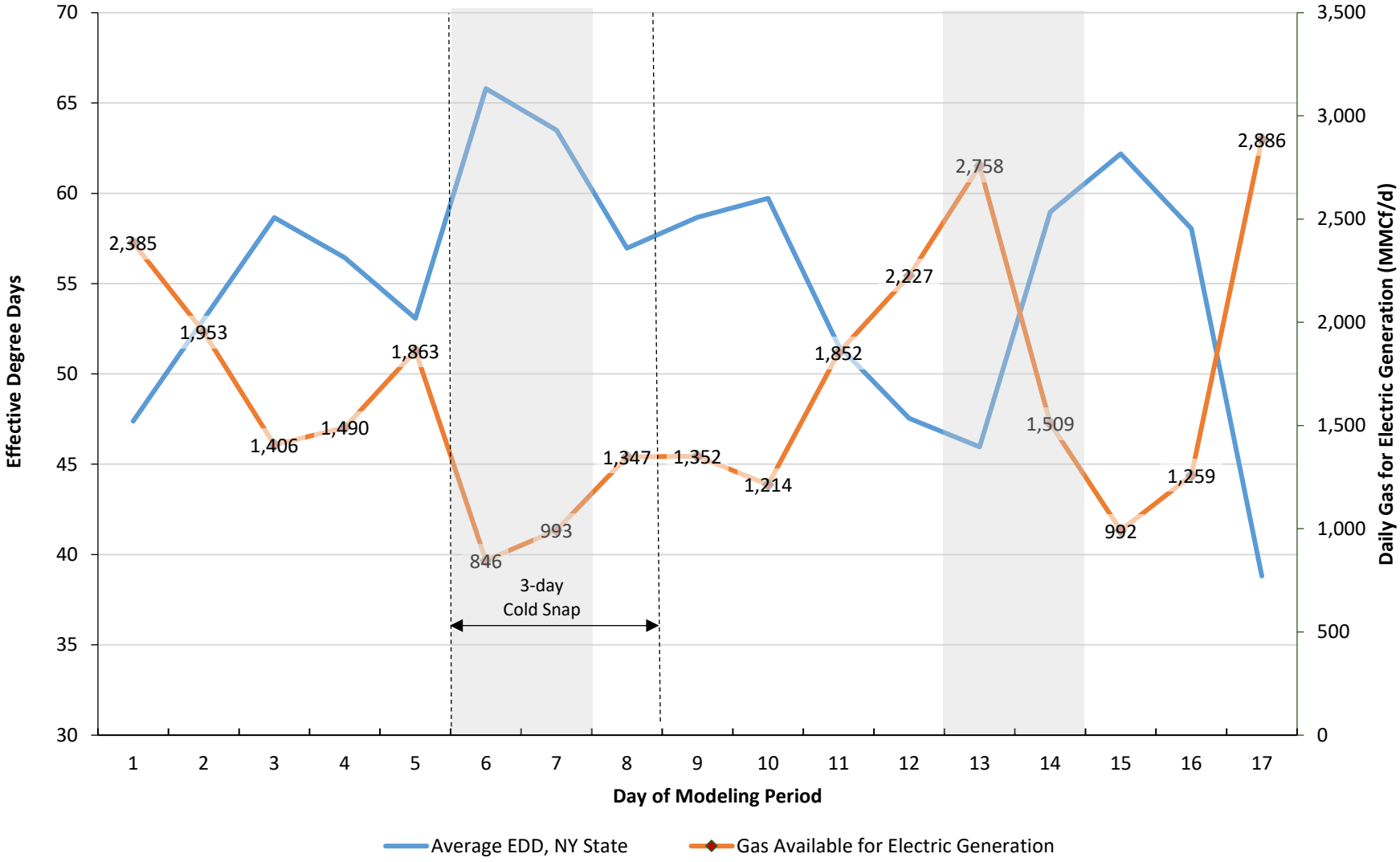
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

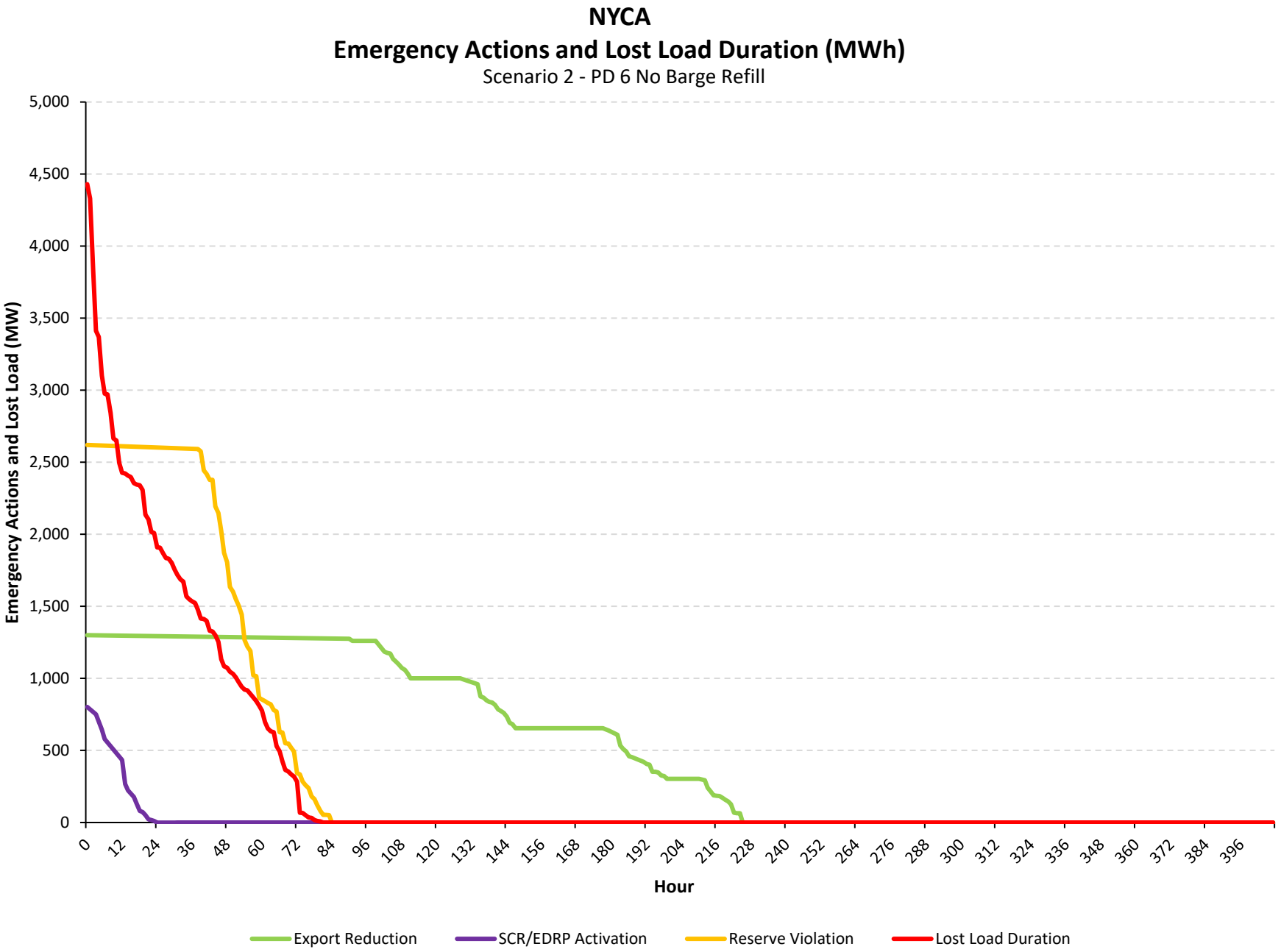
Scenario 2 - PD 6 No Barge Refill

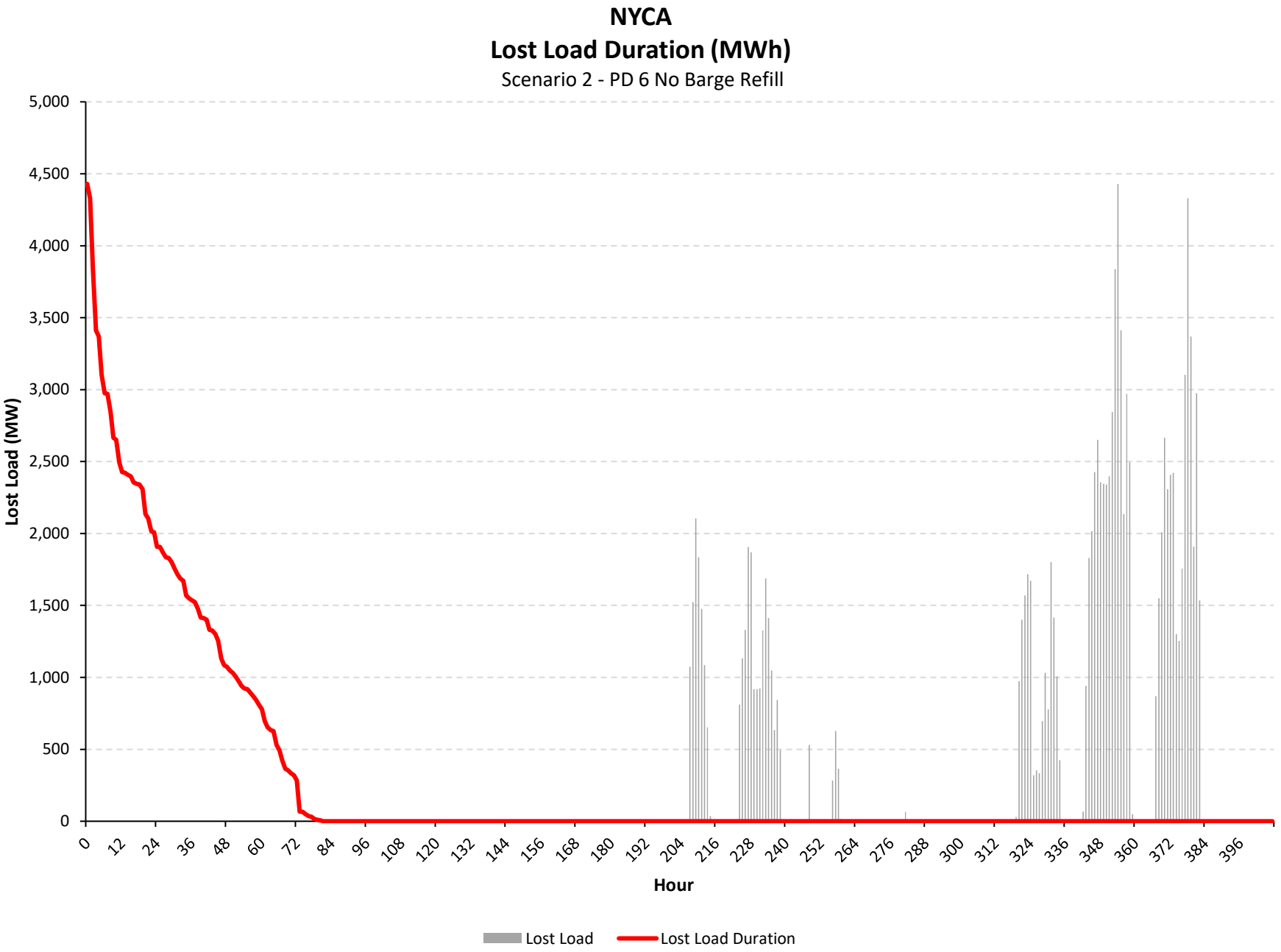


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 6 No Barge Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 6 No Barge Refill
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 6 No Barge Refill
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

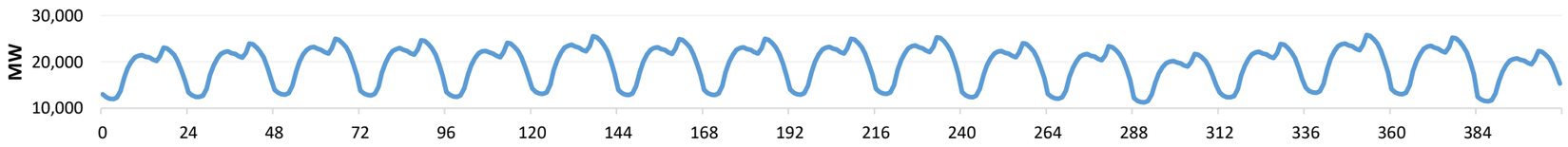
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 2 - PD 7 No Refill (Winter 2023/2024)

Hourly Results Summary

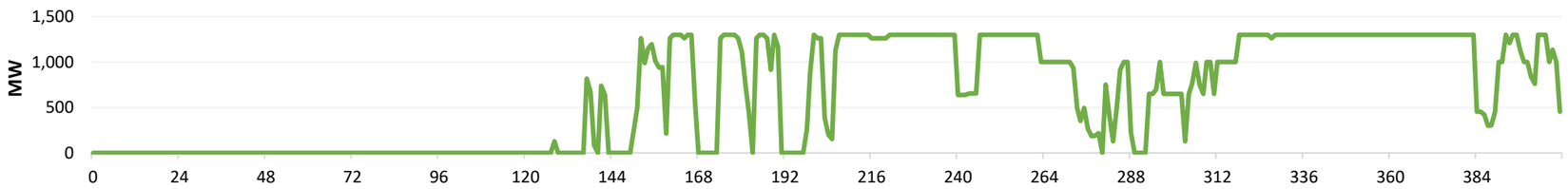
Case Name: Scenario 2 - PD 7 No Refill

Load During Modeling Period



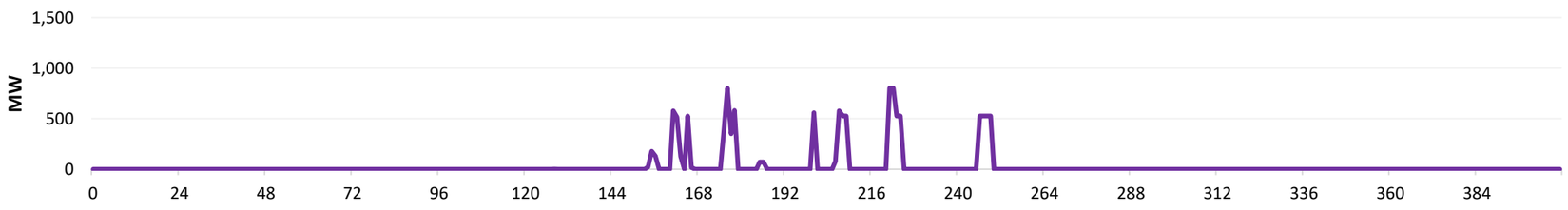
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Export to ISO-NE Reduction During Modeling Period



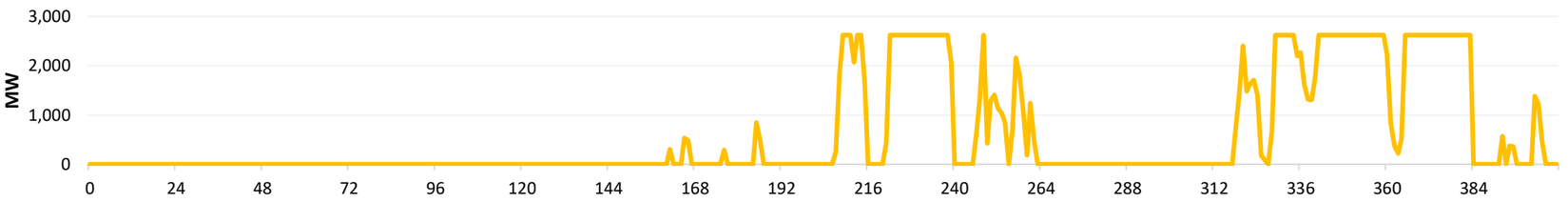
Export Reductions	
Total Hrs.	245
Total MWh	259,099
Avg. MW	635.0

SCR/EDRP Deployed During Modeling Period



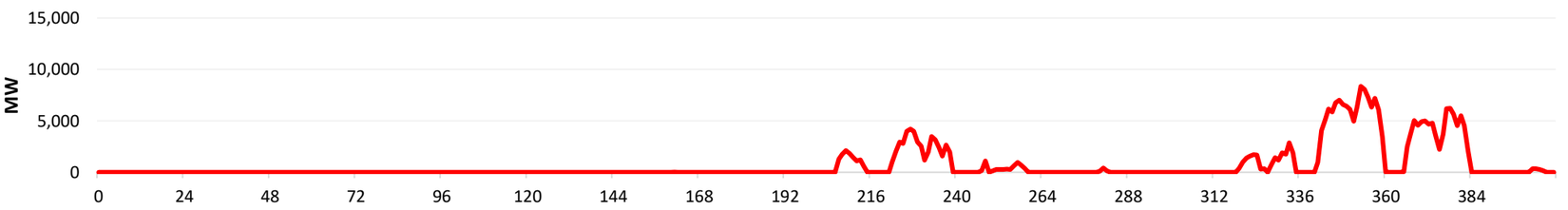
SCR Deployment	
Total Hrs.	27
Total MWh	11,371
Avg. MW	27.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	121
Total MWh	233,267
Avg. MW	571.7
First Hour with Viol.	157

Loss of Load During Modeling Period



Loss of Load	
Total Hrs.	99
Total MWh	276,029
Avg. MW	676.5
First Hour with Losses	161

Full Period Results Summary

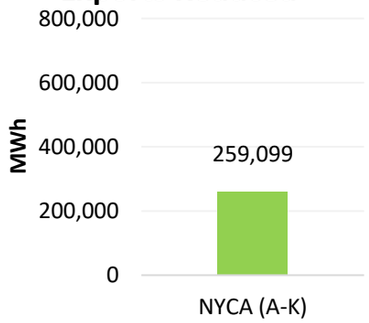
Case Name: Scenario 2 - PD 7 No Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

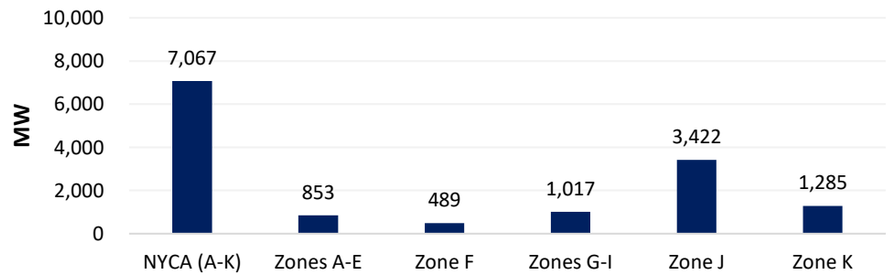
Hours Exports Reduced



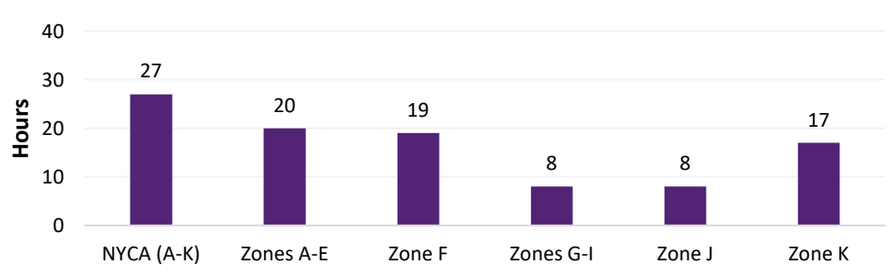
Total MWh of Exports Reduced



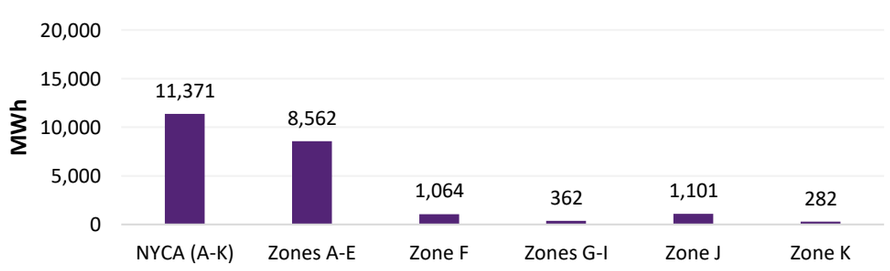
Average Capacity Not Available Due to Exhausted Fuel Inventory



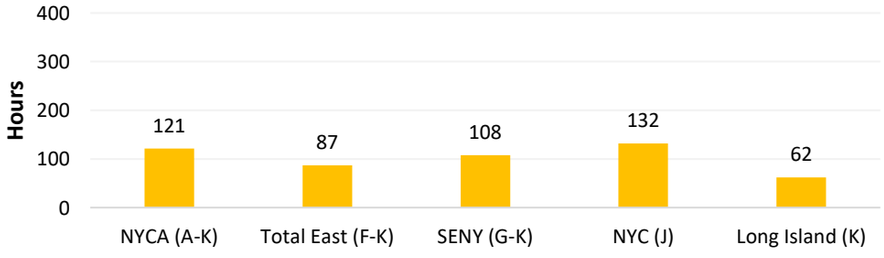
Hours SCR/EDRP Deployed



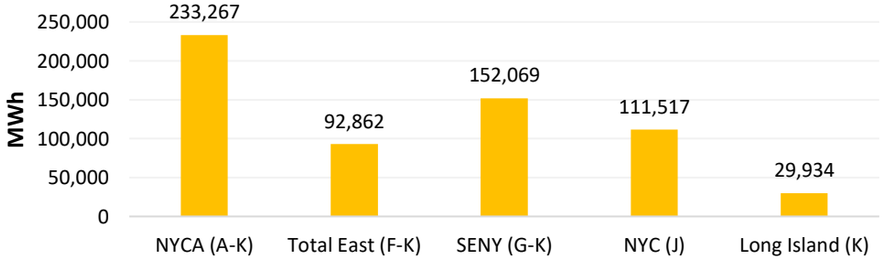
Total MWh SCR/EDRP Deployed



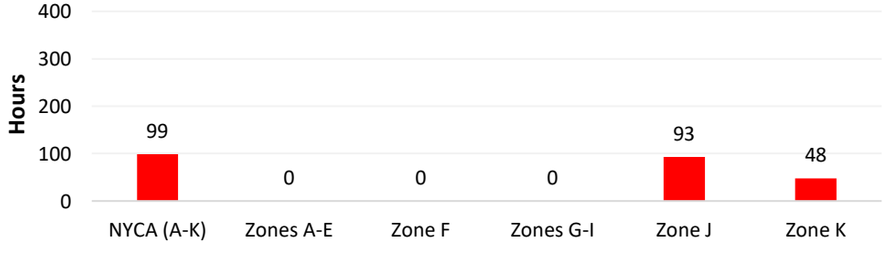
Hours with Reserve Violations



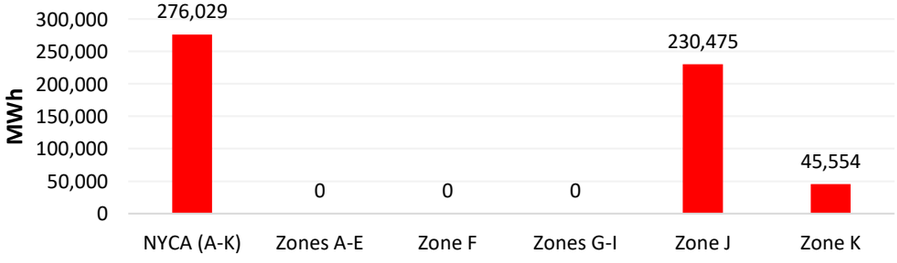
Total MWh of Reserve Violations

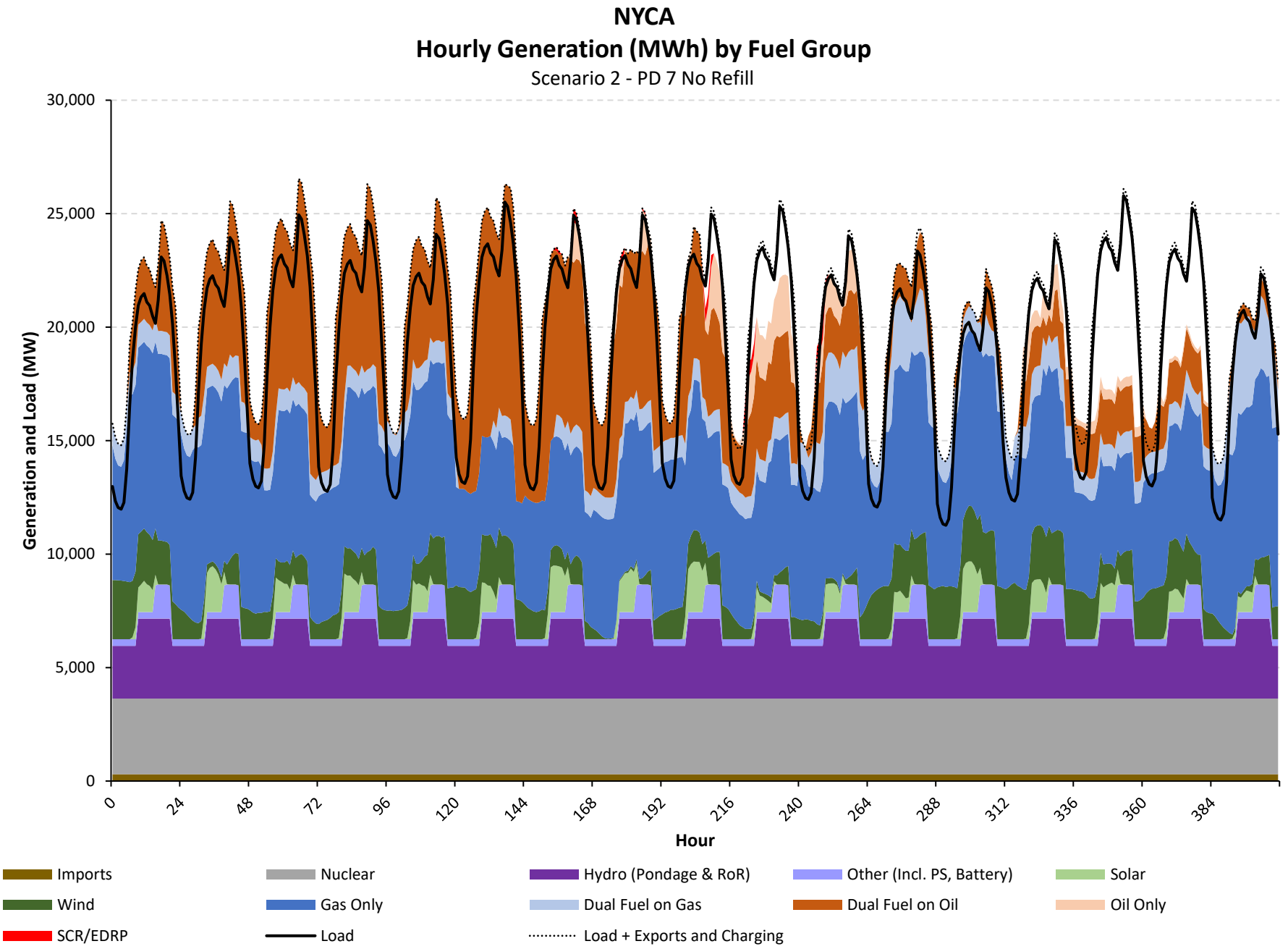


Hours with Loss of Load

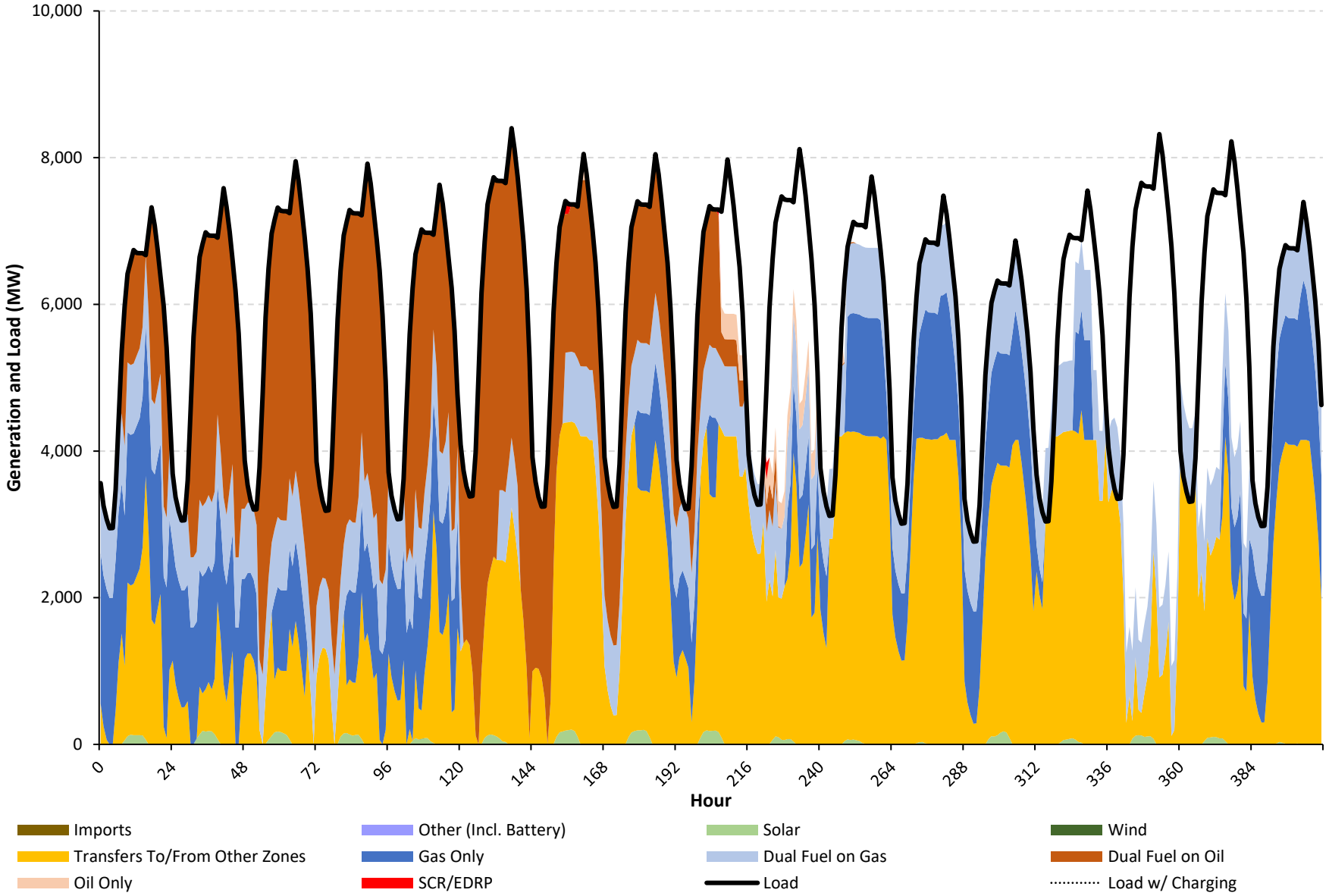


Total MWh of Lost Load

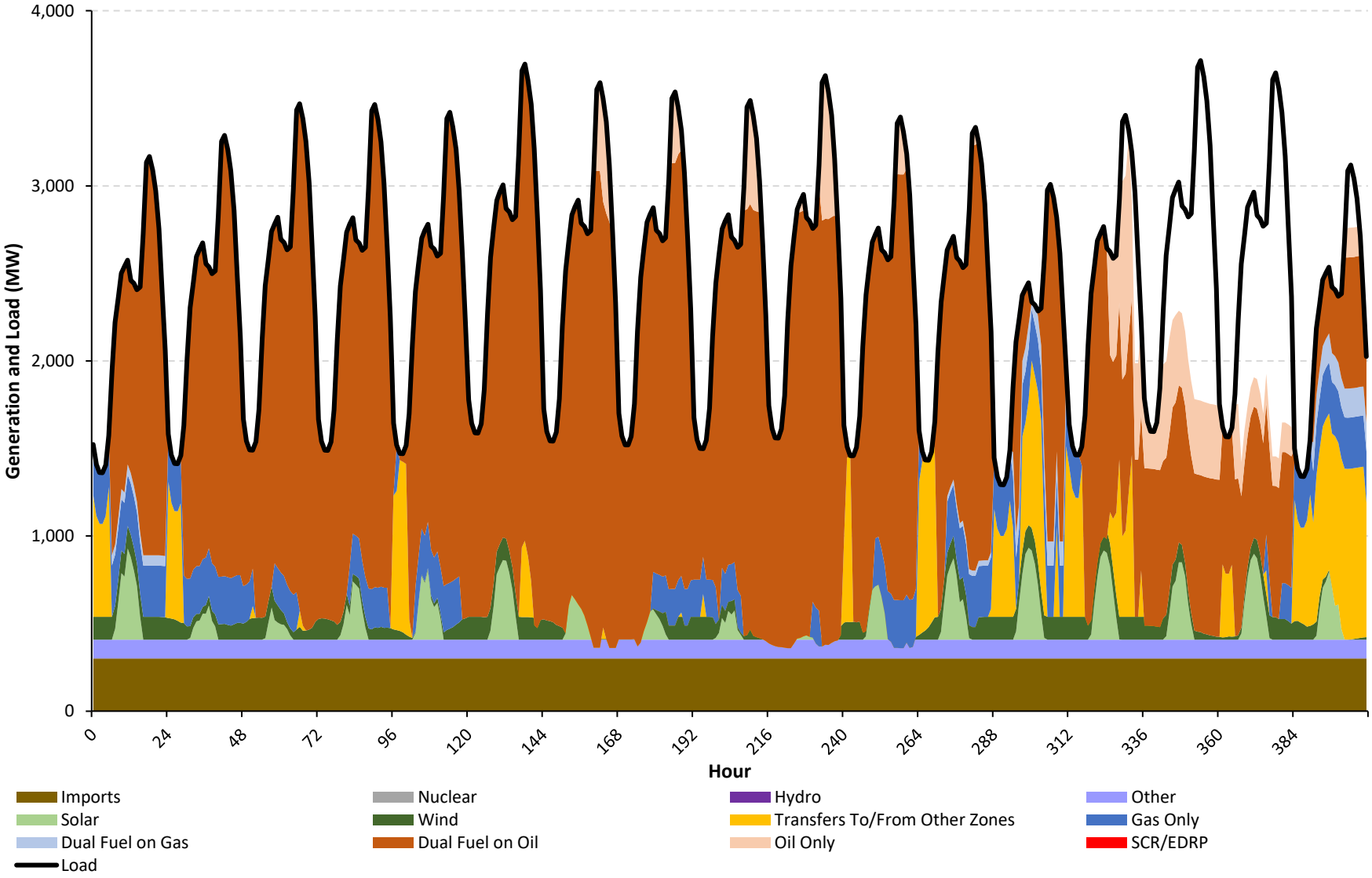



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 7 No Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

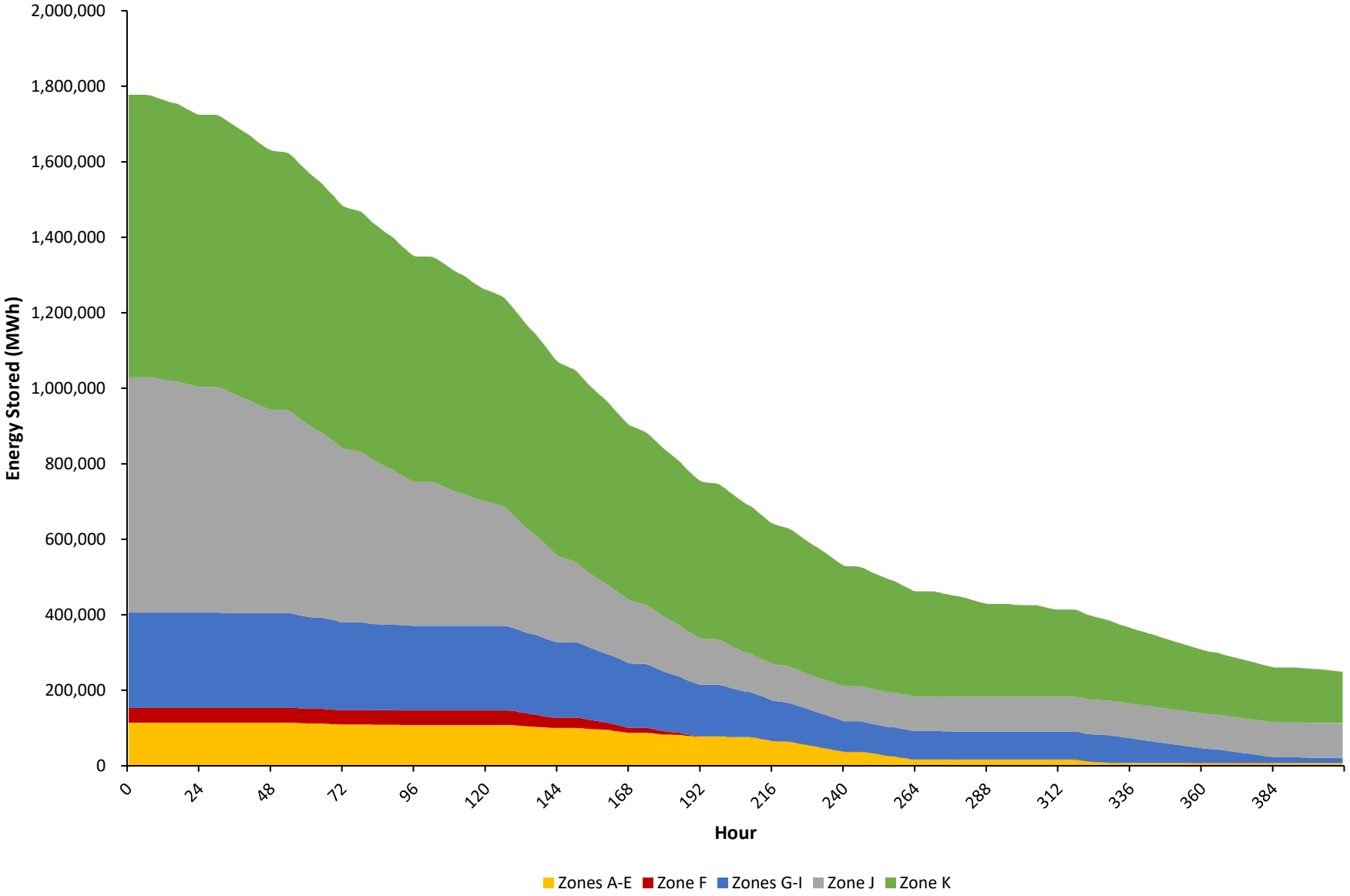
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 7 No Refill



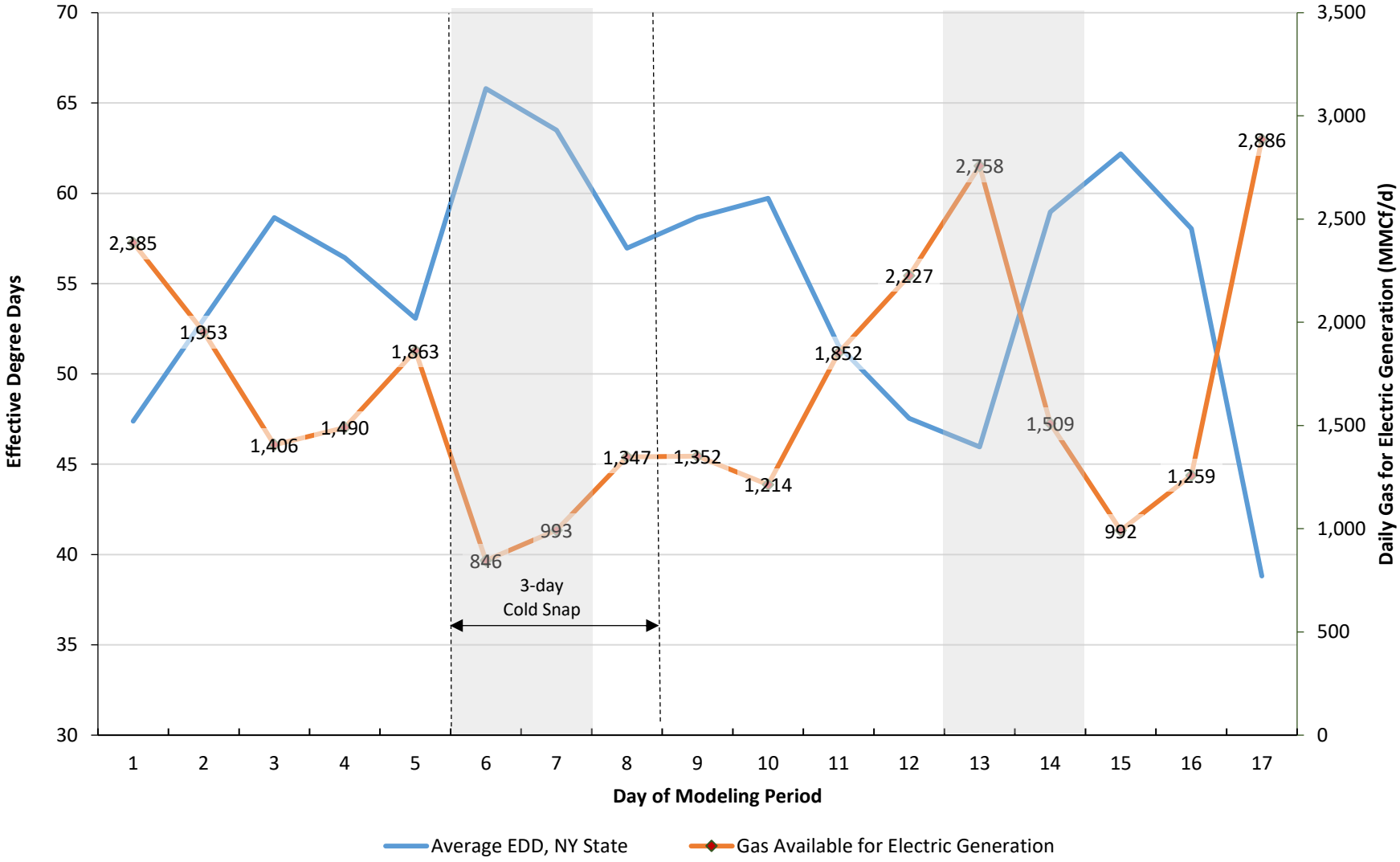
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 7 No Refill



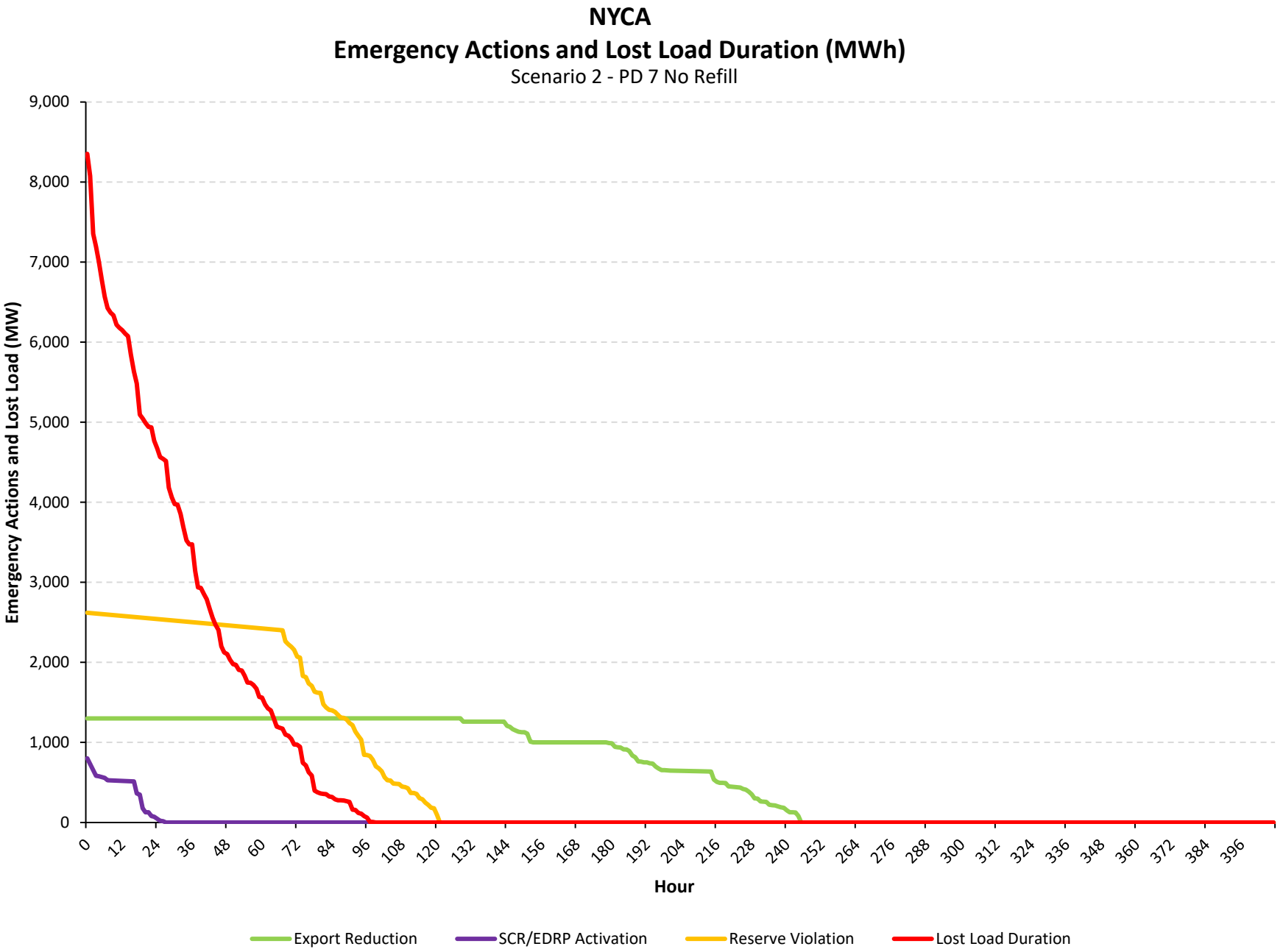
NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 2 - PD 7 No Refill

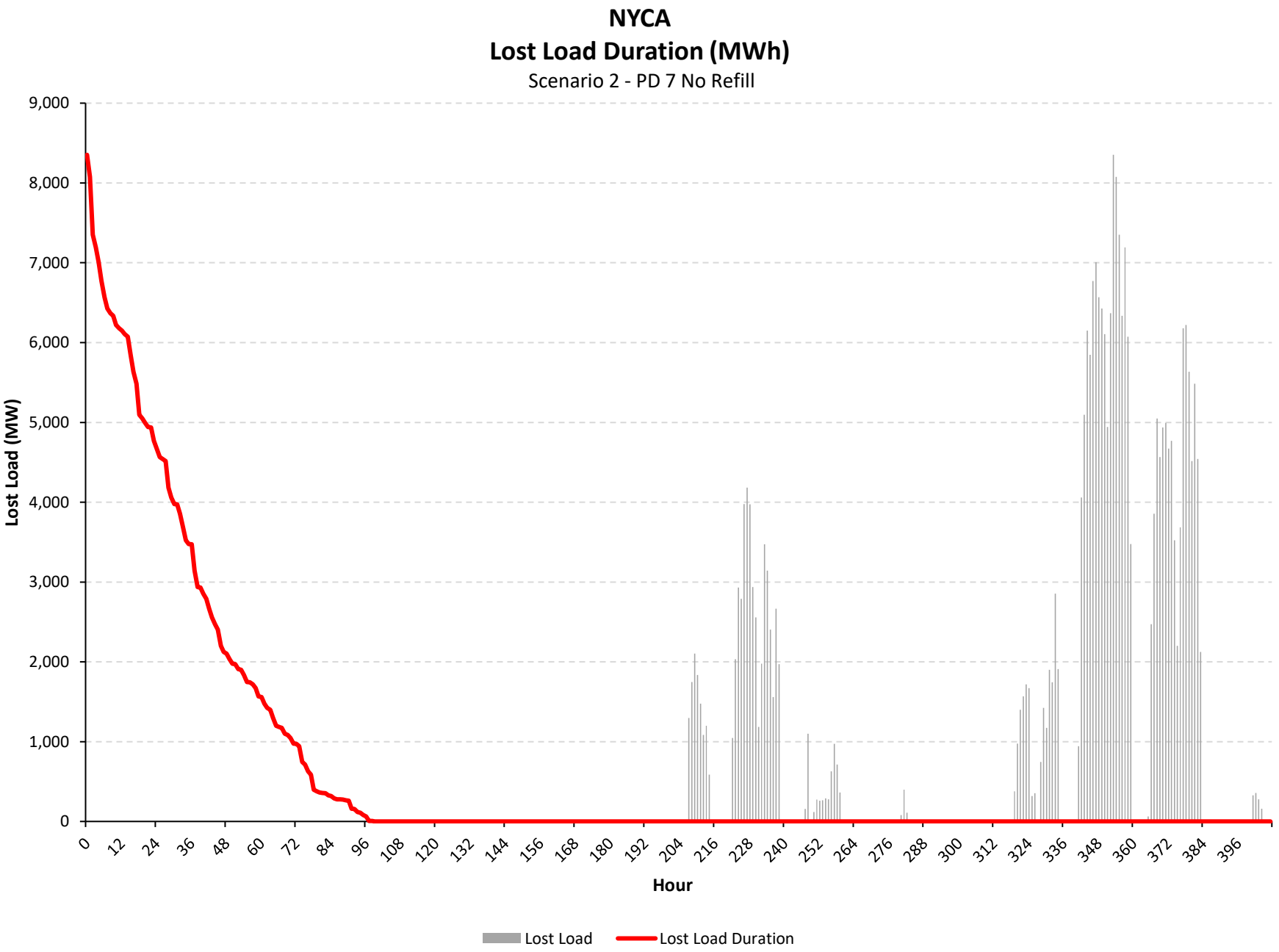


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 7 No Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 7 No Refill
Emergency Actions and Lost Load (MW)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 7 No Refill
Lost Load (MW)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

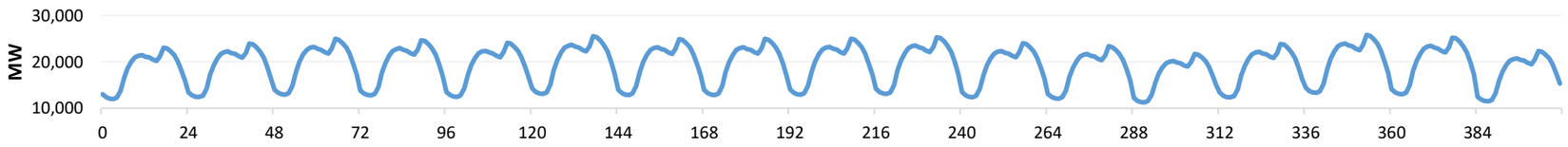
Case: Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K) (Winter 2023/2024)

Hourly Results Summary

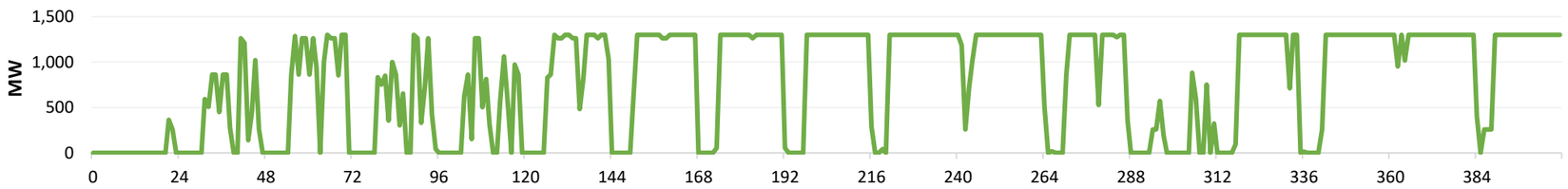
Case Name: Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

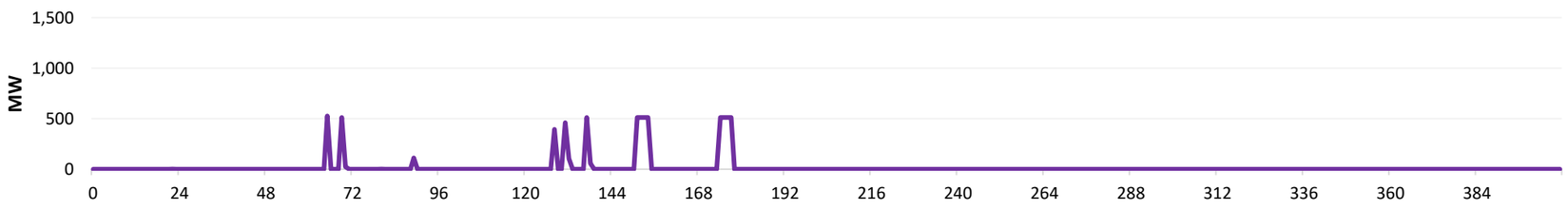


Export to ISO-NE Reduction During Modeling Period



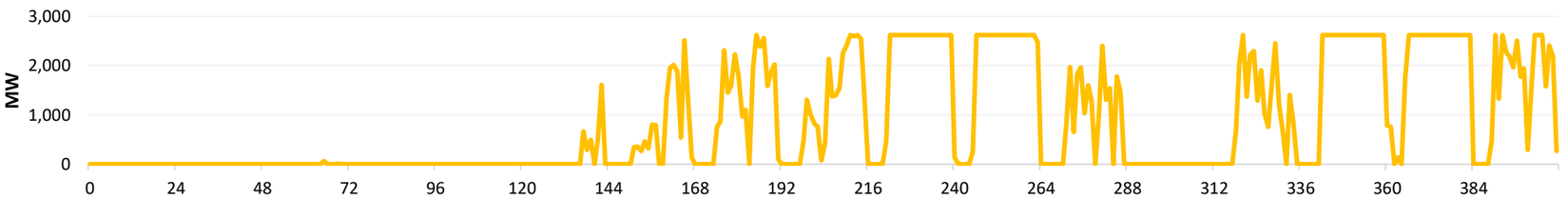
Export Reductions	
Total Hrs.	291
Total MWh	319,746
Avg. MW	783.7

SCR/EDRP Deployed During Modeling Period



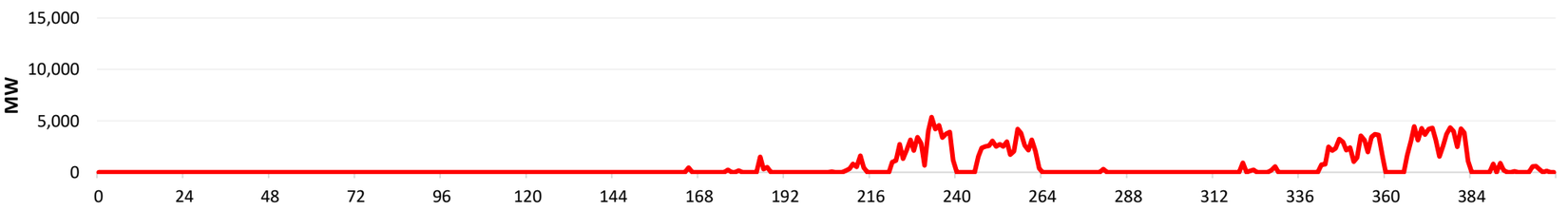
SCR Deployment	
Total Hrs.	17
Total MWh	6,779
Avg. MW	16.6

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	185
Total MWh	348,073
Avg. MW	853.1
First Hour with Viol.	65

Loss of Load During Modeling Period

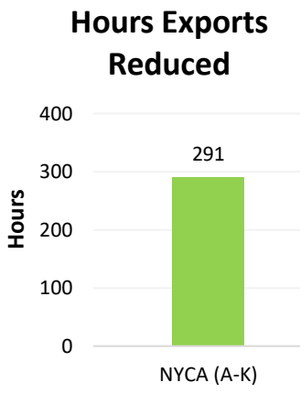


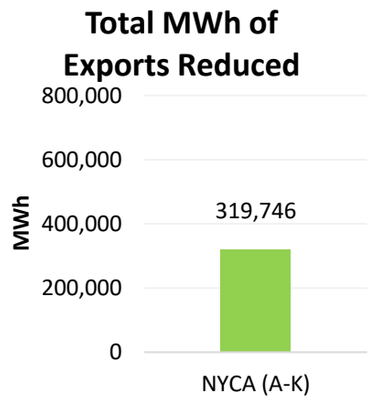
Loss of Load	
Total Hrs.	99
Total MWh	210,621
Avg. MW	516.2
First Hour with Losses	165

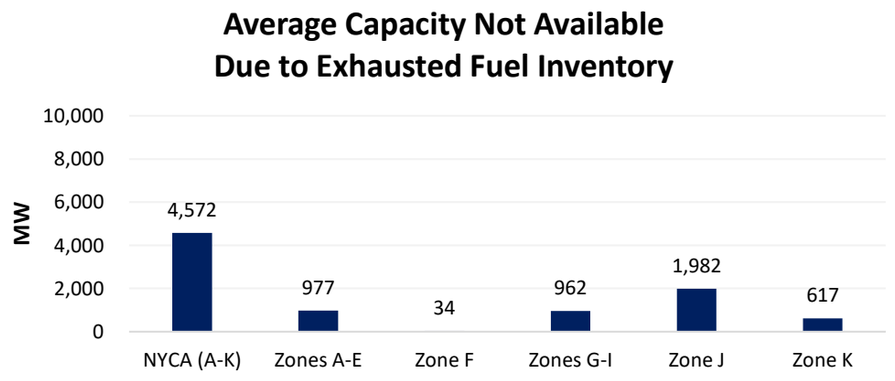
Full Period Results Summary

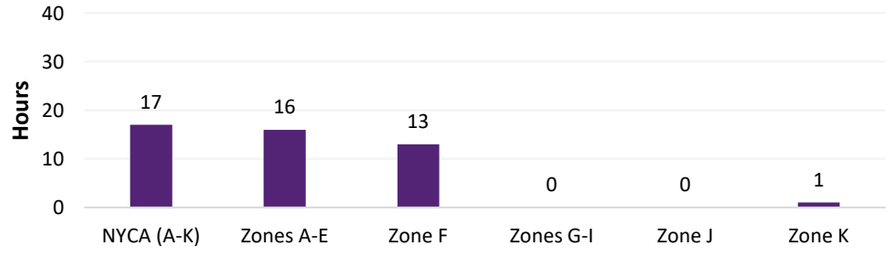
Case Name: Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)

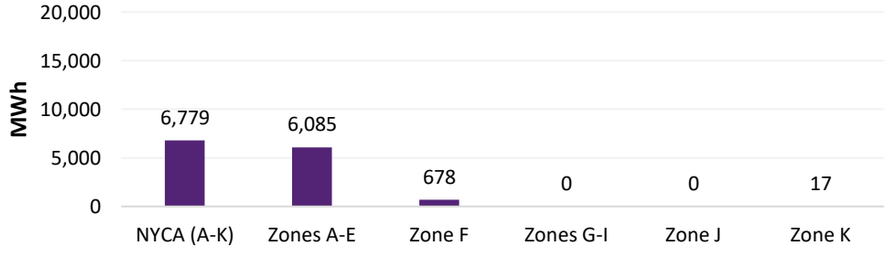
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

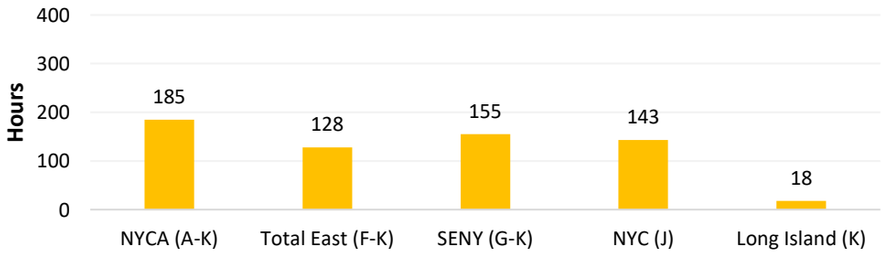


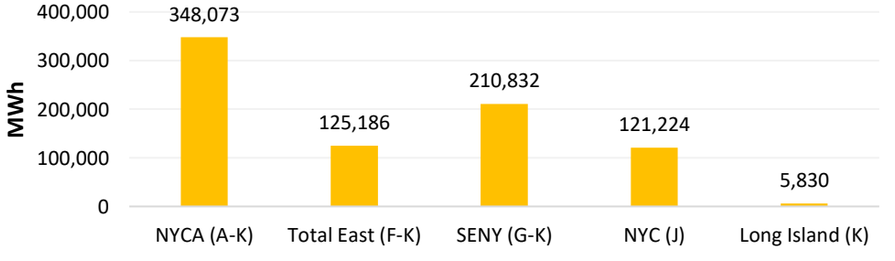


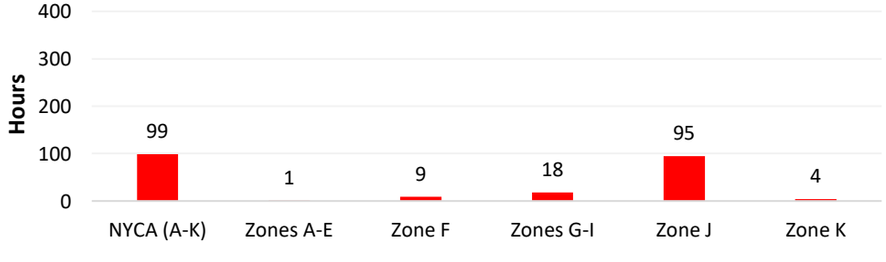


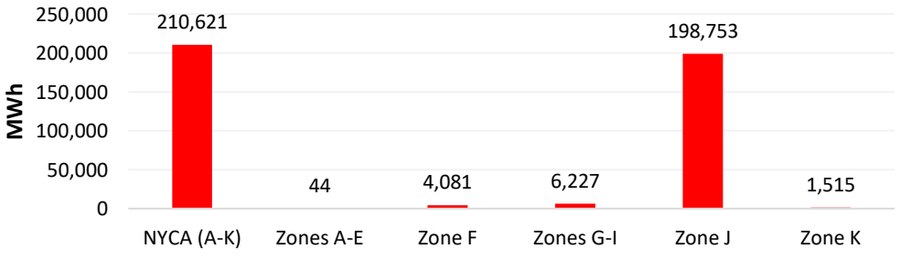


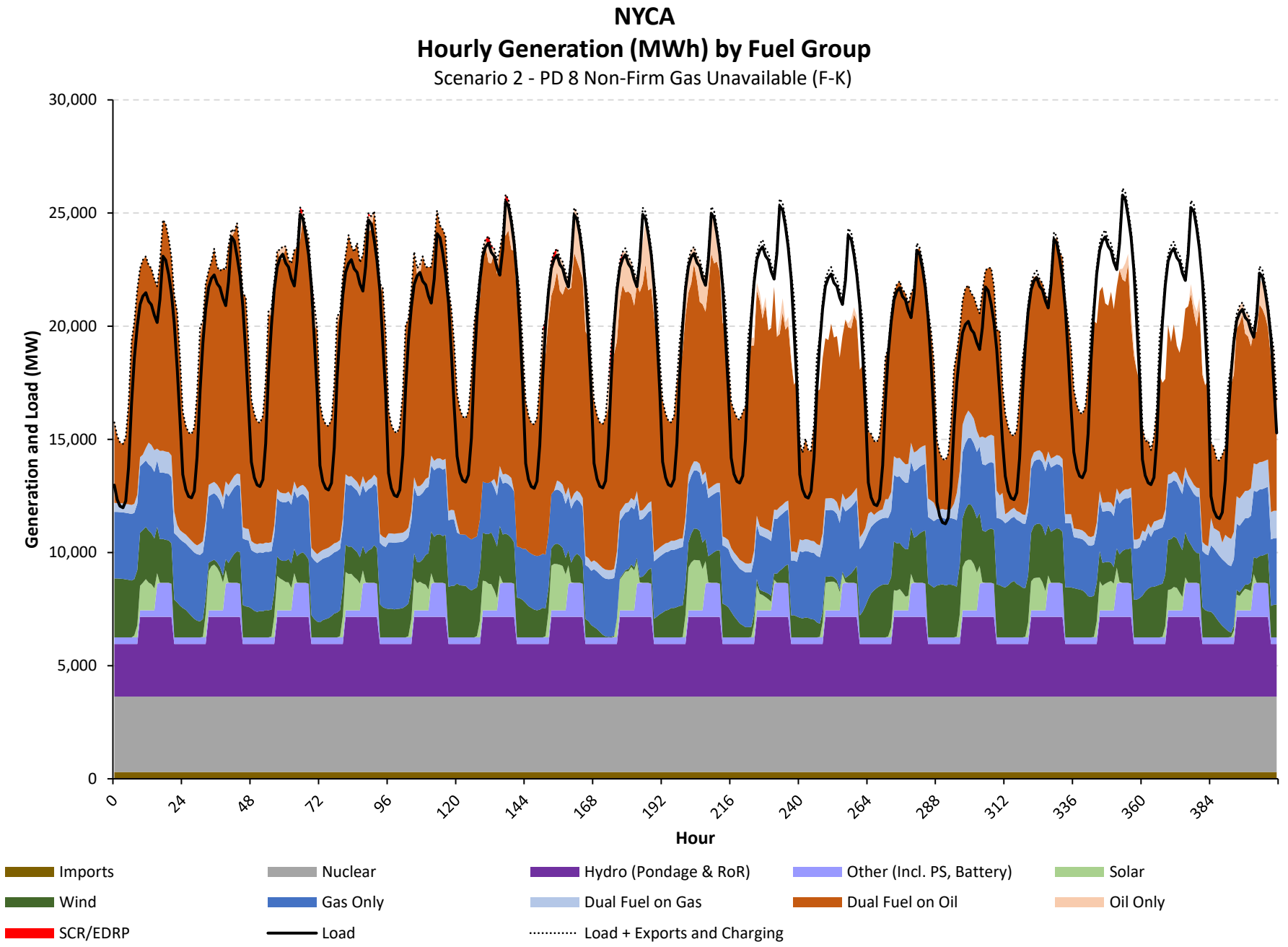




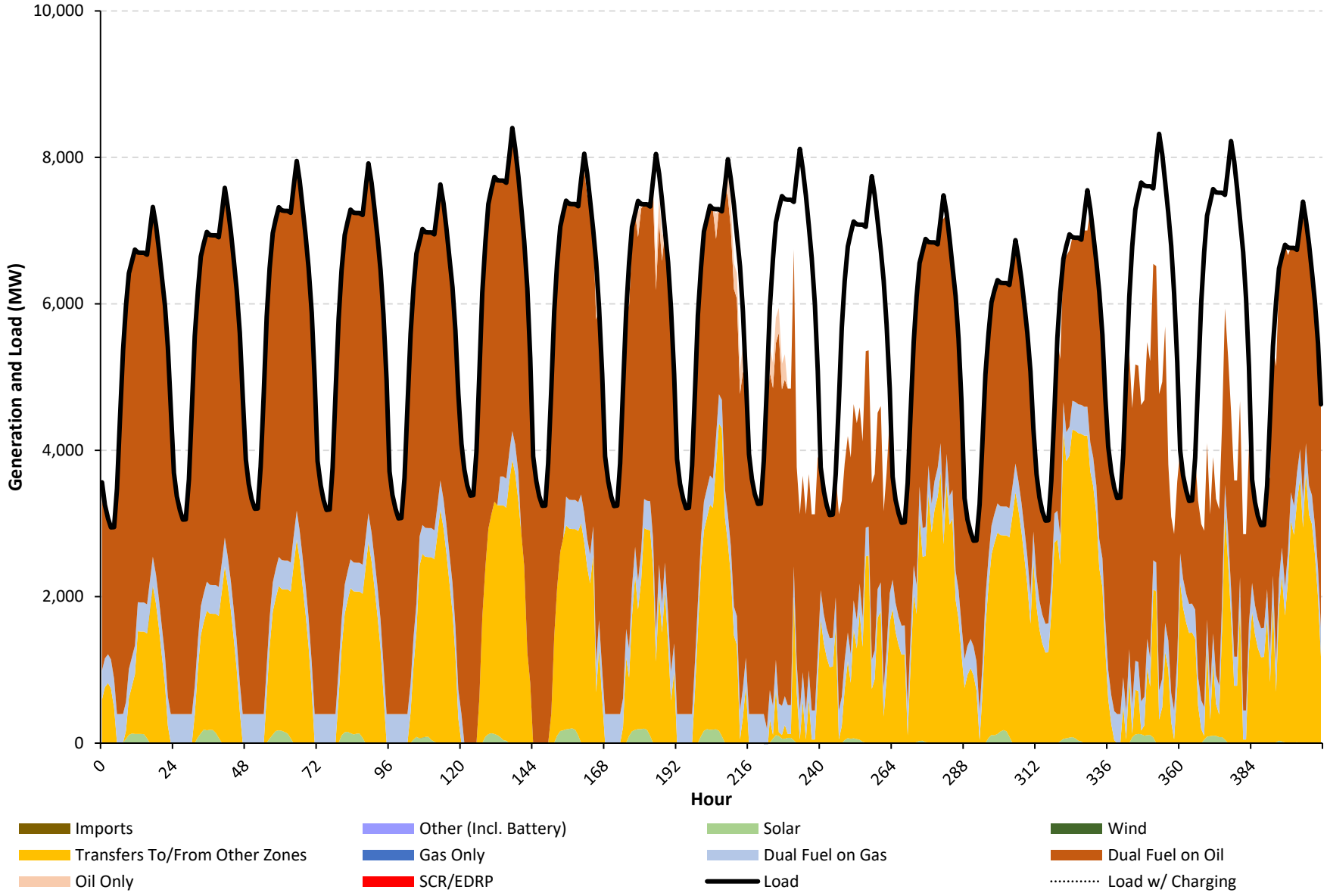




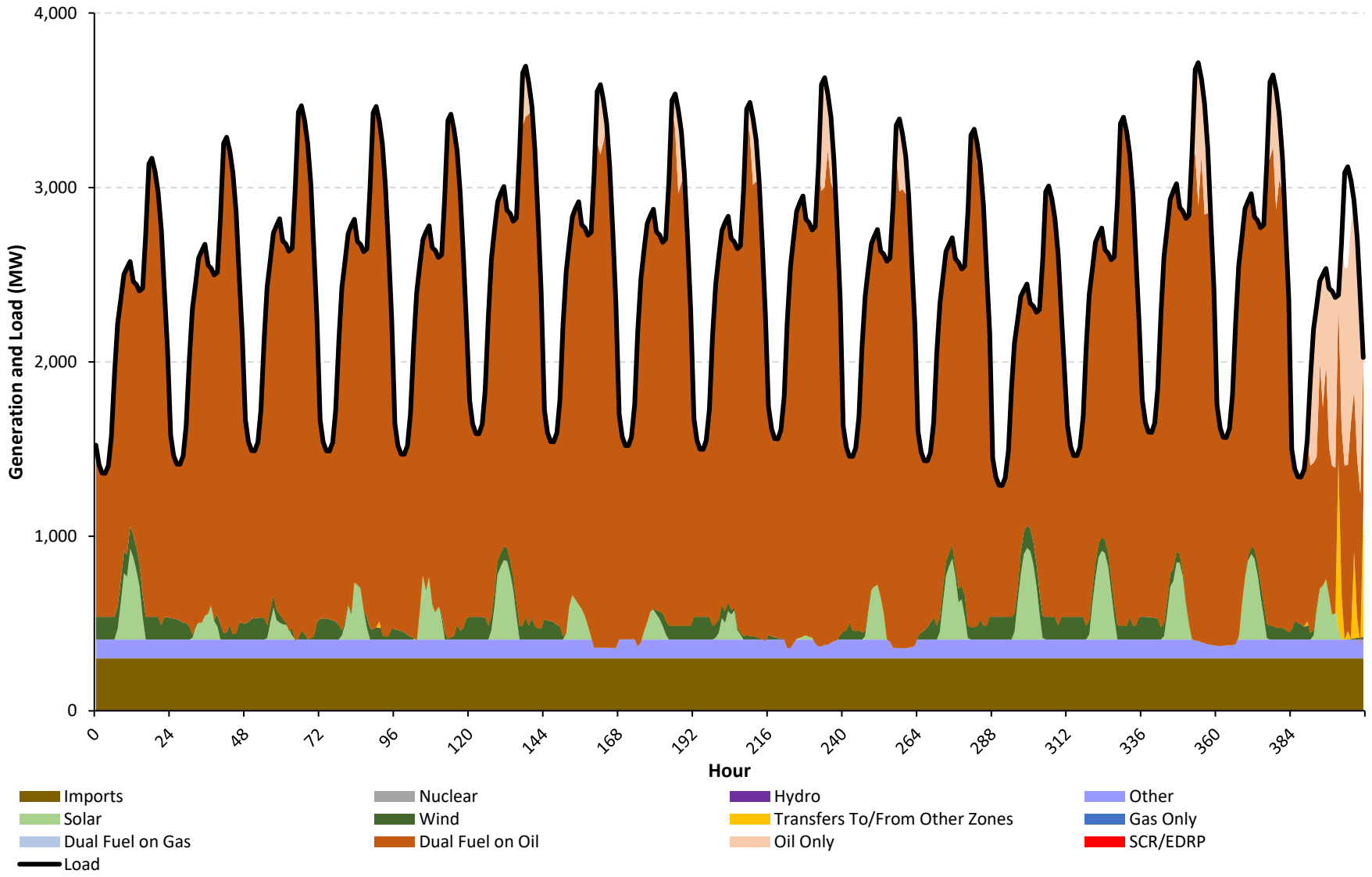



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)



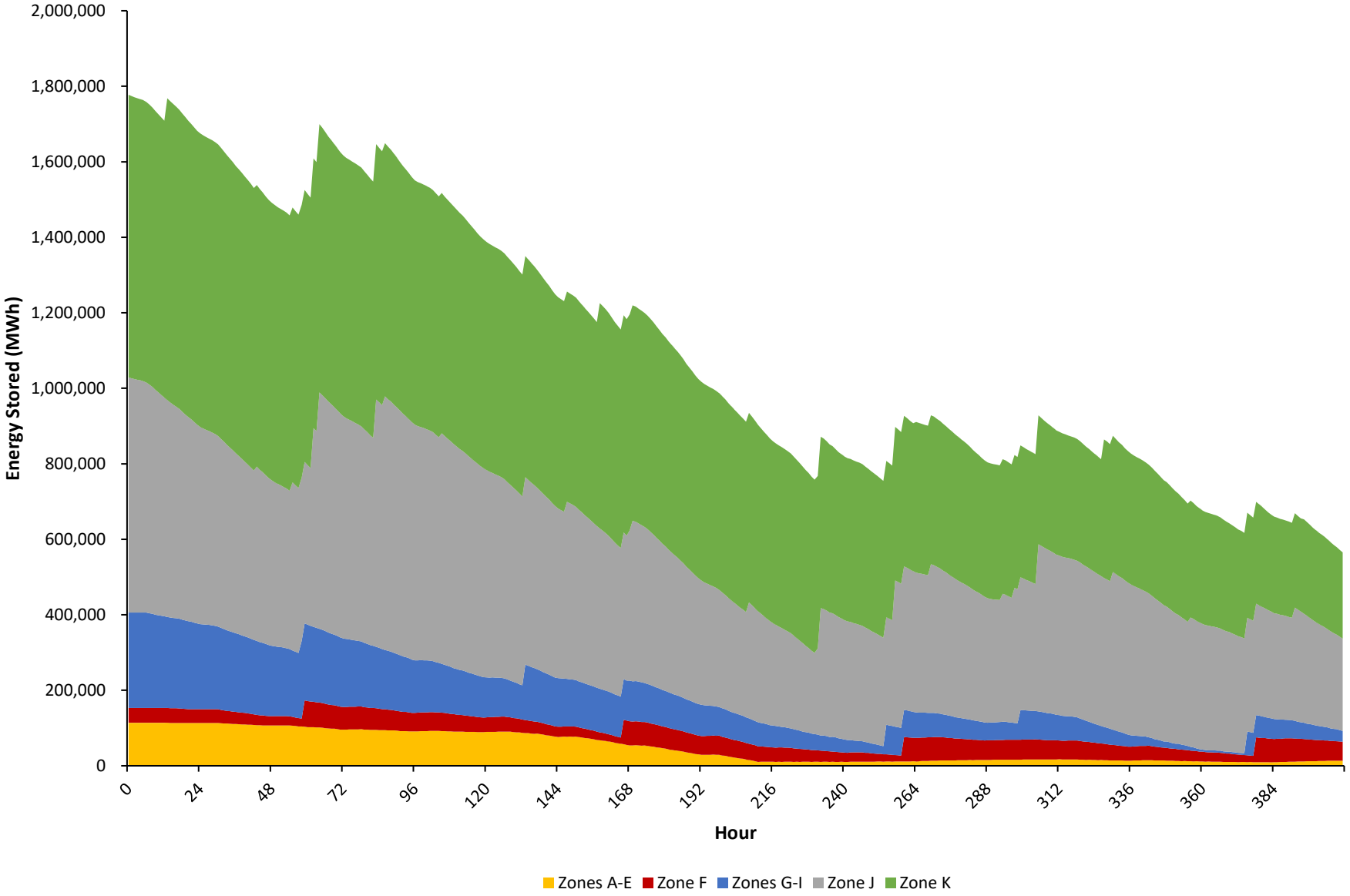
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)

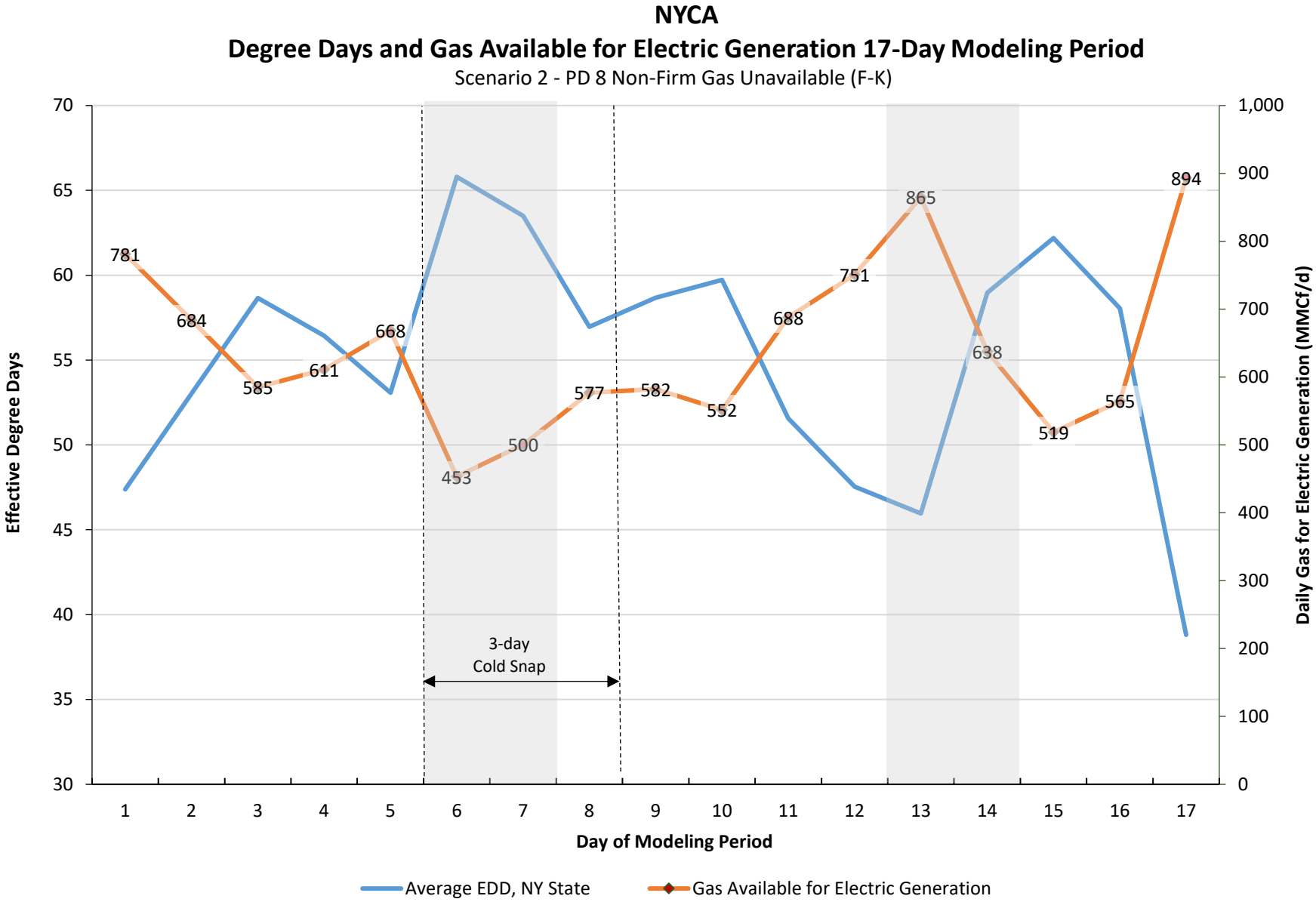


NYCA

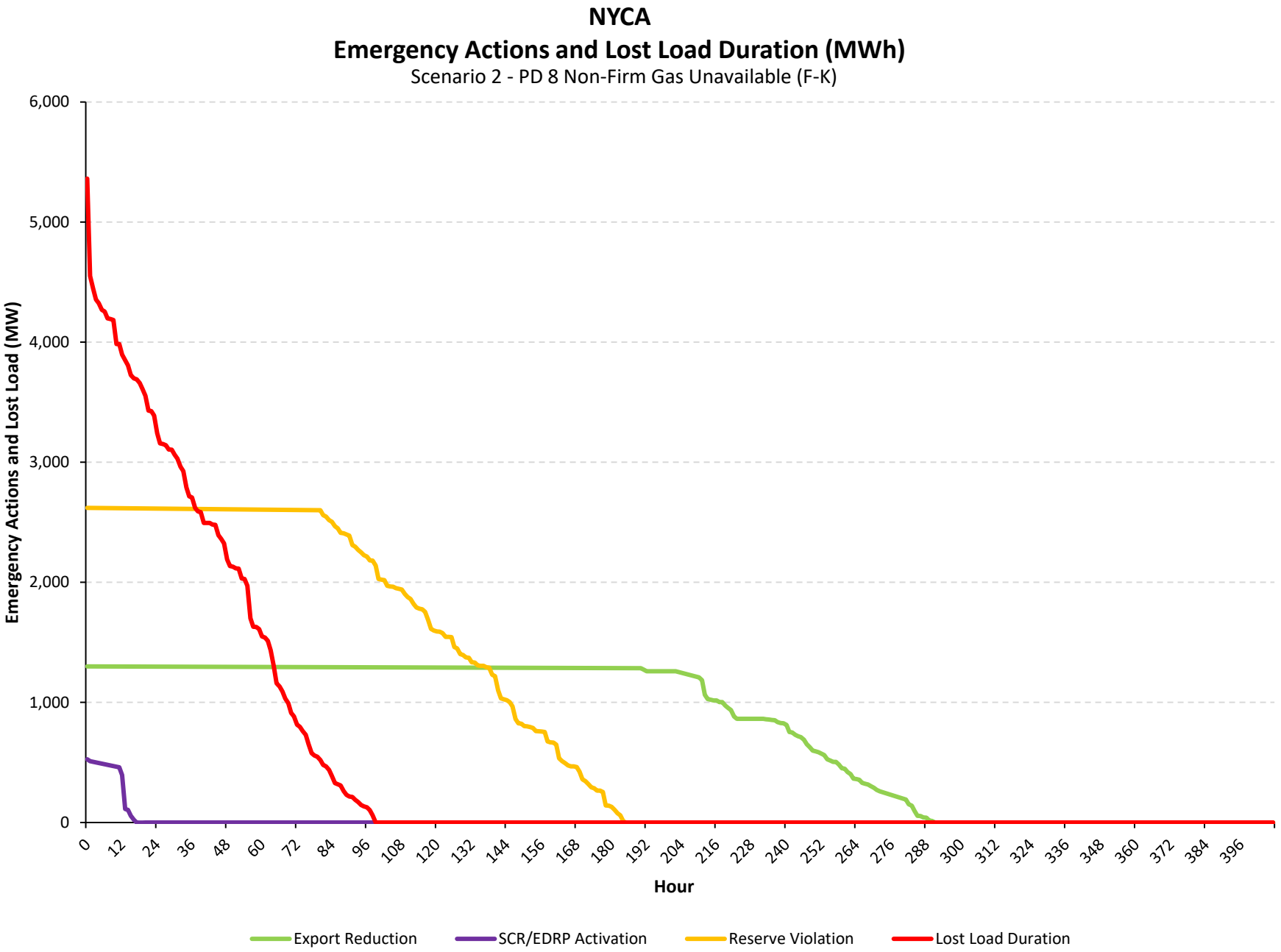
Quantity of Stored Fuel for Oil and Dual Fuel Units

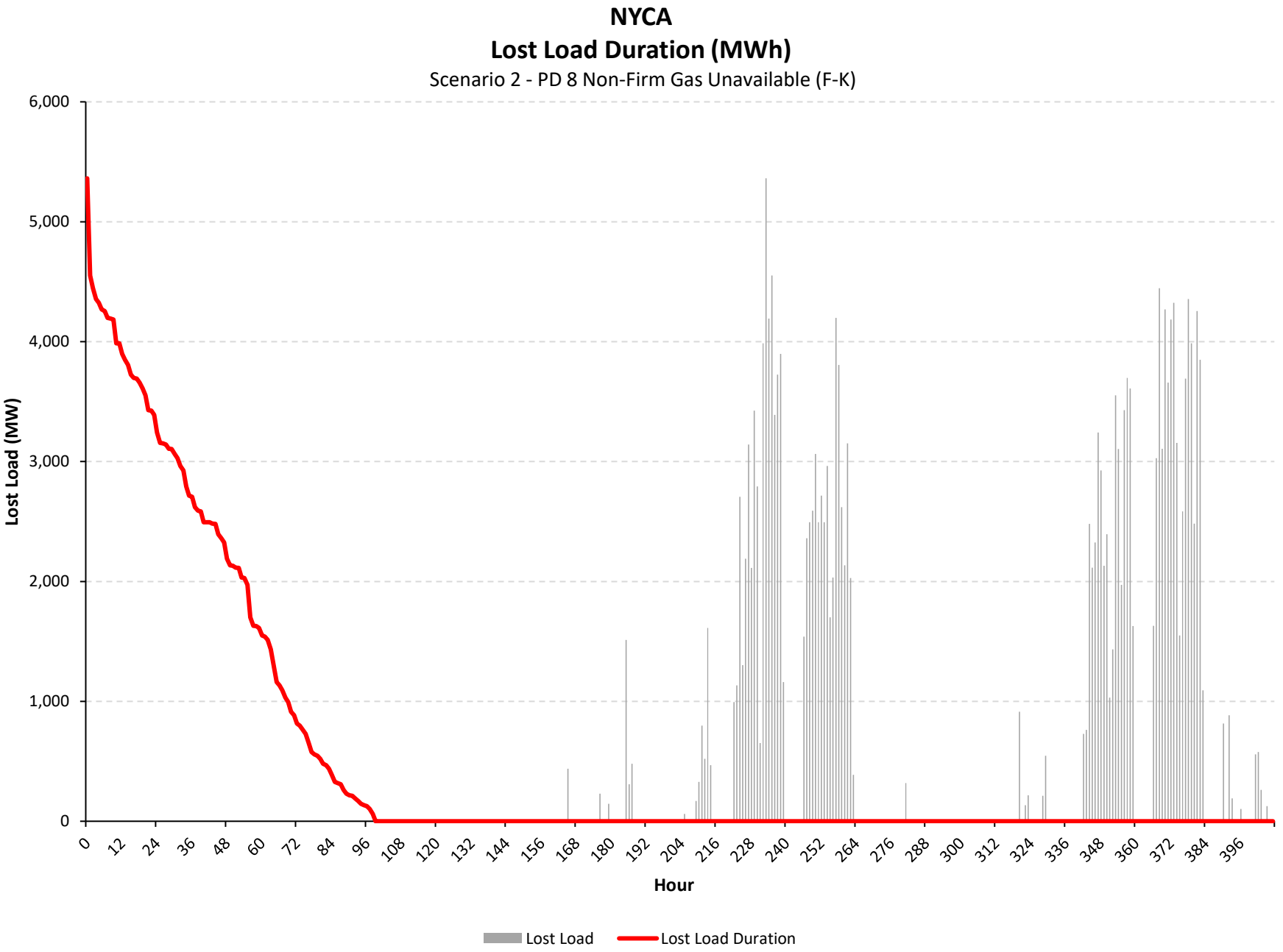
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)
Emergency Actions and Lost Load (MW)
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 8 Non-Firm Gas Unavailable (F-K)
Lost Load (MW)
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

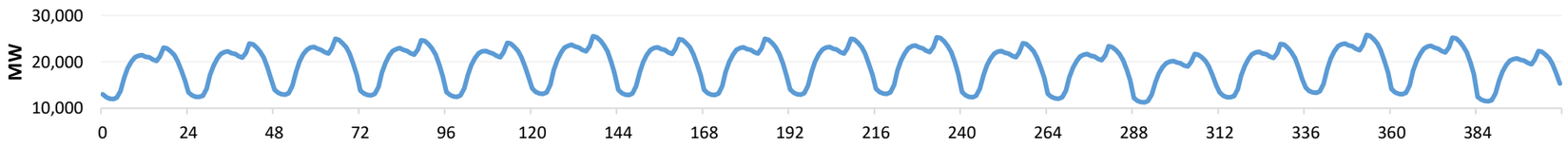
Case: Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA) (Winter 2023/2024)

Hourly Results Summary

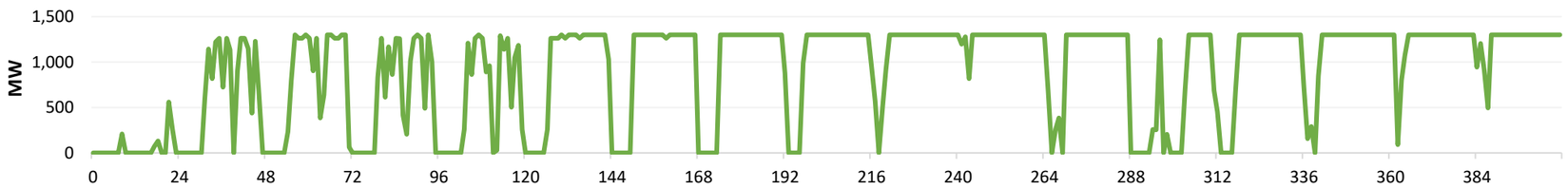
Case Name: Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

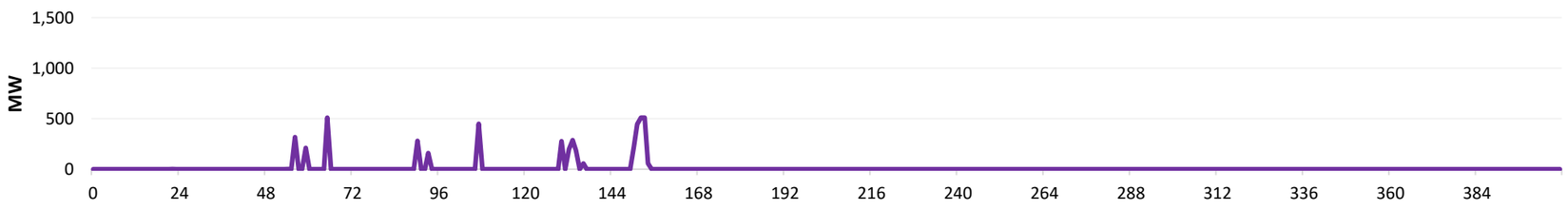


Export to ISO-NE Reduction During Modeling Period



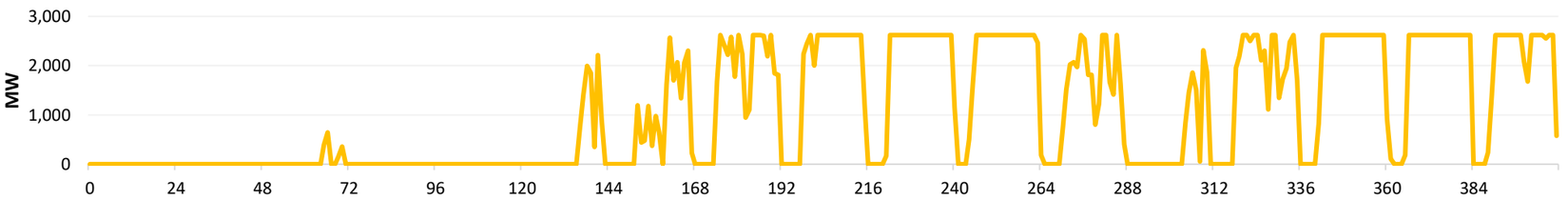
Export Reductions	
Total Hrs.	317
Total MWh	365,569
Avg. MW	896.0

SCR/EDRP Deployed During Modeling Period



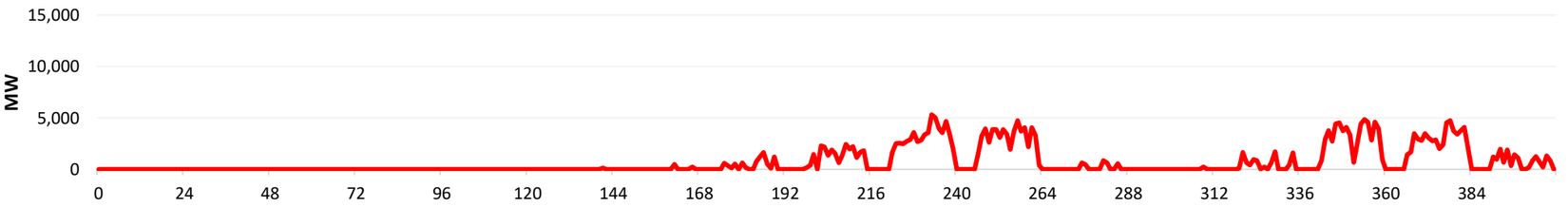
SCR Deployment	
Total Hrs.	16
Total MWh	4,684
Avg. MW	11.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	206
Total MWh	434,849
Avg. MW	1,065.8
First Hour with Viol.	65

Loss of Load During Modeling Period

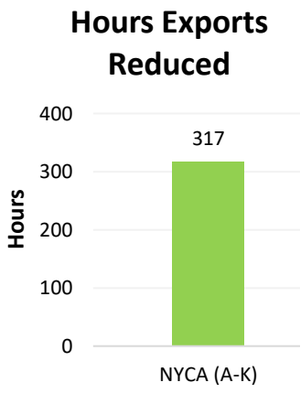


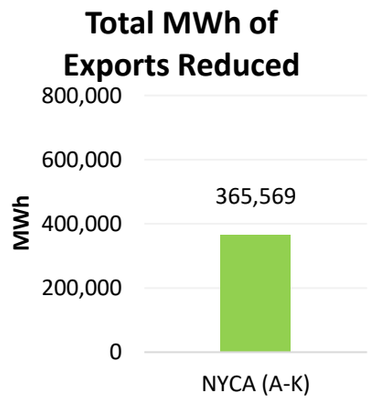
Loss of Load	
Total Hrs.	136
Total MWh	291,631
Avg. MW	714.8
First Hour with Losses	141

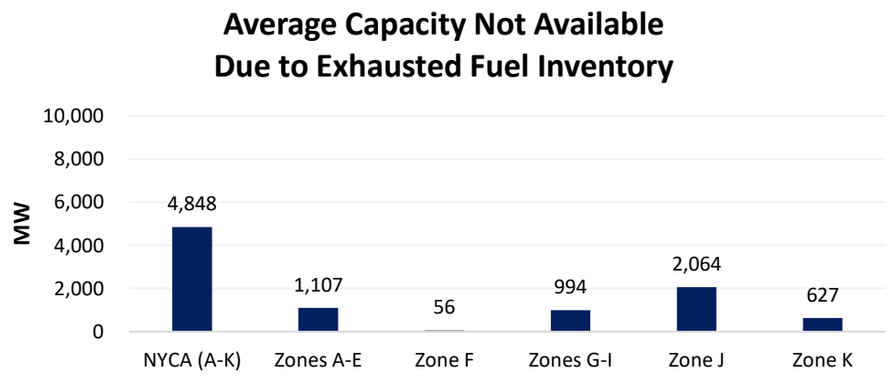
Full Period Results Summary

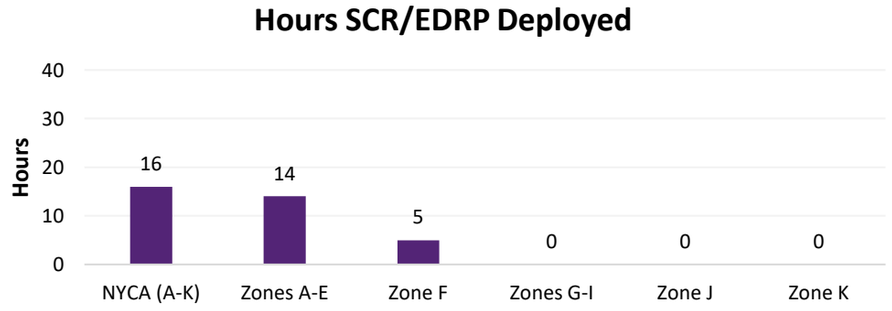
Case Name: Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)

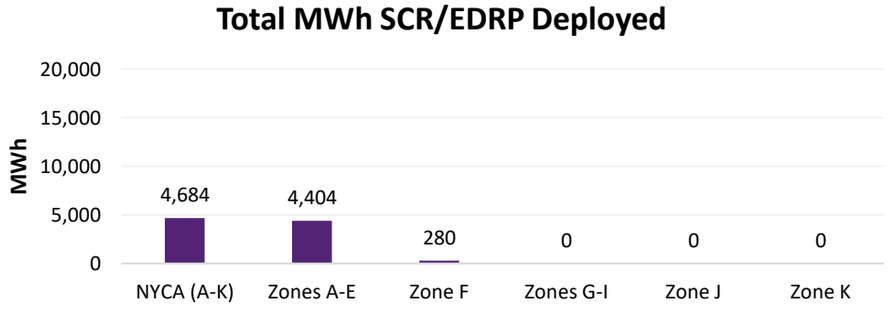
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

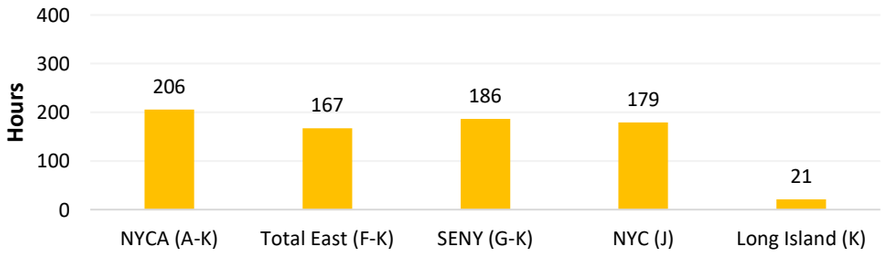


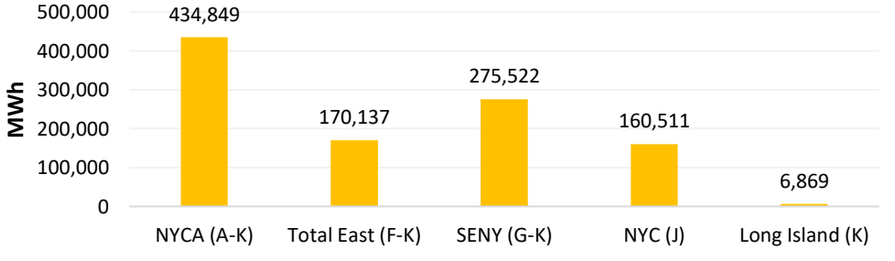


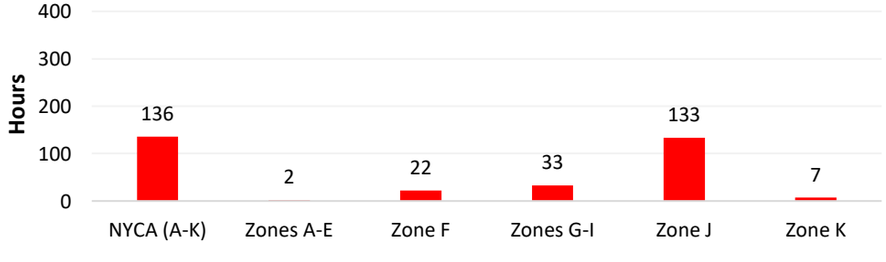


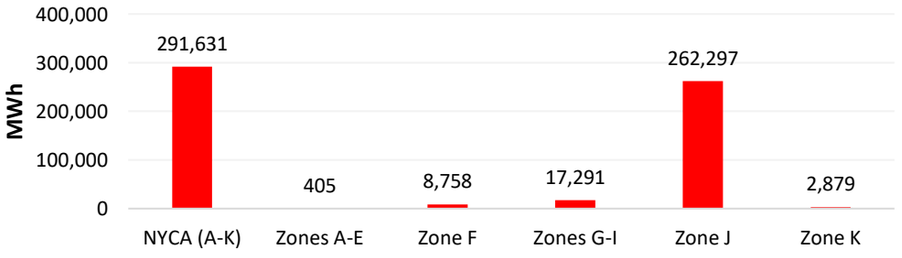


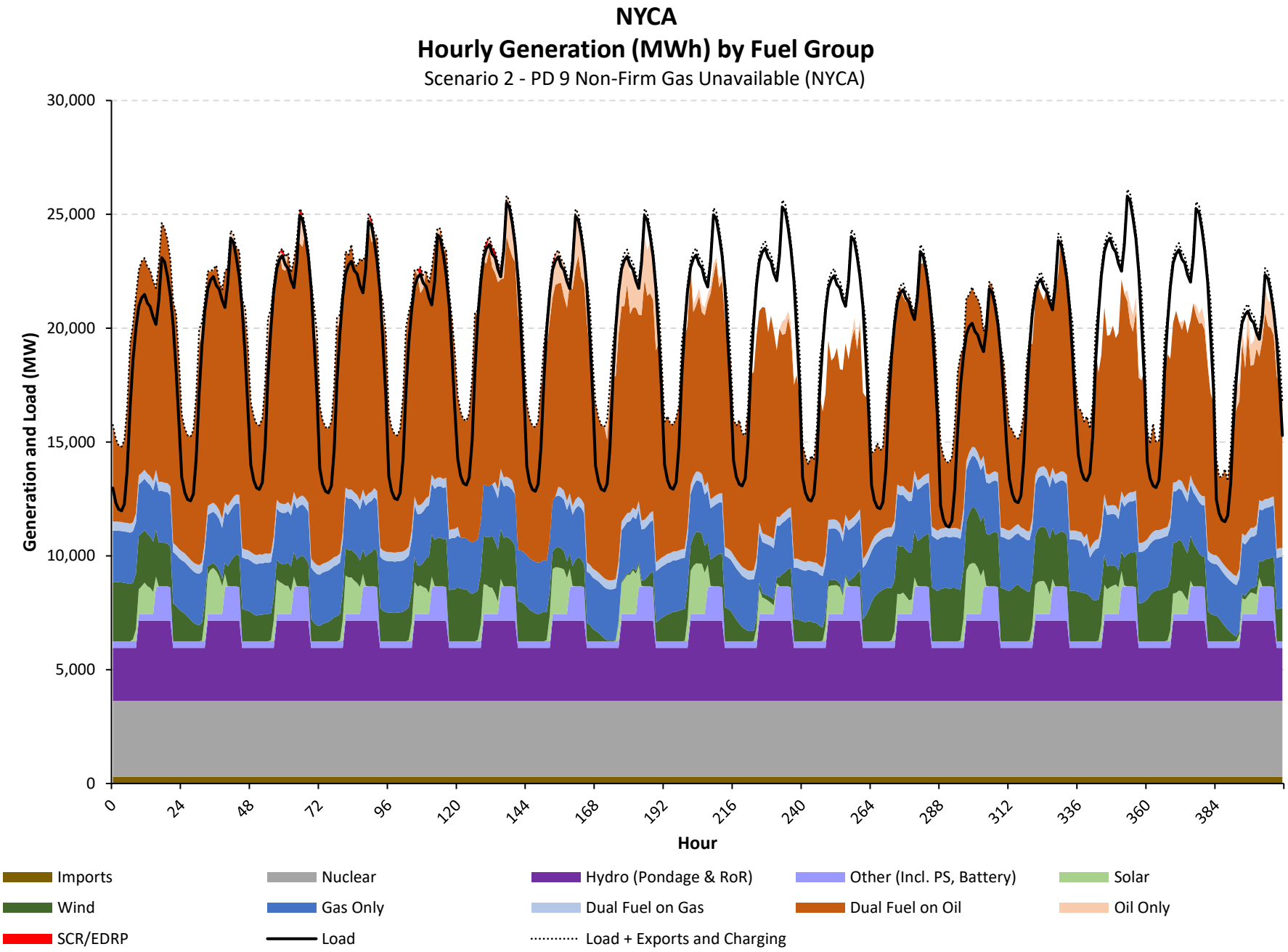




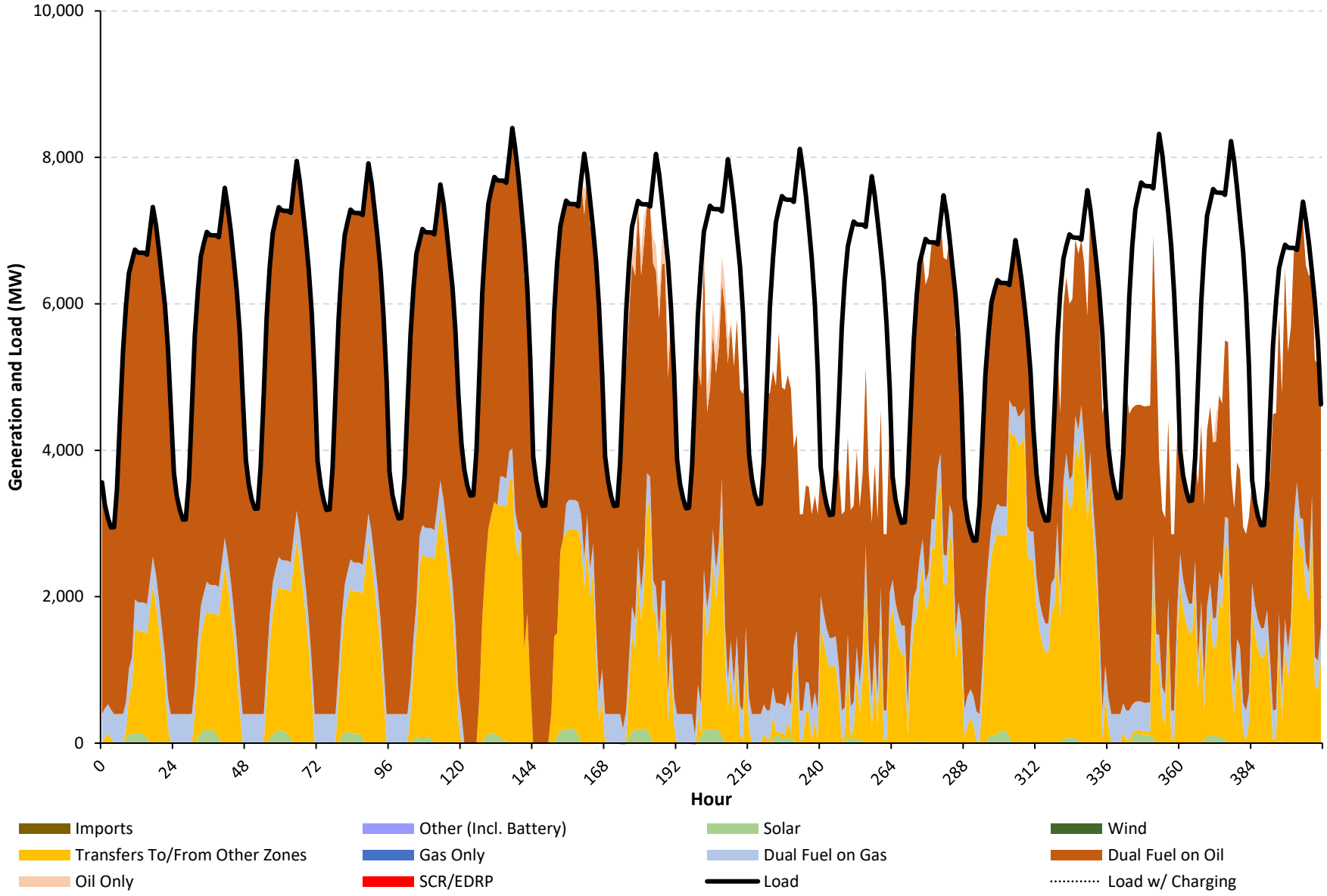




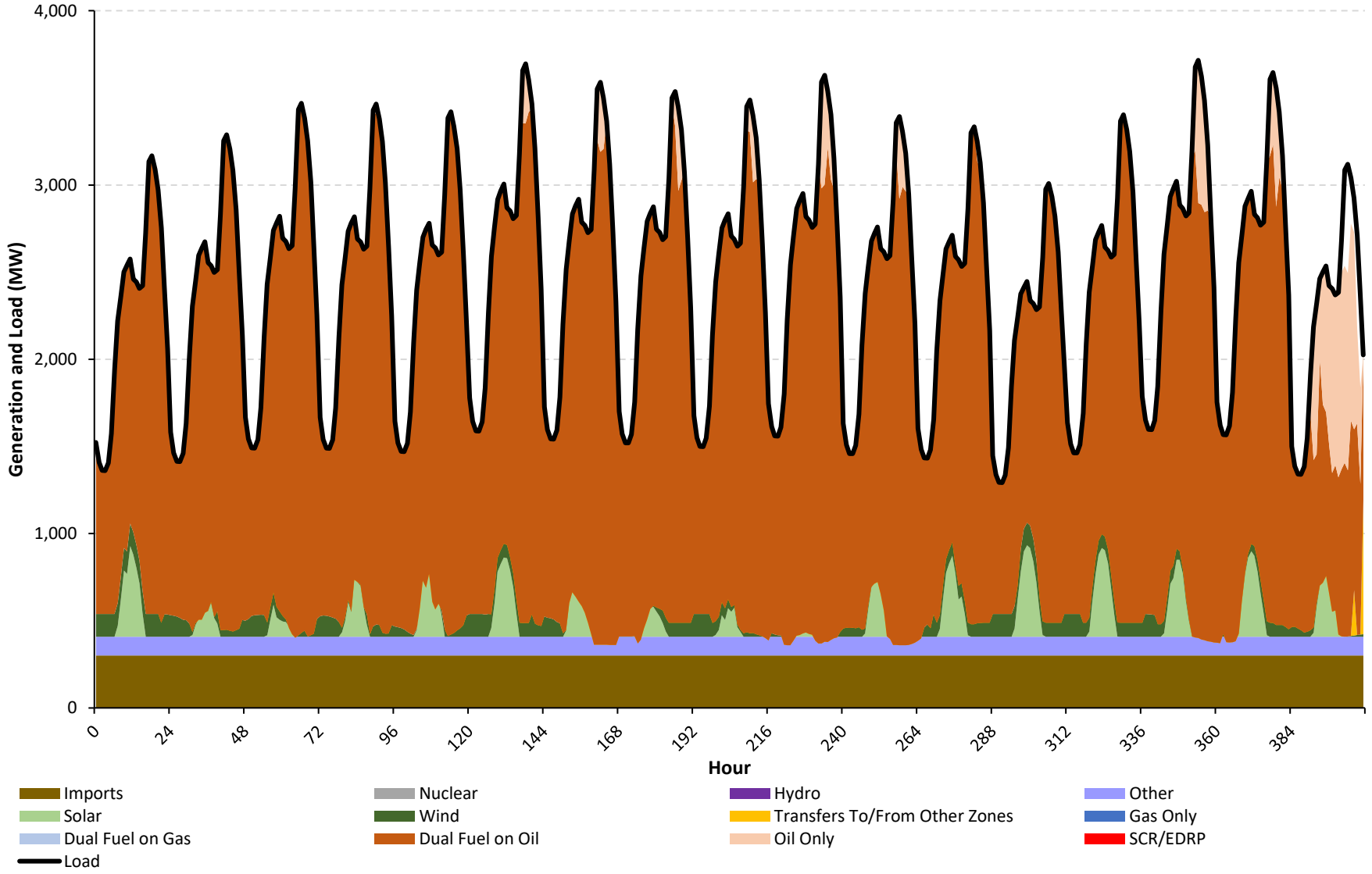



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)



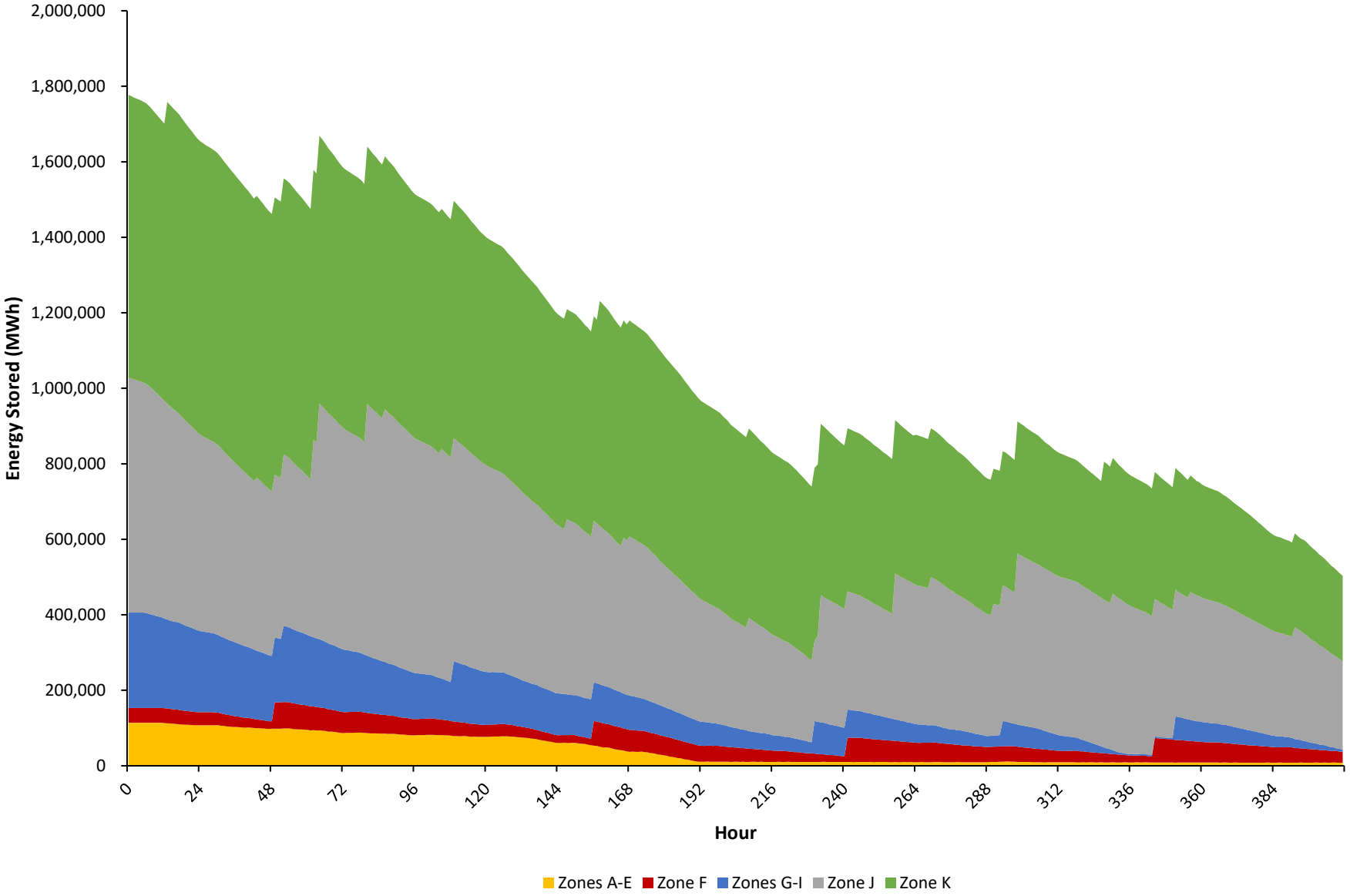
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)

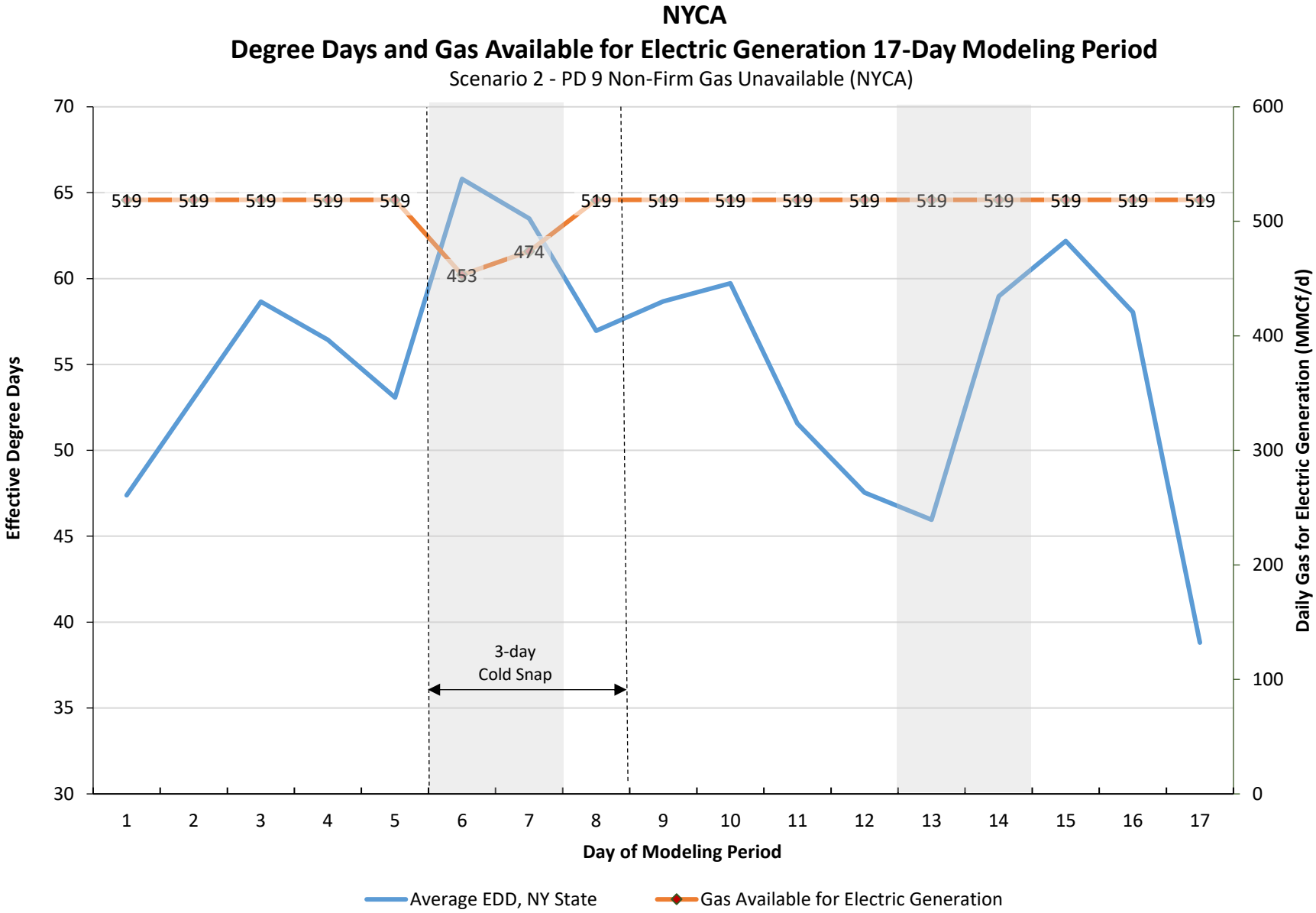


NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)



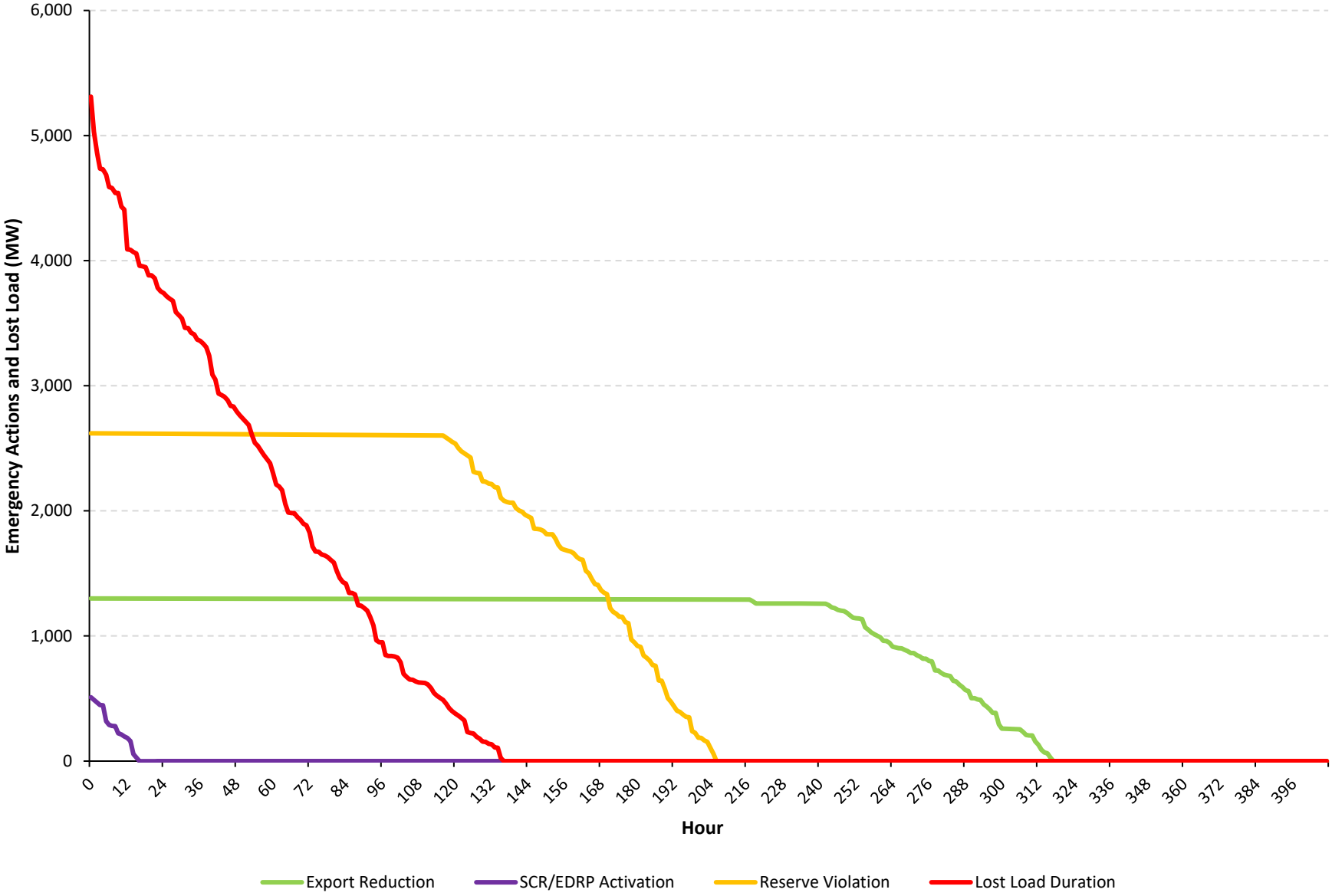


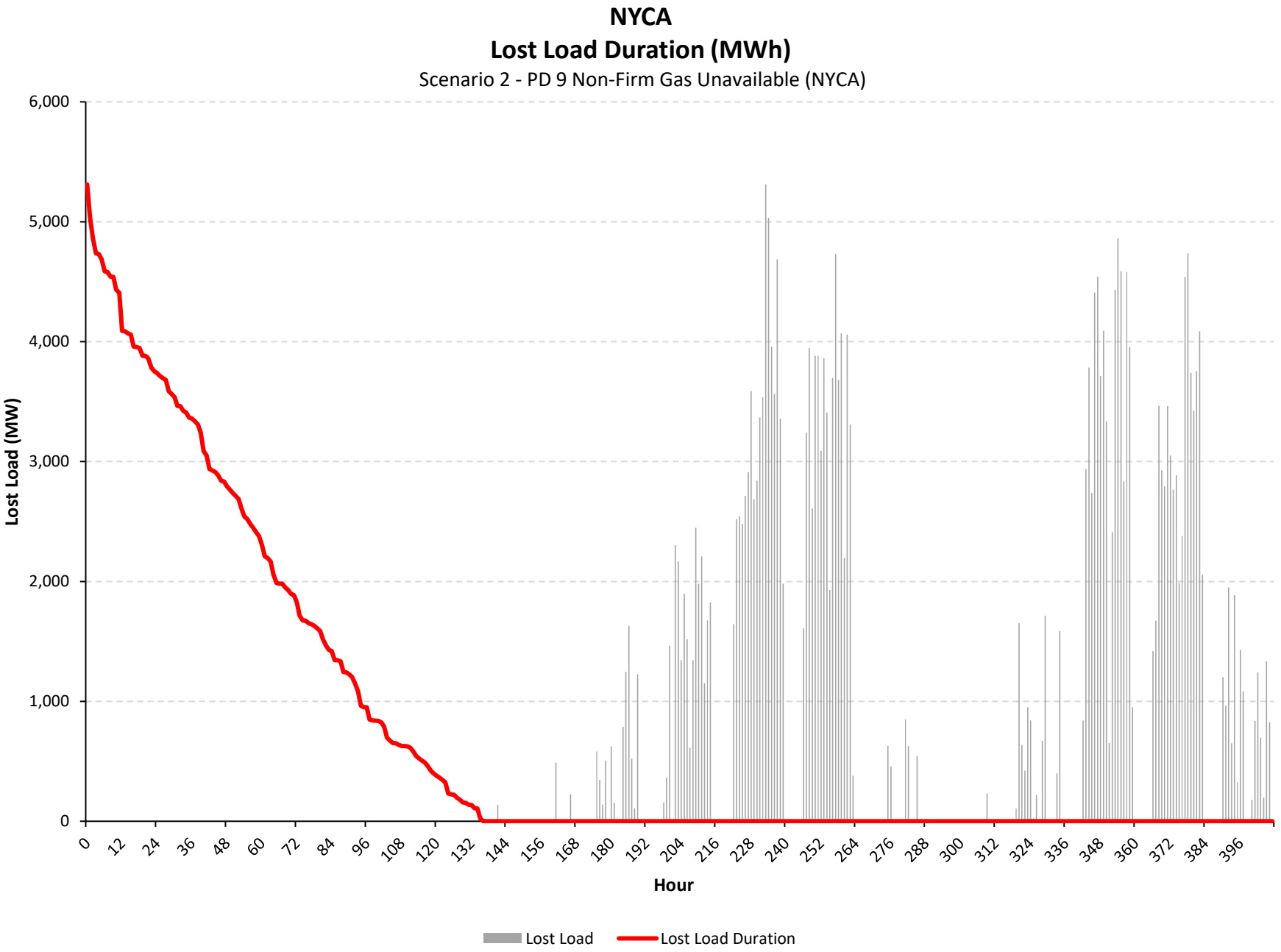
Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.

NYCA

Emergency Actions and Lost Load Duration (MWh)

Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)




NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 9 Non-Firm Gas Unavailable (NYCA)
Lost Load (MW)
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

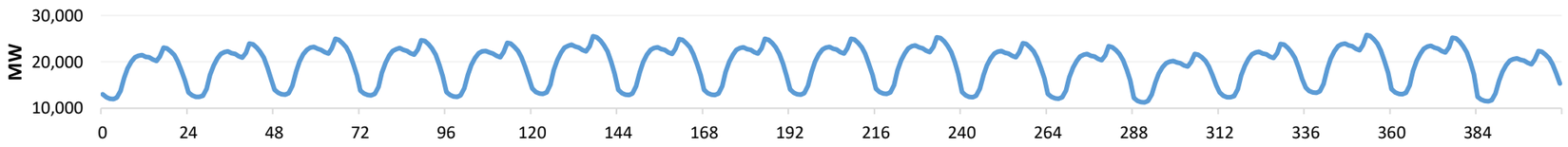
Case: Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days) (Winter 2023/2024)

Hourly Results Summary

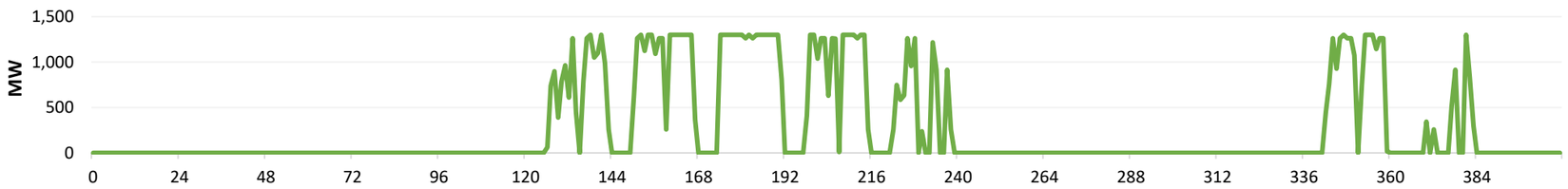
Case Name: Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period



Export to ISO-NE Reduction During Modeling Period

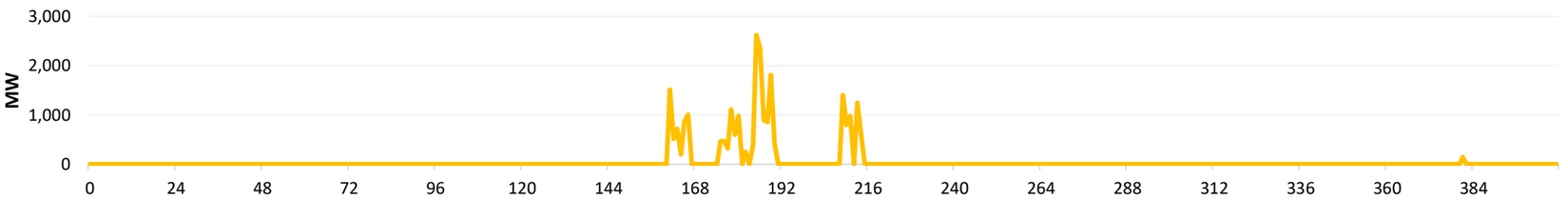


Export Reductions	
Total Hrs.	107
Total MWh	107,882
Avg. MW	264.4

SCR/EDRP Deployed During Modeling Period

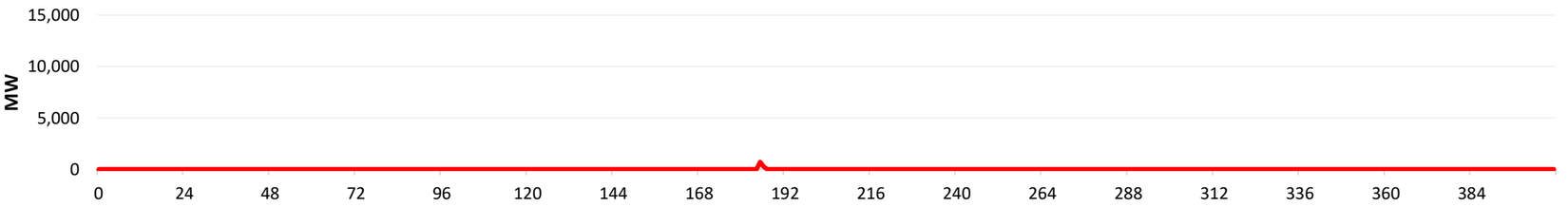
SCR Deployment	
Total Hrs.	22
Total MWh	7,368
Avg. MW	18.1

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	26
Total MWh	23,531
Avg. MW	57.7
First Hour with Viol.	161

Loss of Load During Modeling Period

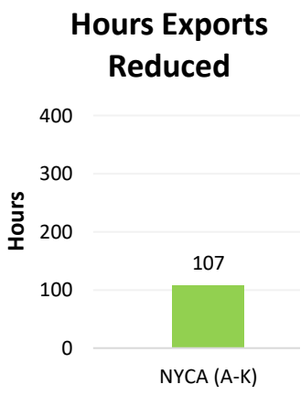


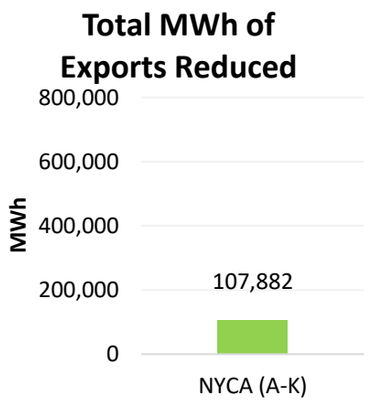
Loss of Load	
Total Hrs.	2
Total MWh	976
Avg. MW	2.4
First Hour with Losses	185

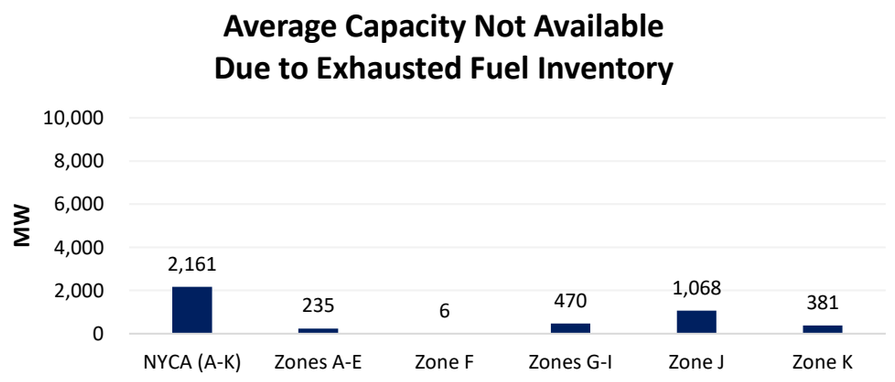
Full Period Results Summary

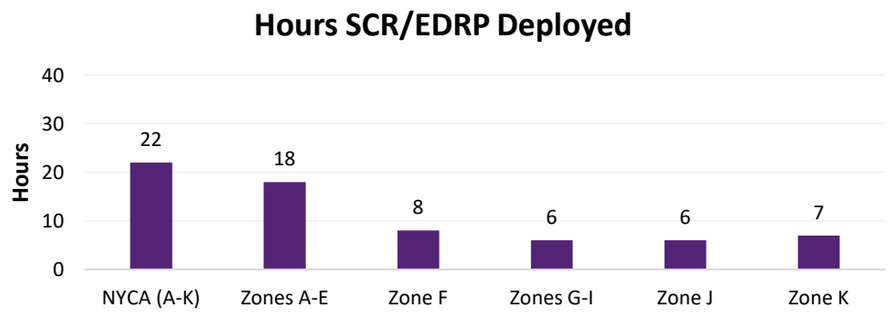
Case Name: Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)

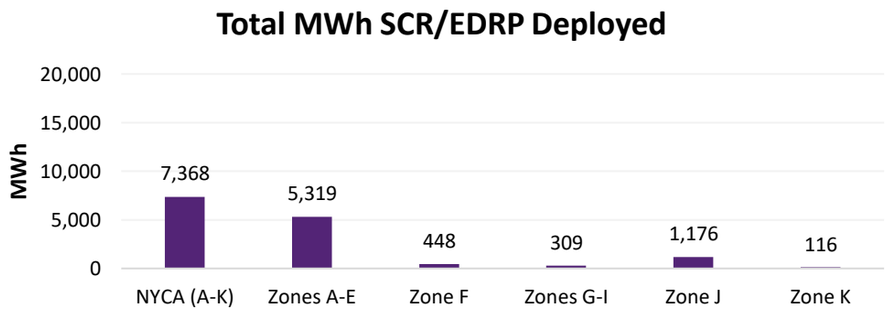
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	Historical
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

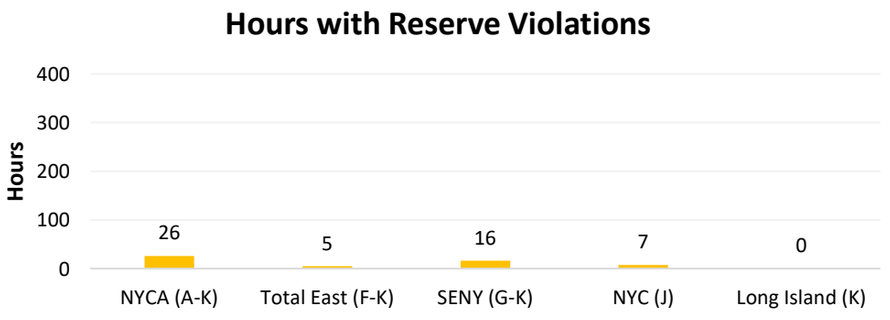


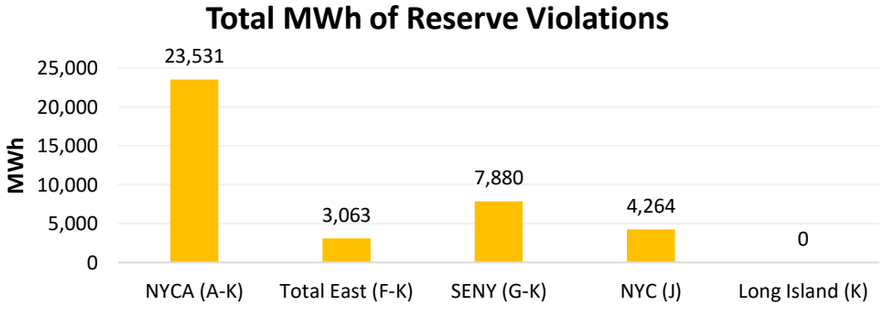


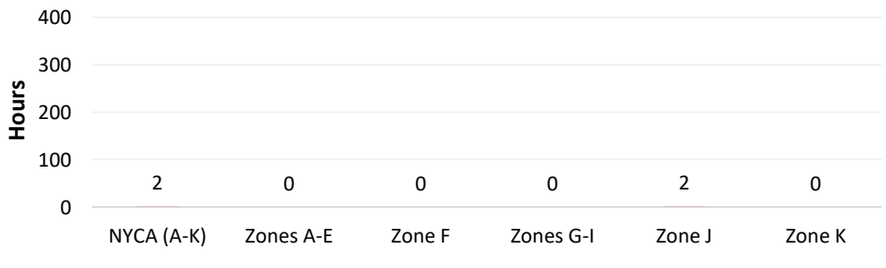


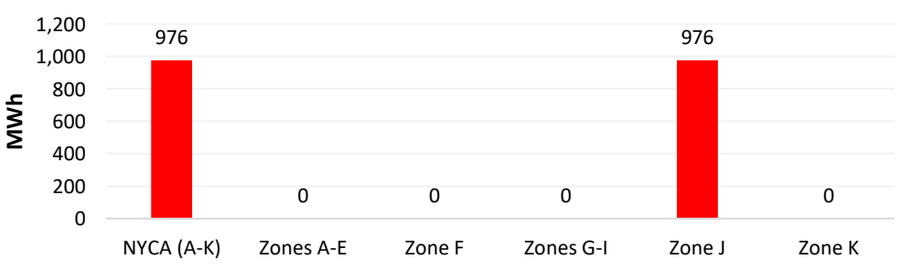


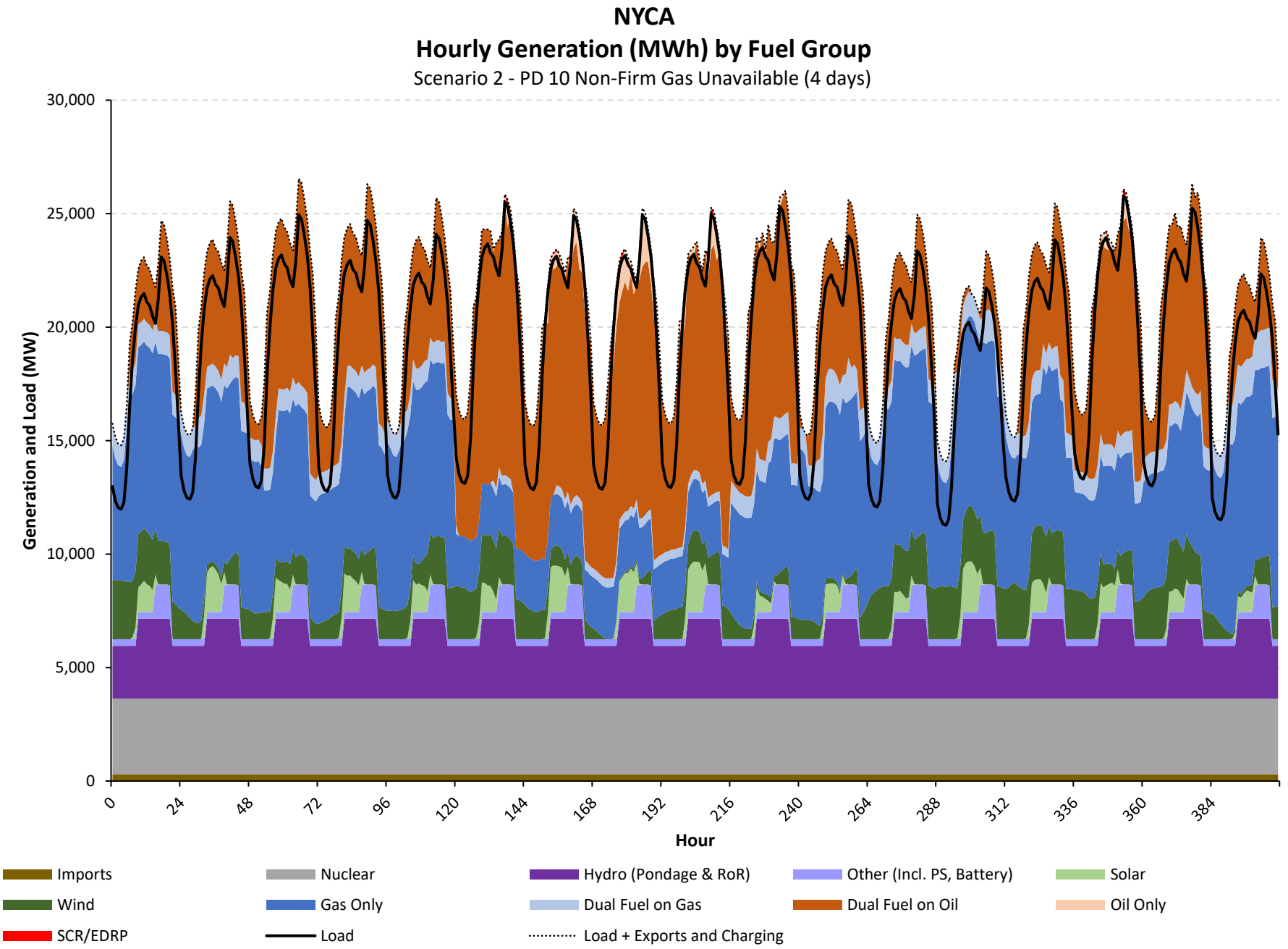




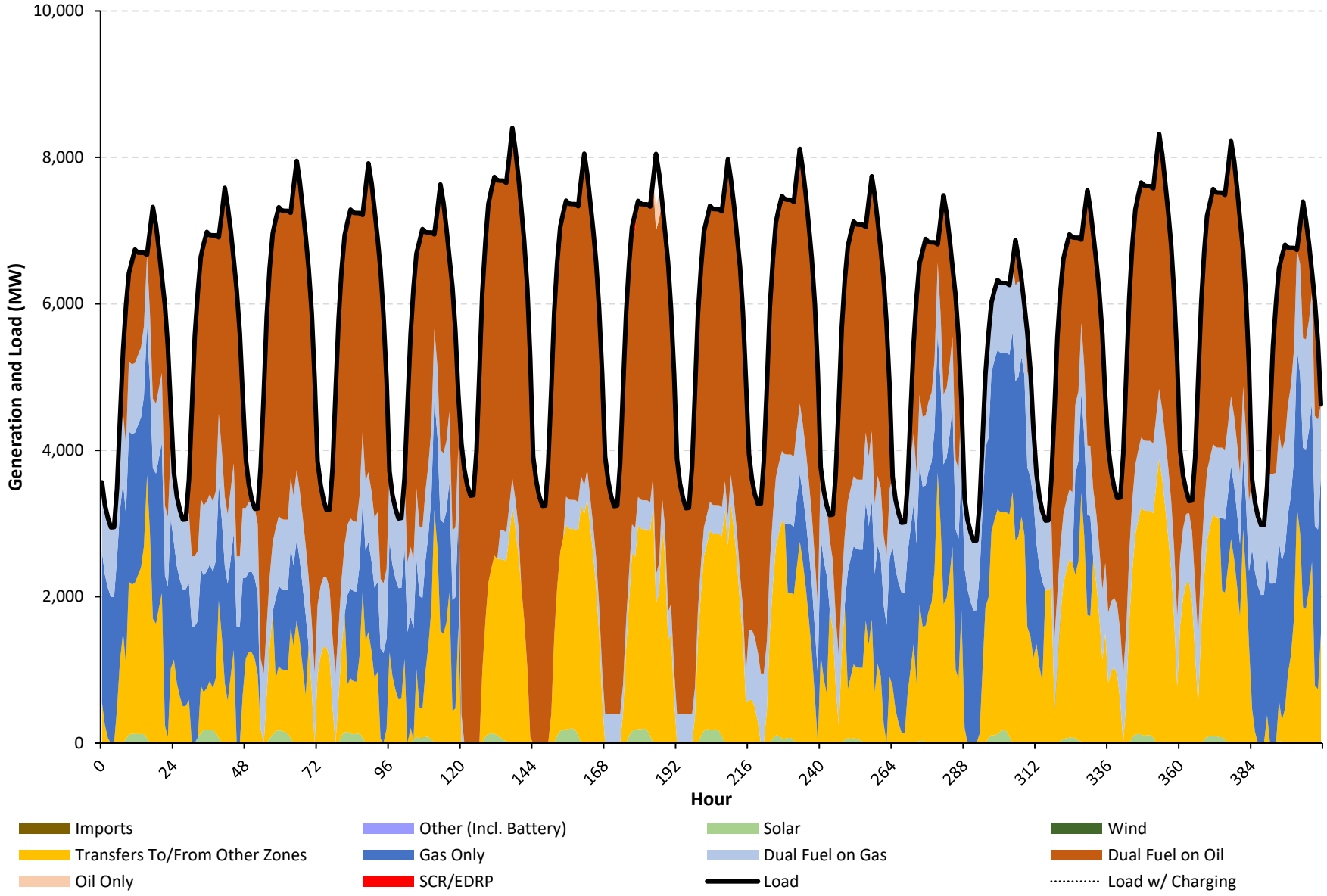




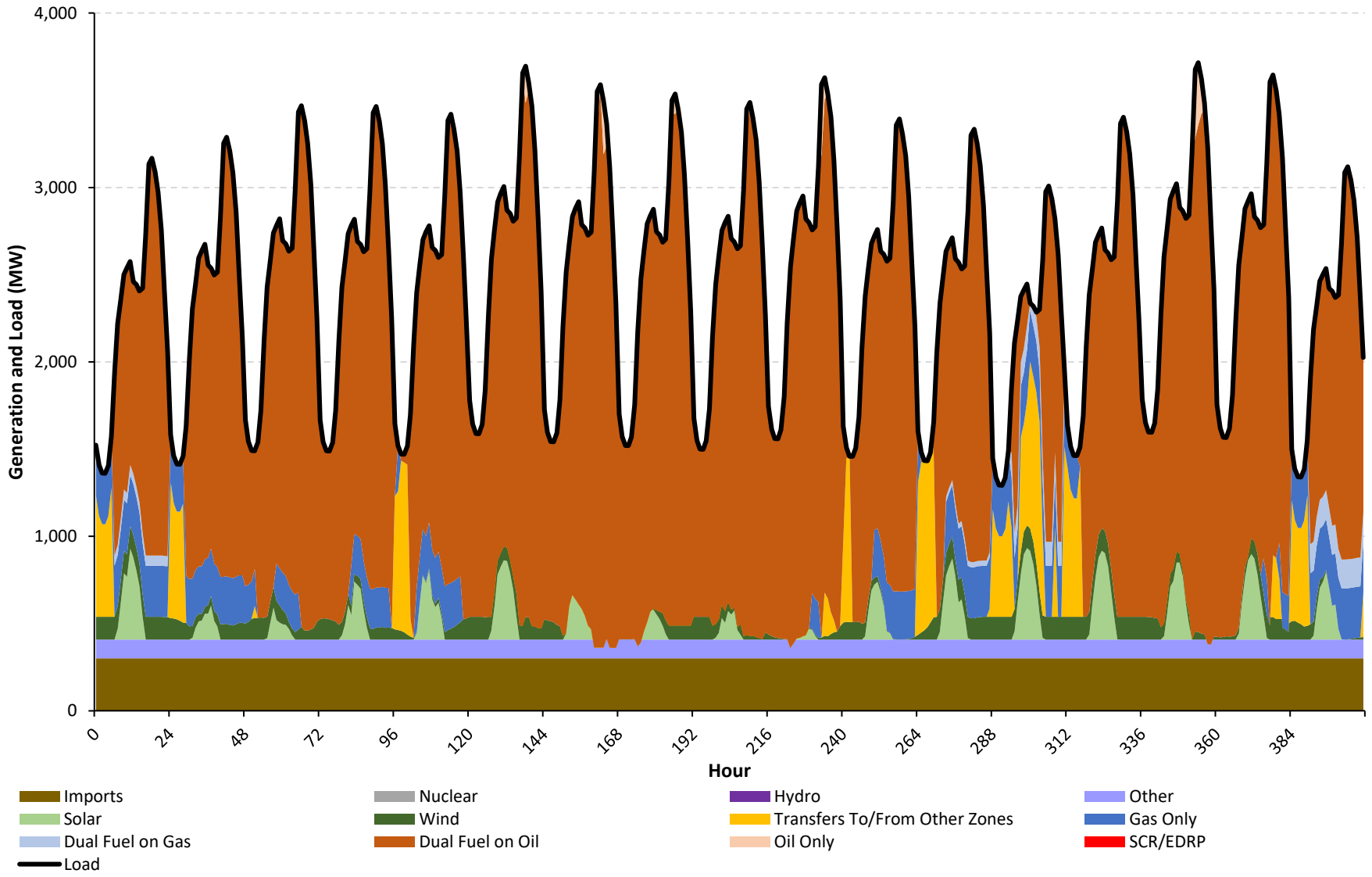



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)



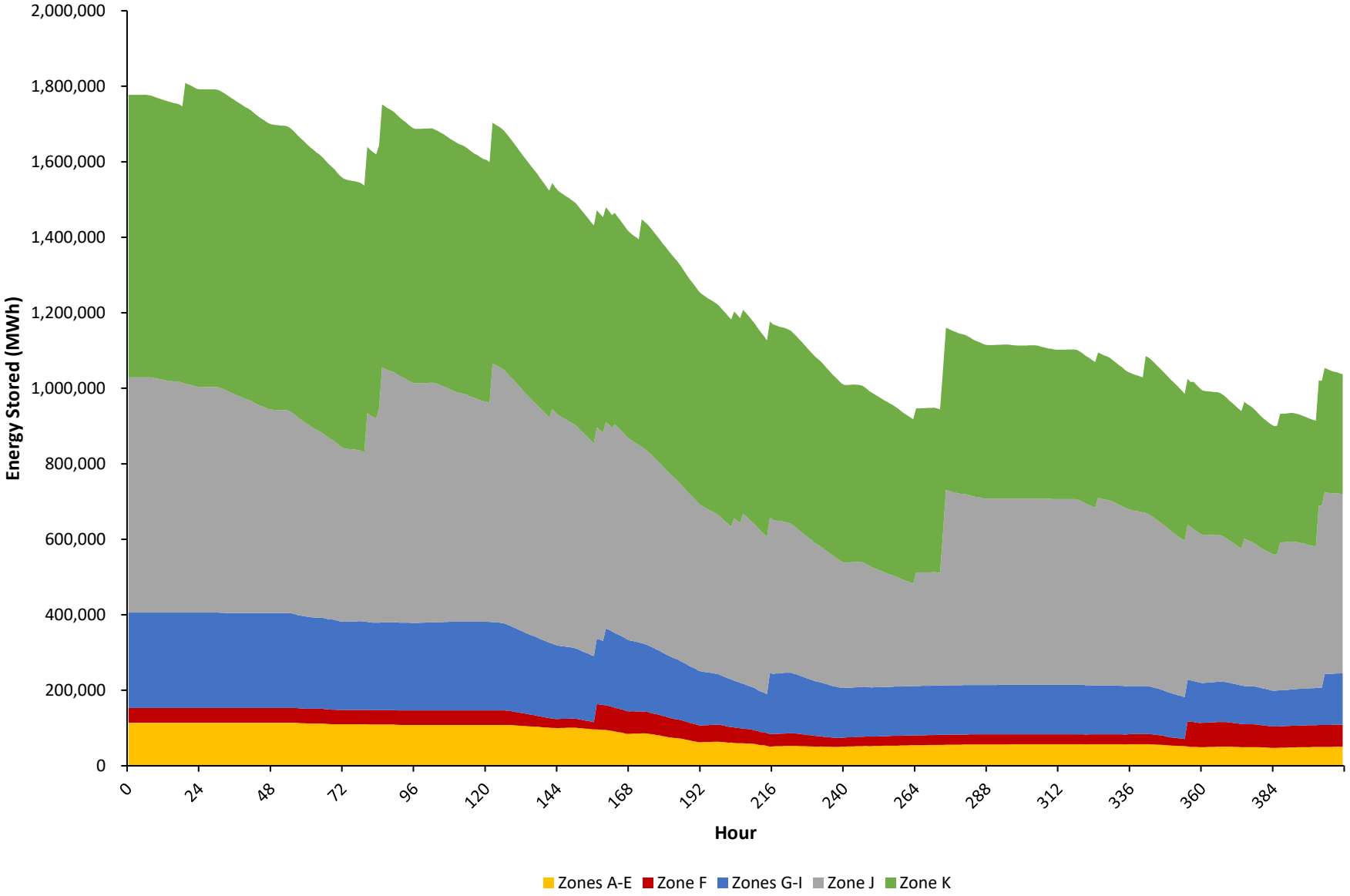
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)



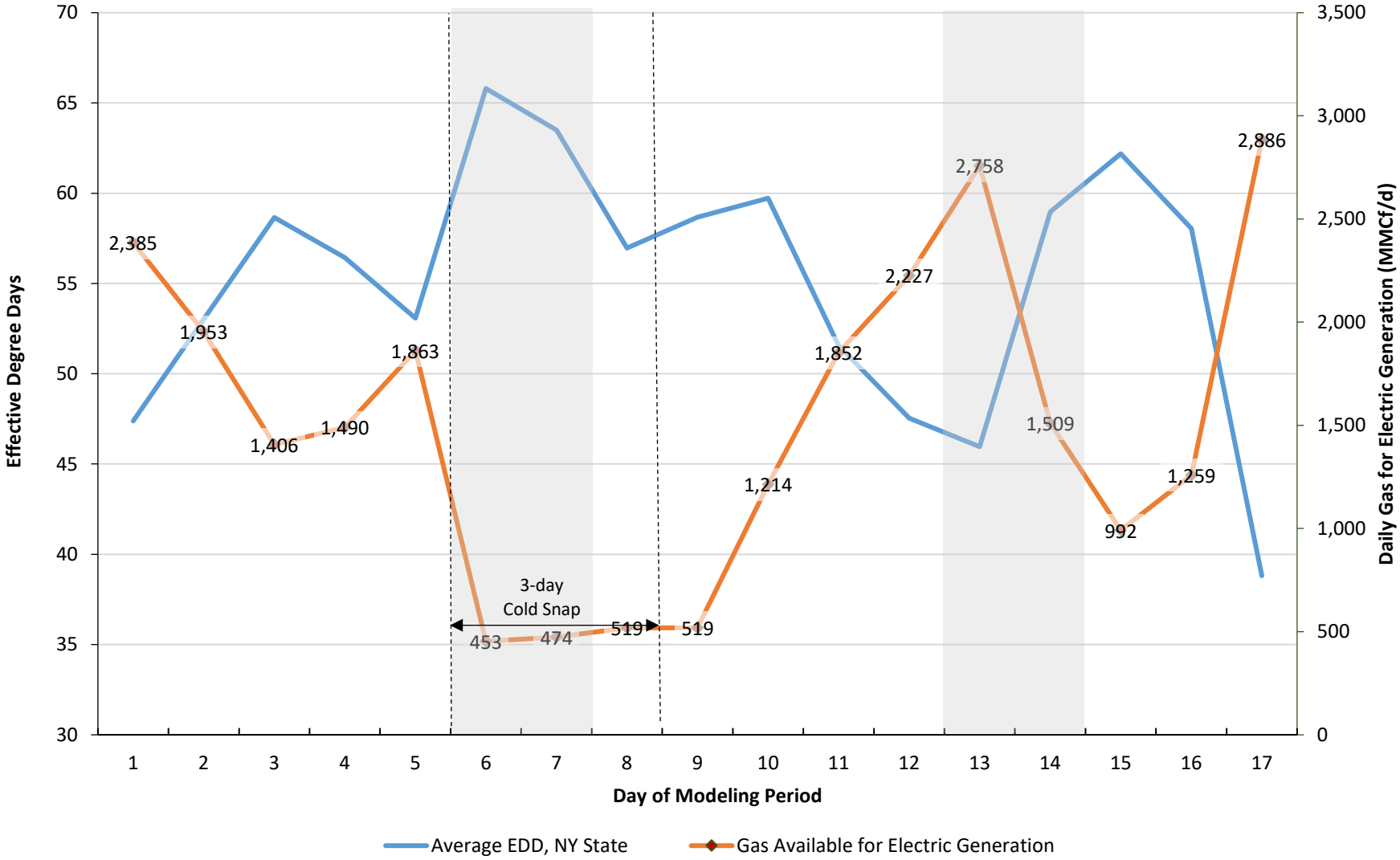
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

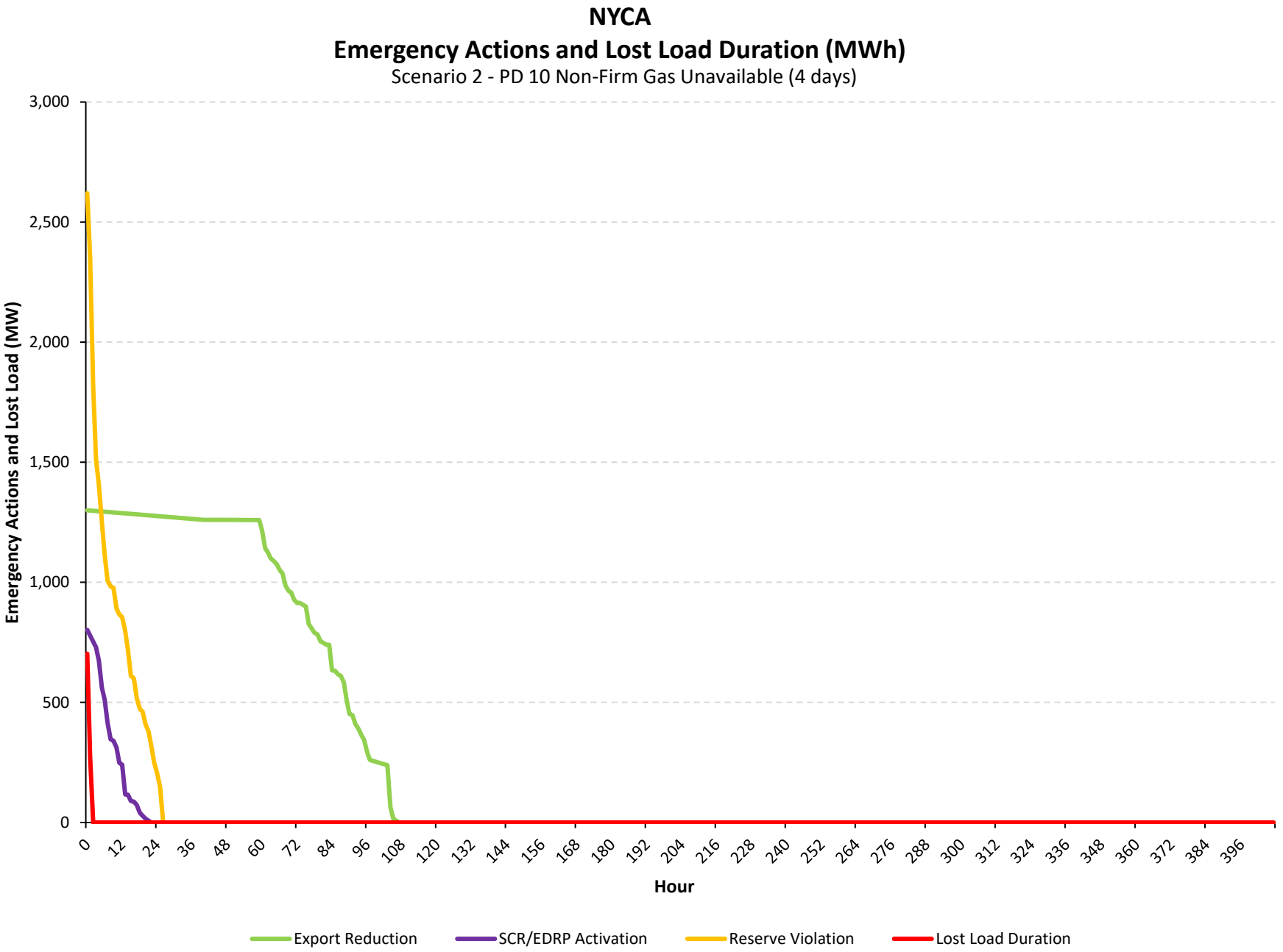
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)

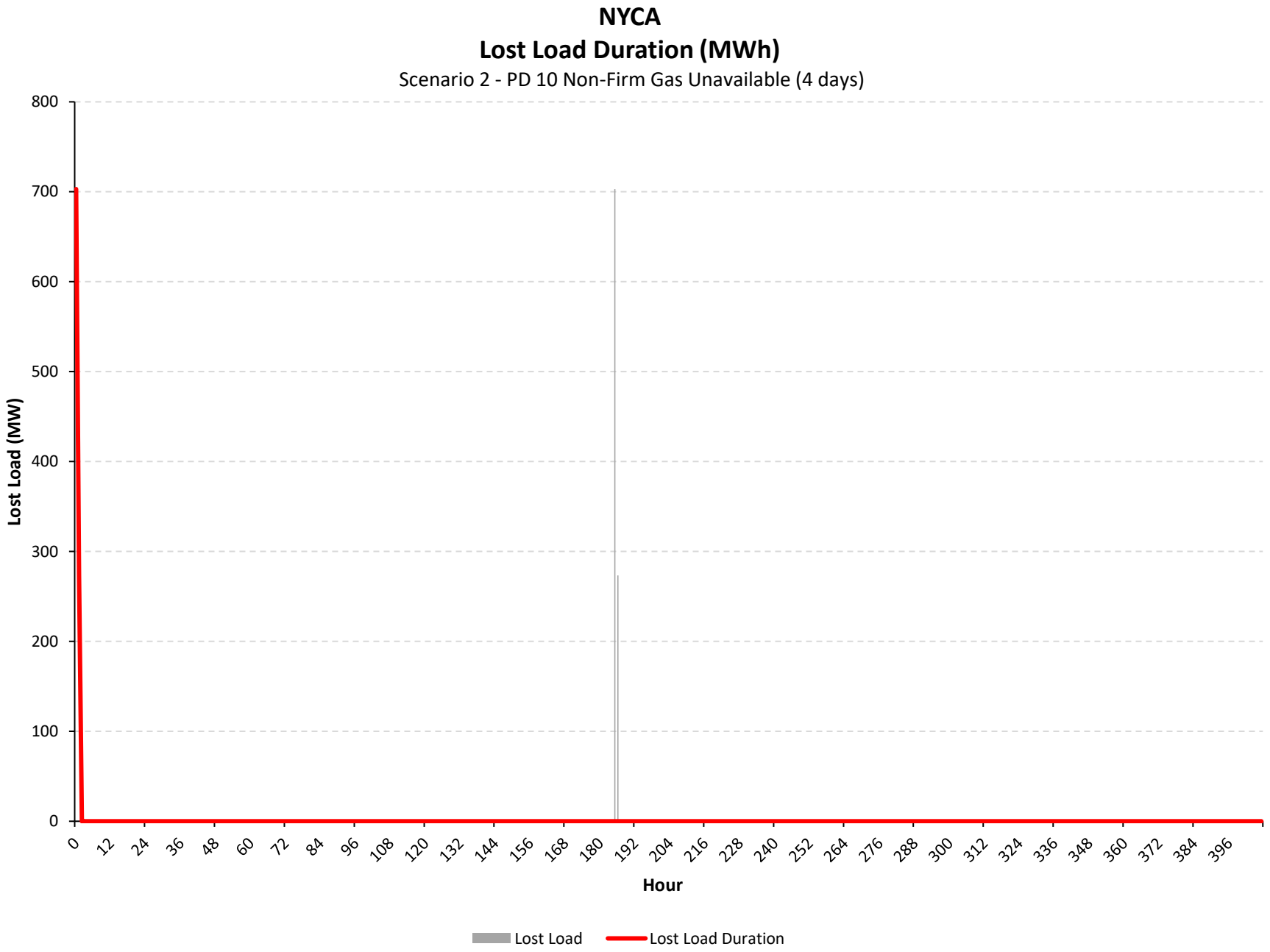


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 10 Non-Firm Gas Unavailable (4 days)
Lost Load (MW)
800
700
600
500
400
300
200
100
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

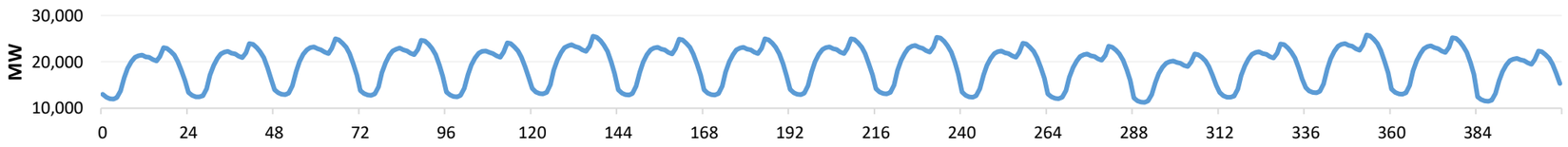
Case: Scenario 2 - PD 11 Combination Disruption (Winter 2023/2024)

Hourly Results Summary

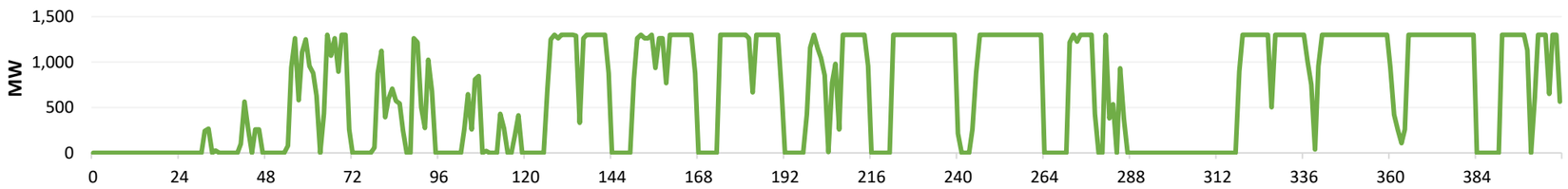
Case Name: Scenario 2 - PD 11 Combination Disruption

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

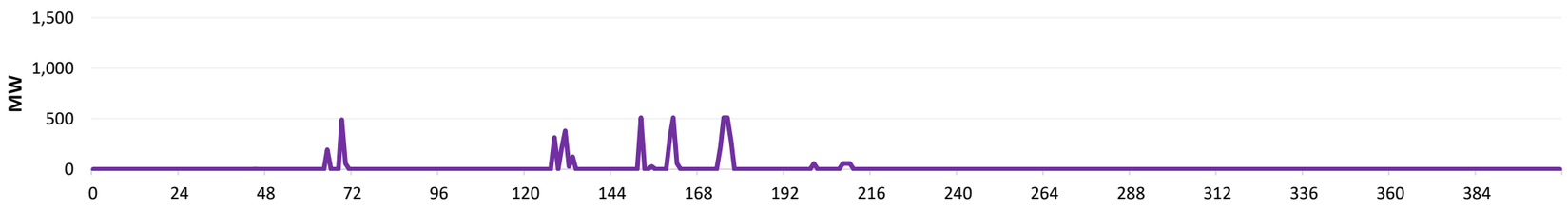


Export to ISO-NE Reduction During Modeling Period



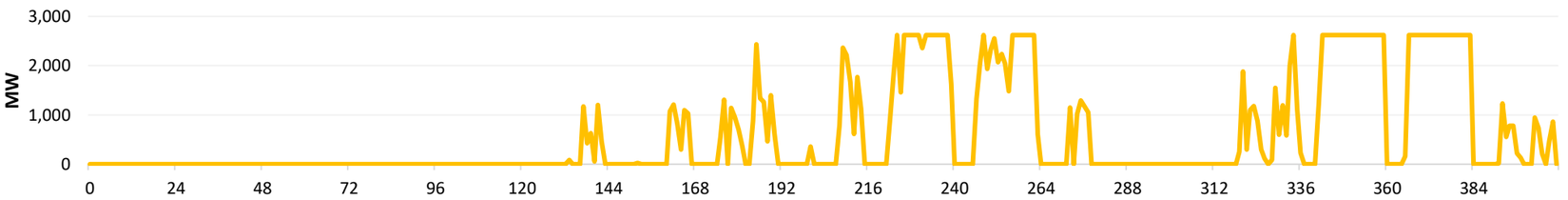
Export Reductions	
Total Hrs.	256
Total MWh	271,672
Avg. MW	665.9

SCR/EDRP Deployed During Modeling Period



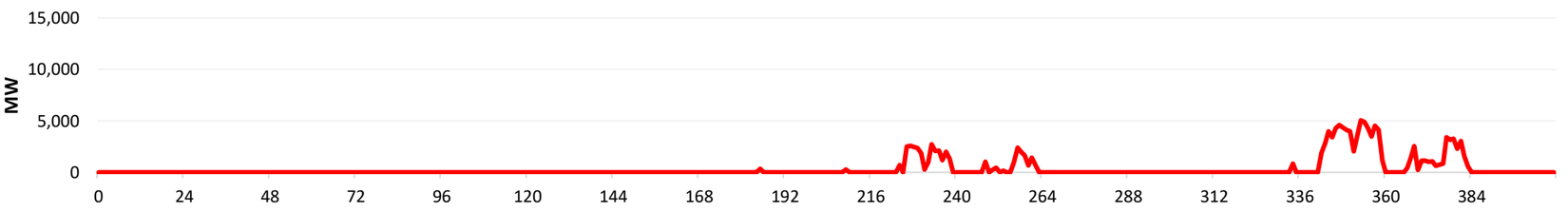
SCR Deployment	
Total Hrs.	21
Total MWh	4,943
Avg. MW	12.1

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	143
Total MWh	239,841
Avg. MW	587.8
First Hour with Viol.	133

Loss of Load During Modeling Period

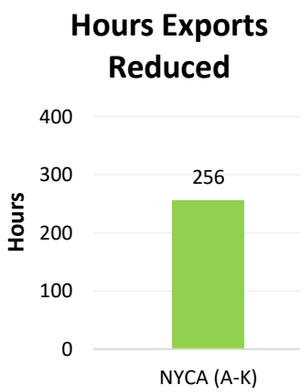


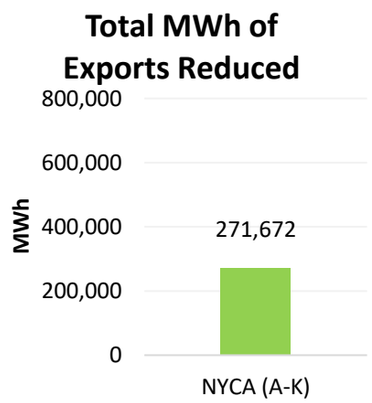
Loss of Load	
Total Hrs.	64
Total MWh	133,307
Avg. MW	326.7
First Hour with Losses	185

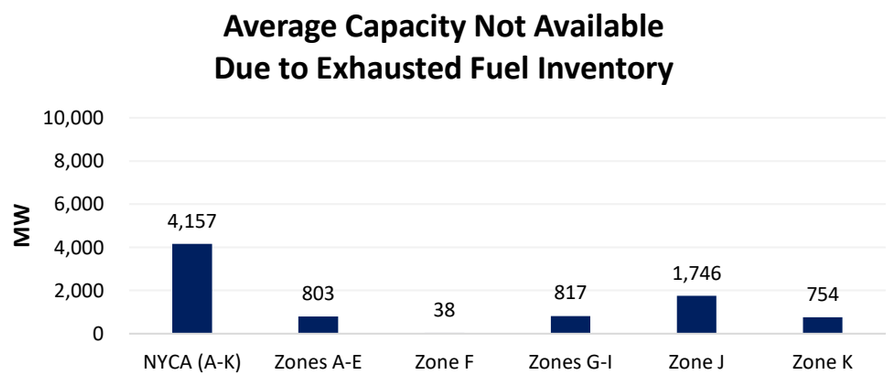
Full Period Results Summary

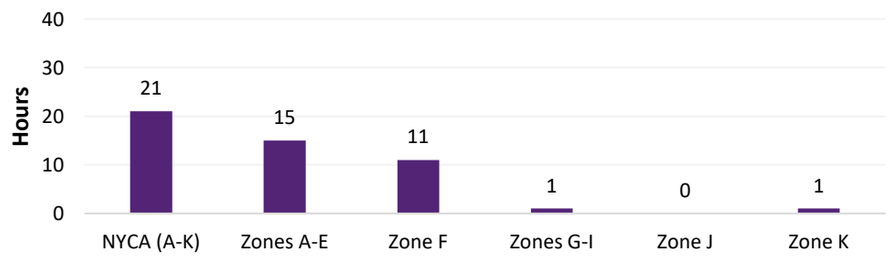
Case Name: Scenario 2 - PD 11 Combination Disruption

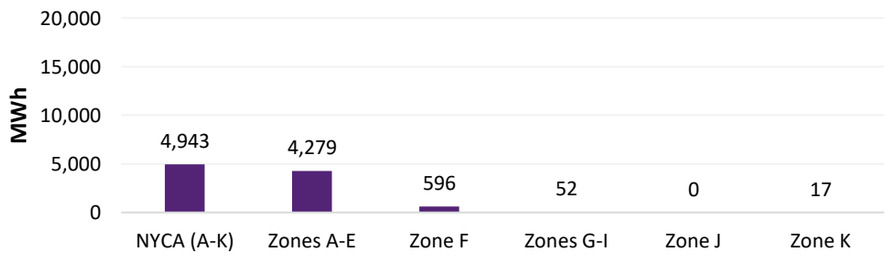
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	Historical
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

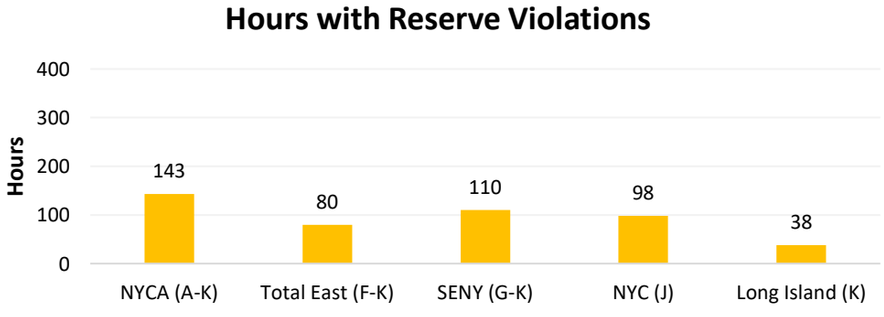


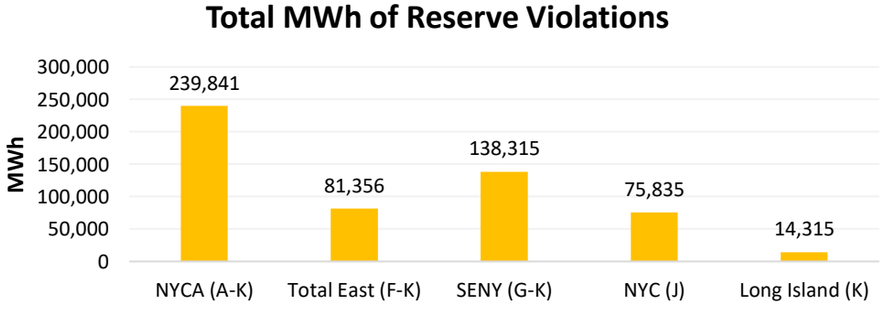


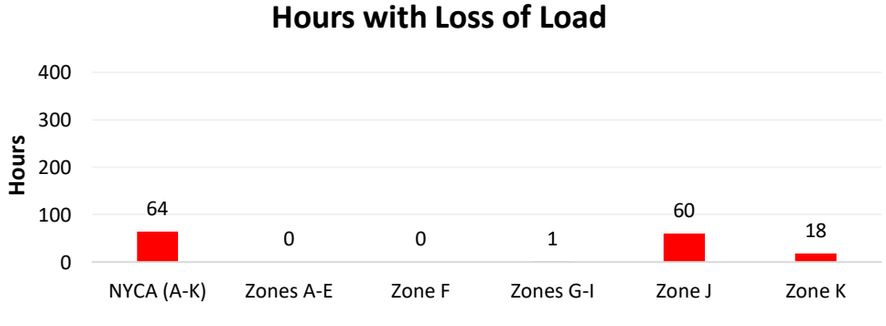


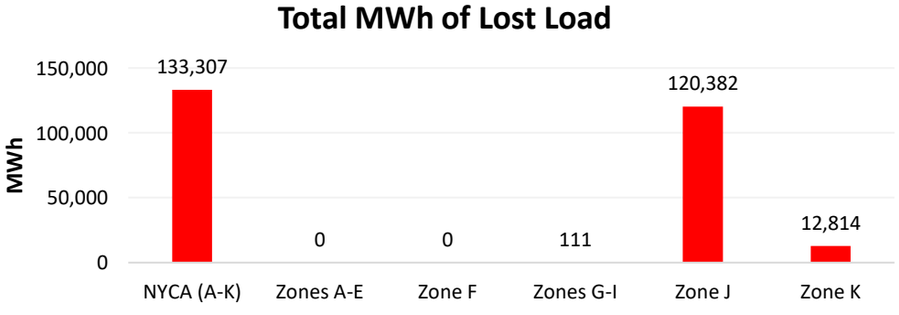


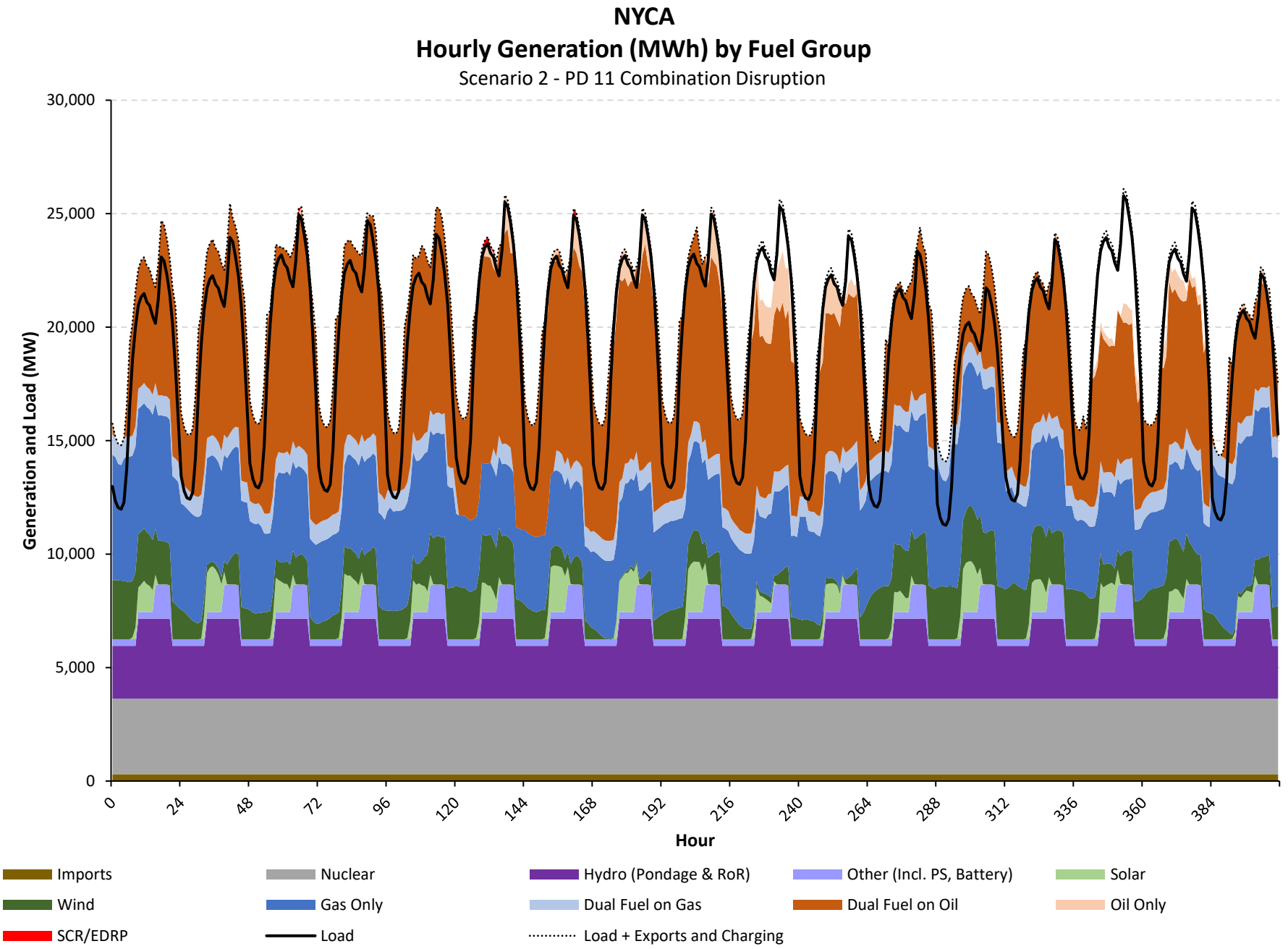




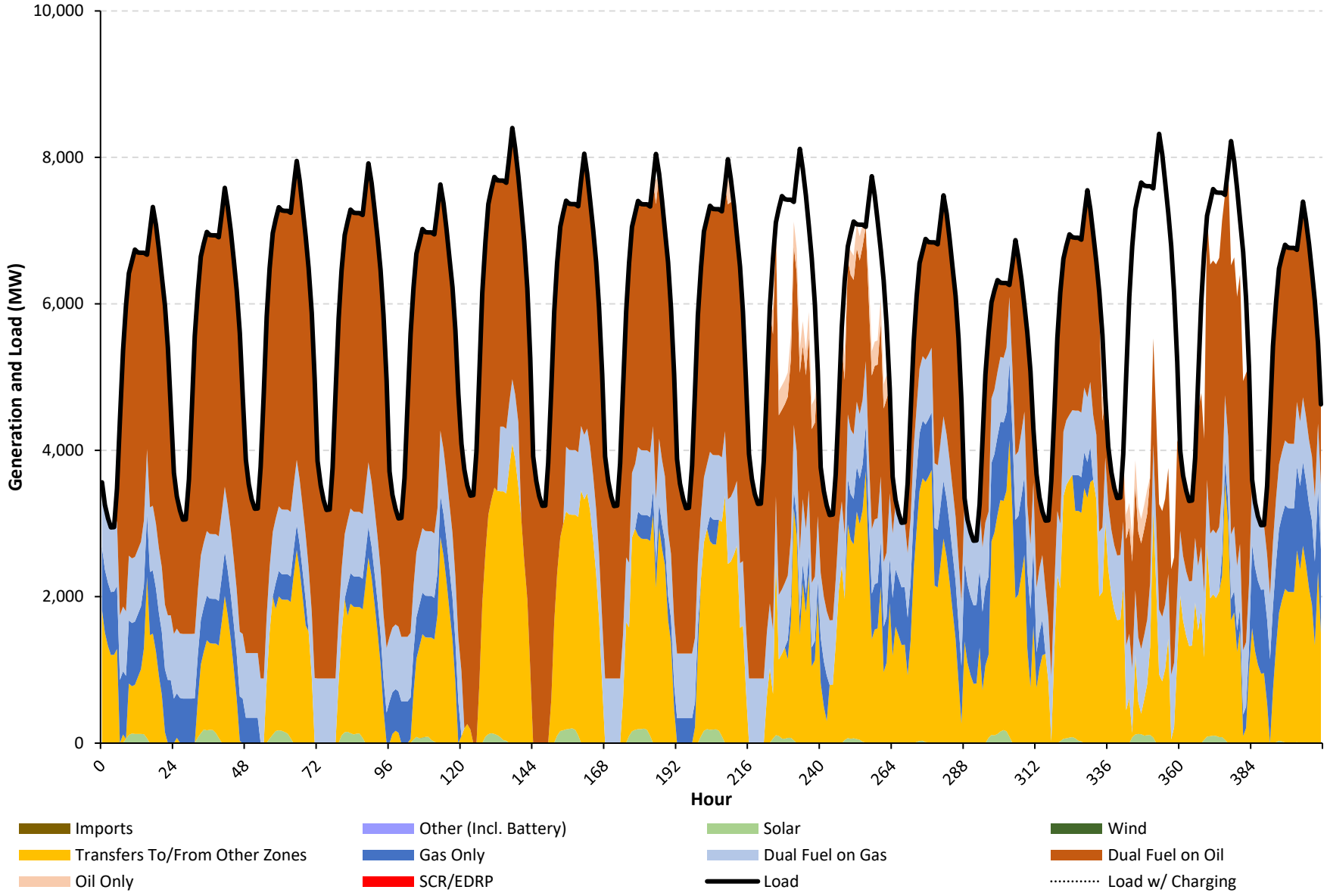




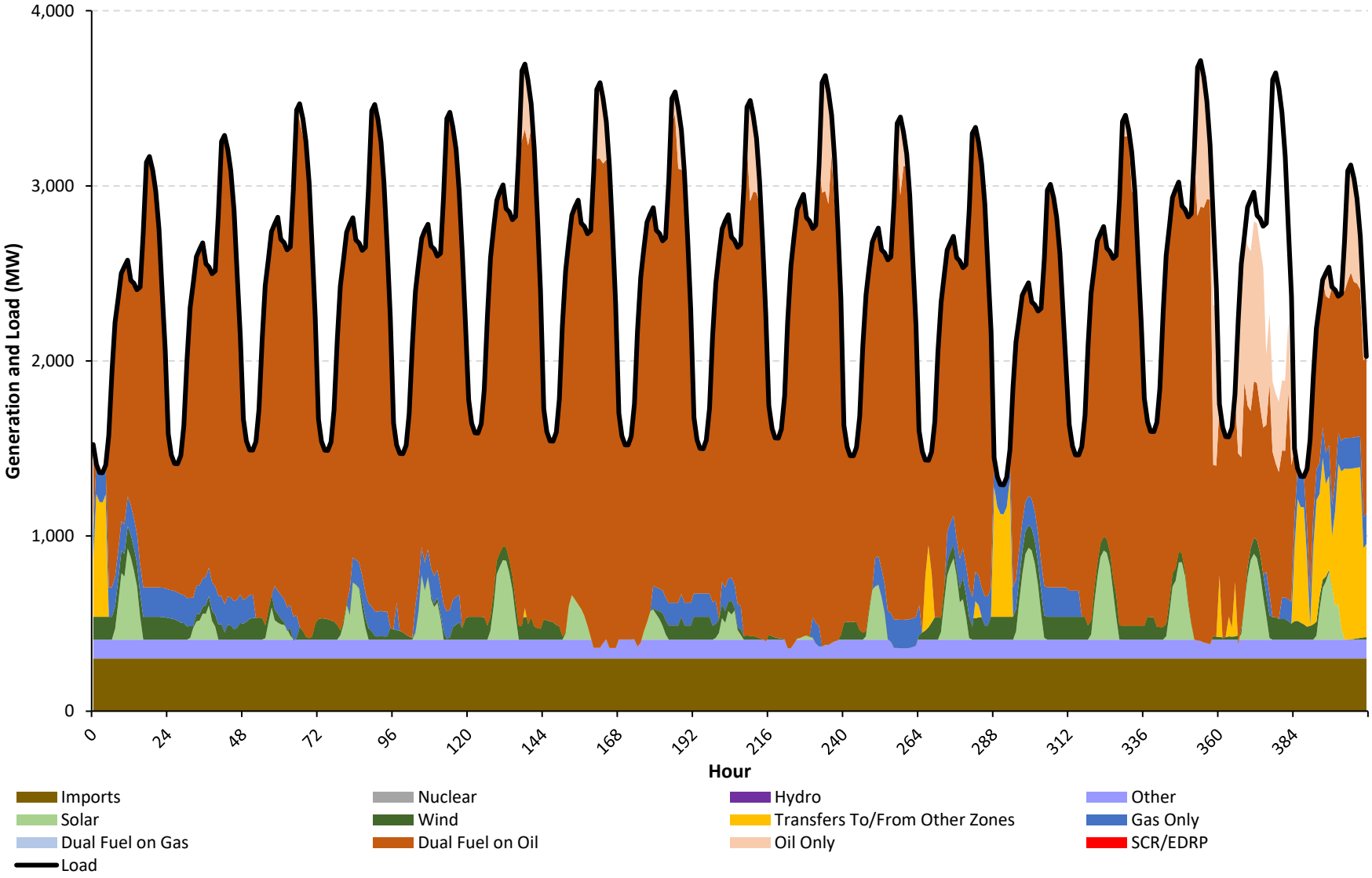


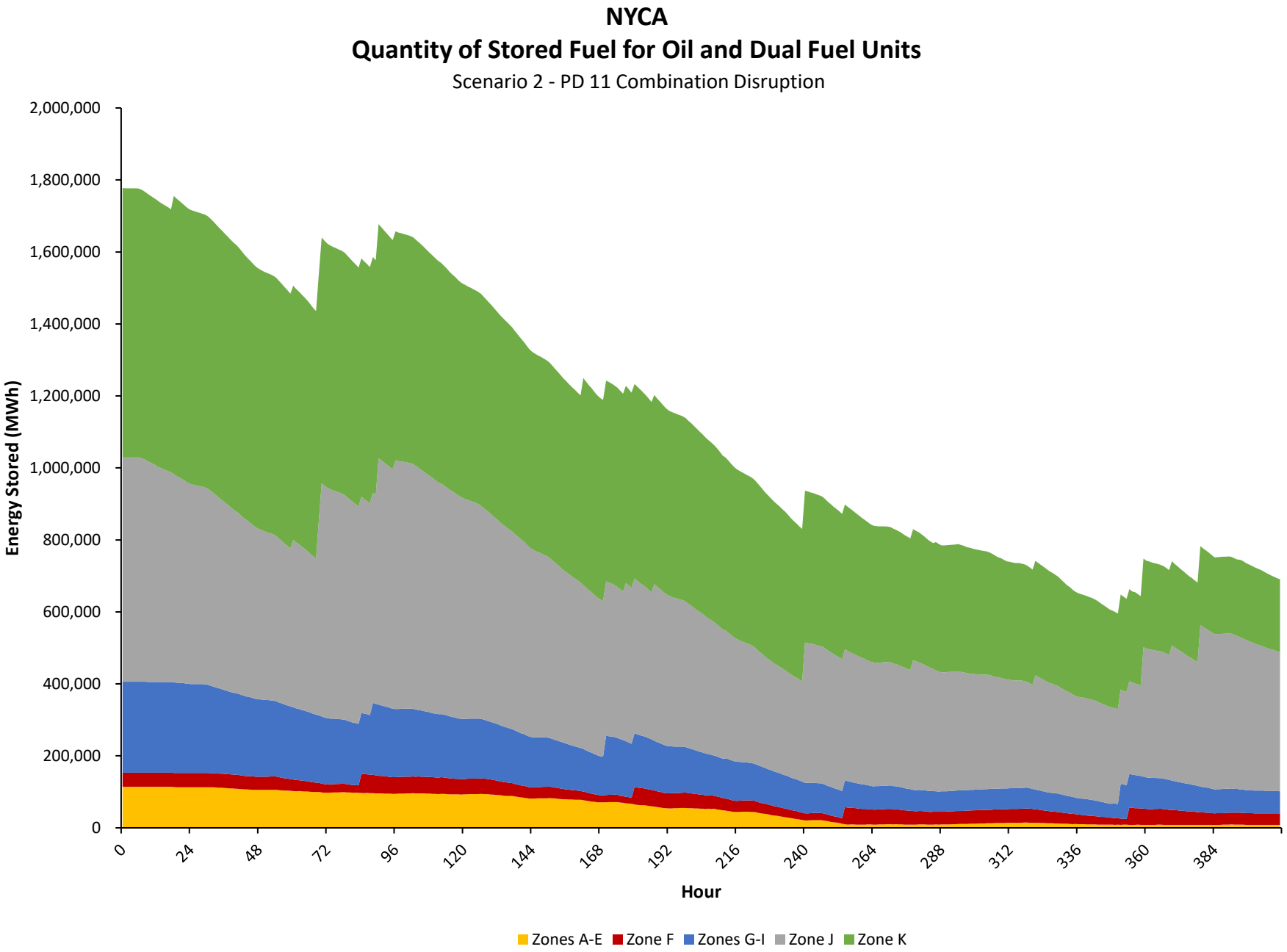

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 2 - PD 11 Combination Disruption
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

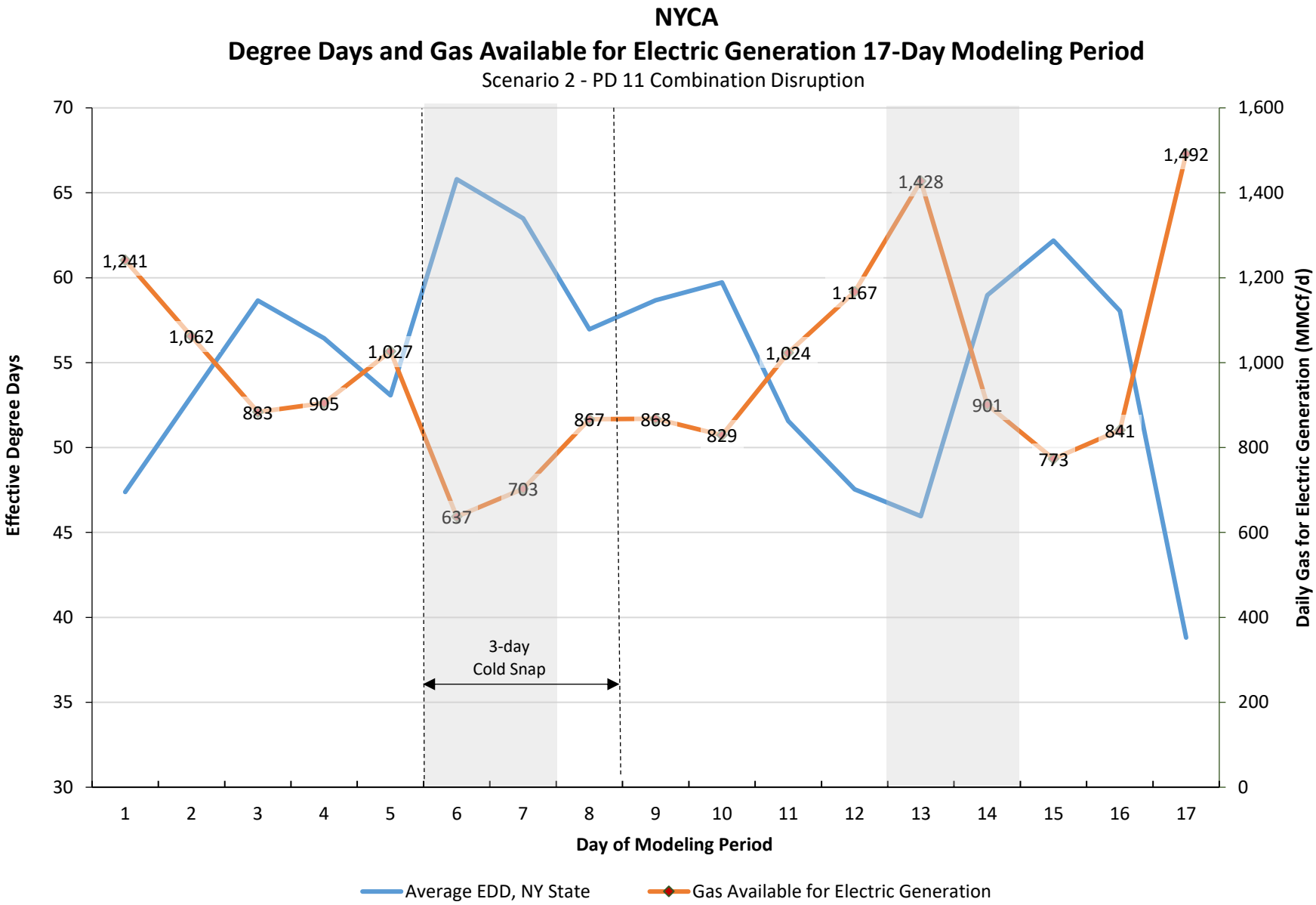
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 11 Combination Disruption



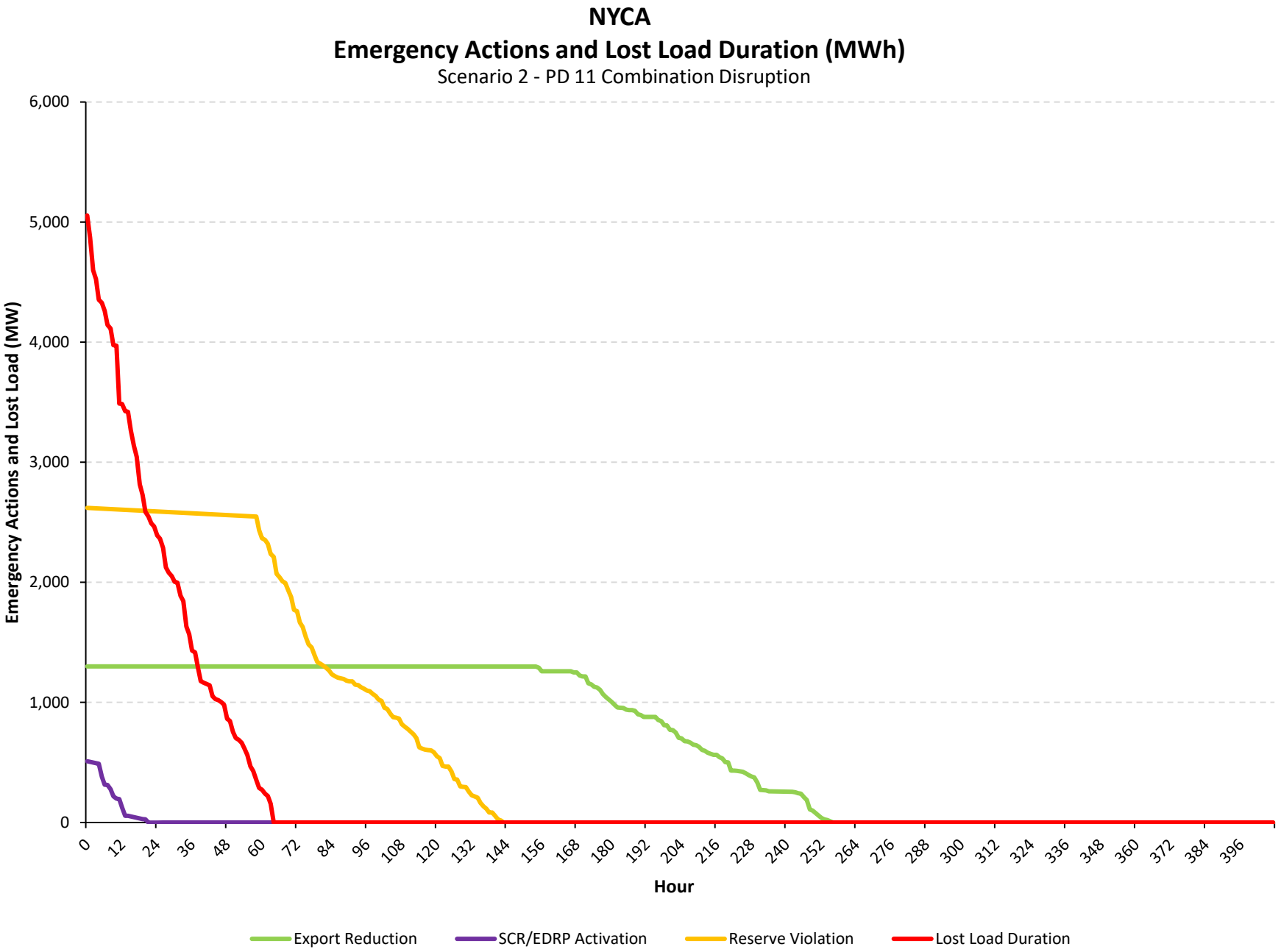
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 2 - PD 11 Combination Disruption

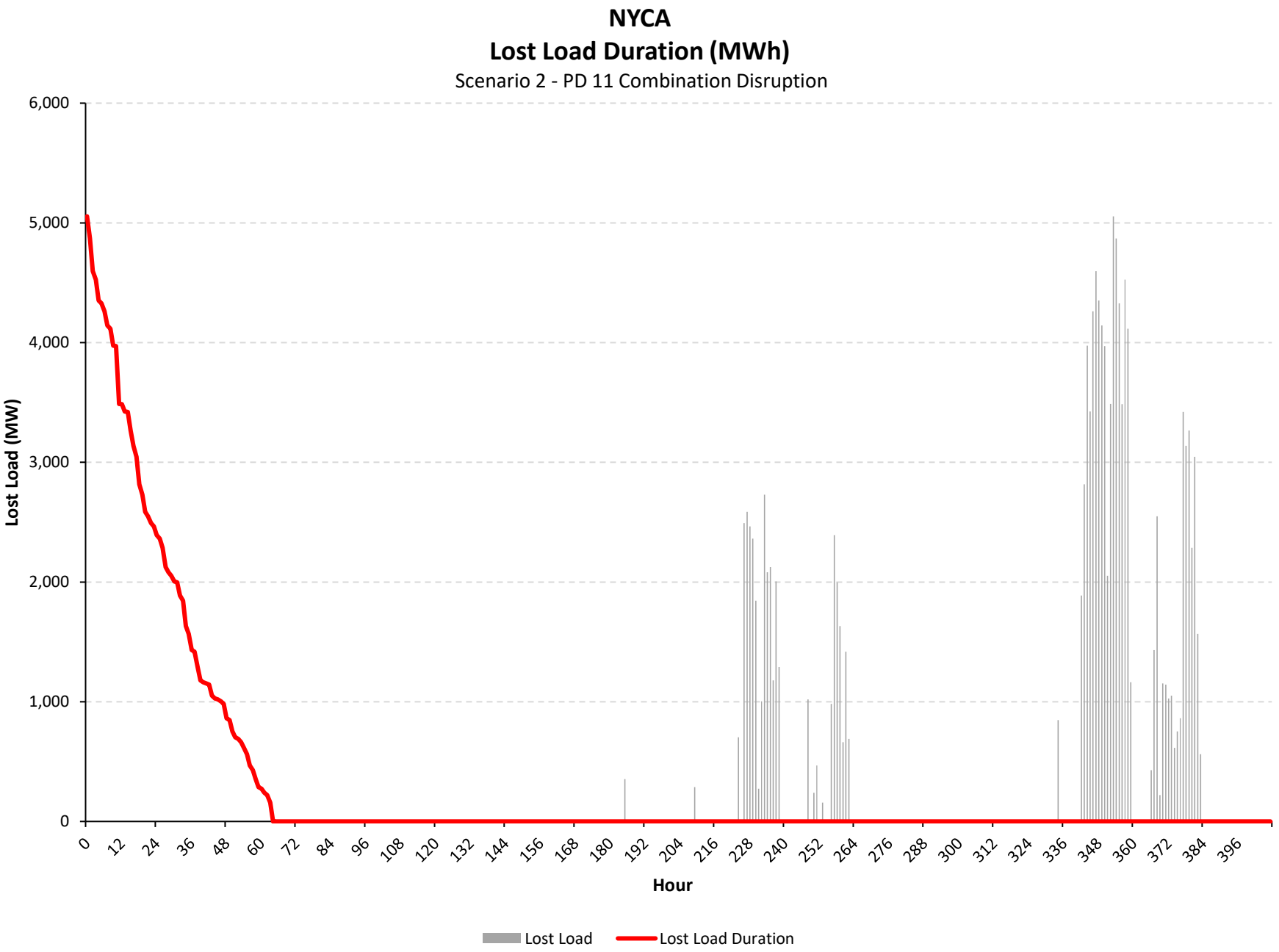



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 2 - PD 11 Combination Disruption
Energy Stored (MWh)
2,000,000
1,800,000
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 2 - PD 11 Combination Disruption
Emergency Actions and Lost Load (MW)
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 2 - PD 11 Combination Disruption
Lost Load (MW)
6,000
5,000
4,000
3,000
2,000
1,000
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

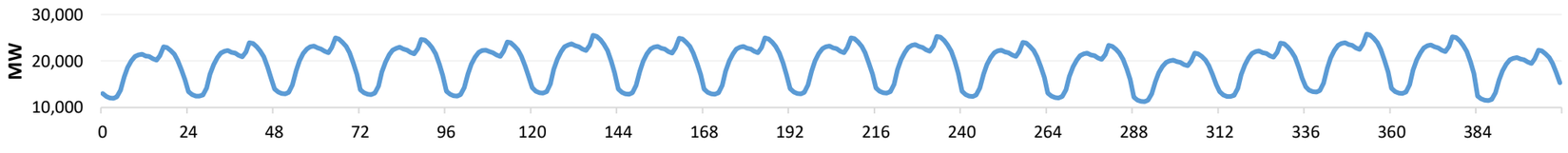
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 3 - PD 1 No Disruptions (Winter 2023/2024)

Hourly Results Summary

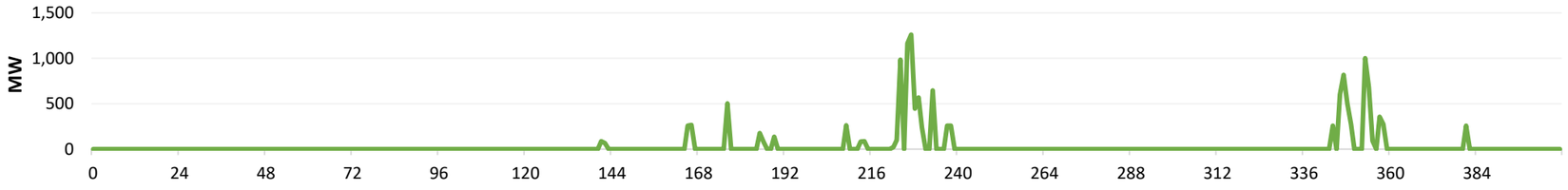
Case Name: Scenario 3 - PD 1 No Disruptions

Load During Modeling Period



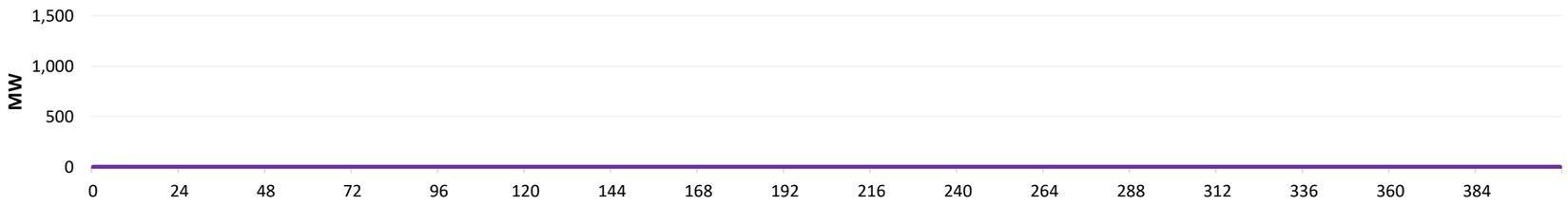
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



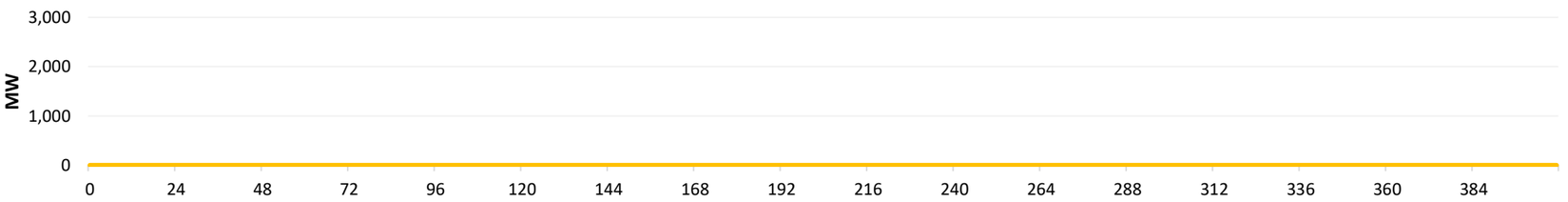
Export Reductions	
Total Hrs.	33
Total MWh	13,070
Avg. MW	32.0

SCR/EDRP Deployed During Modeling Period



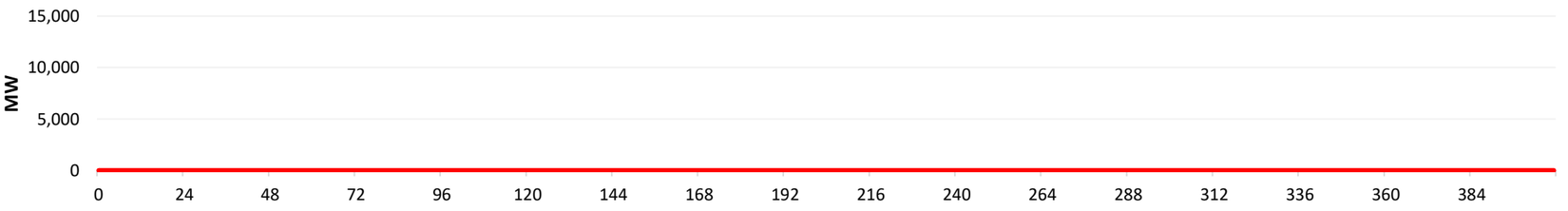
SCR Deployment	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

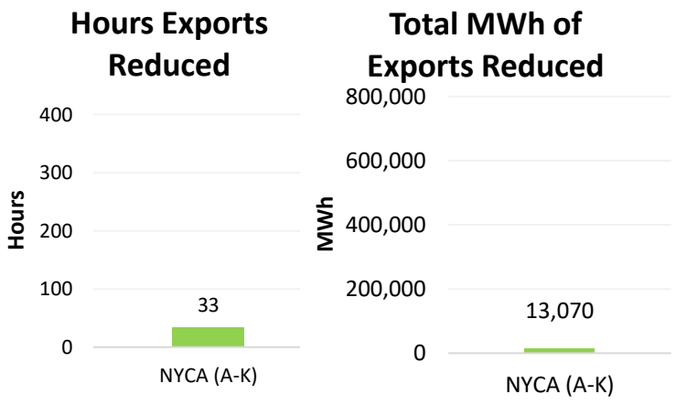


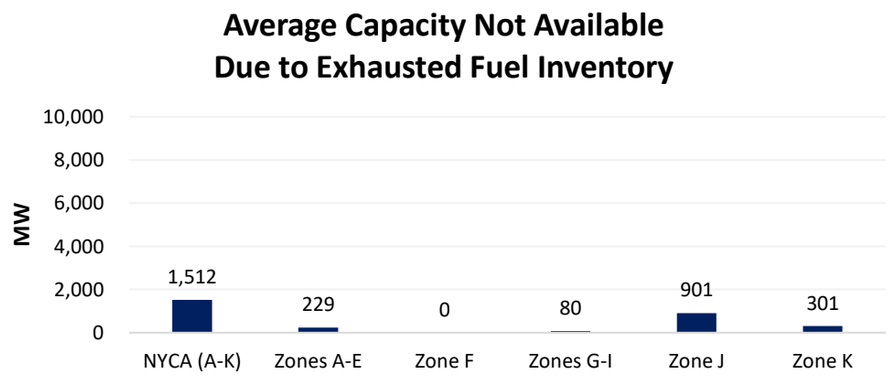
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

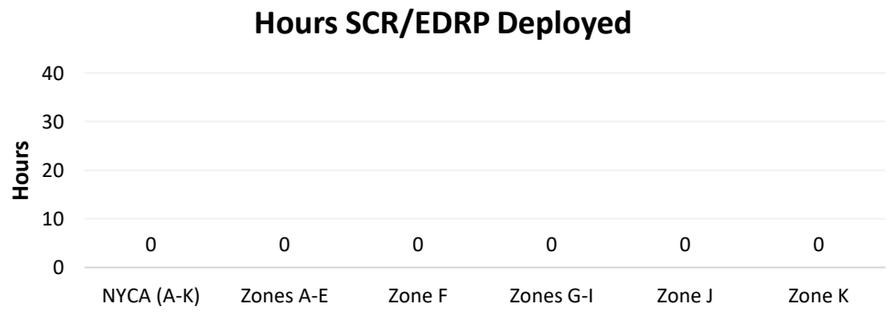
Full Period Results Summary

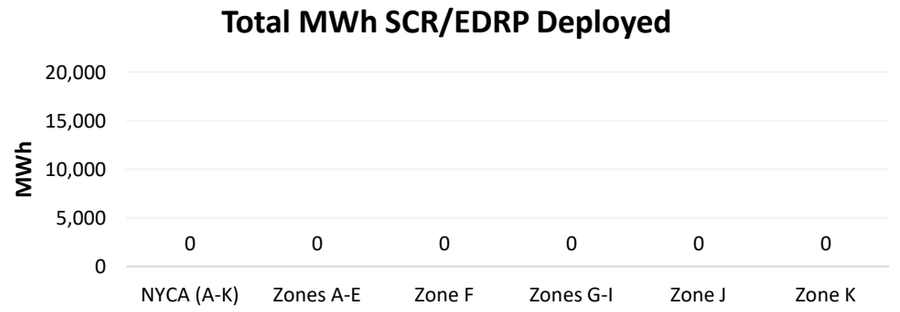
Case Name: Scenario 3 - PD 1 No Disruptions

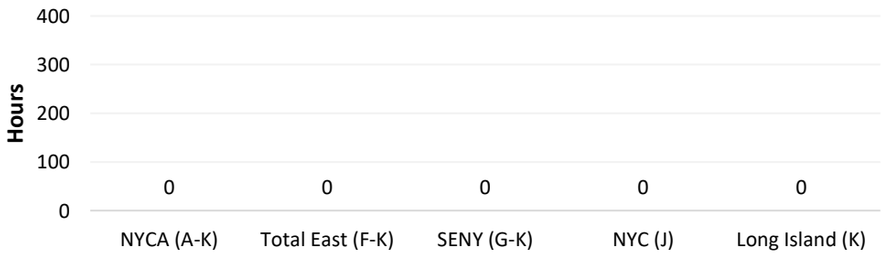
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

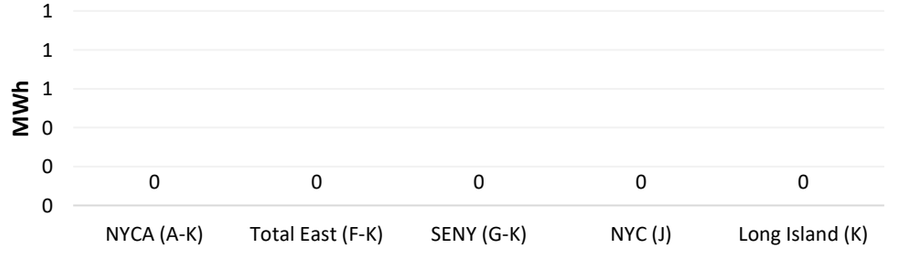


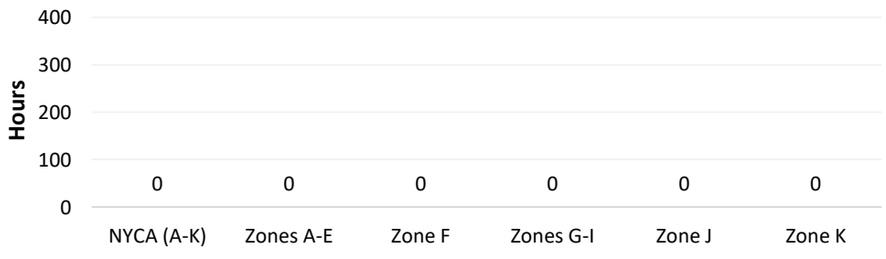


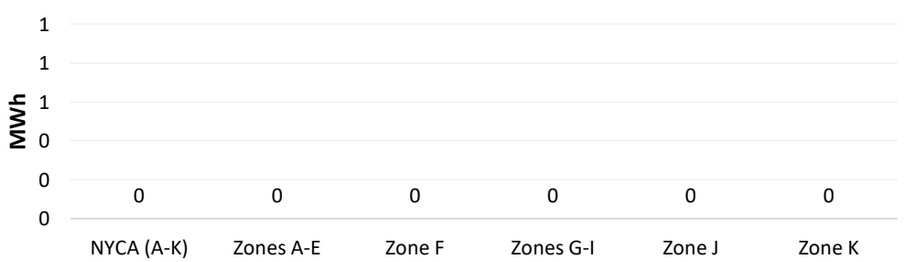


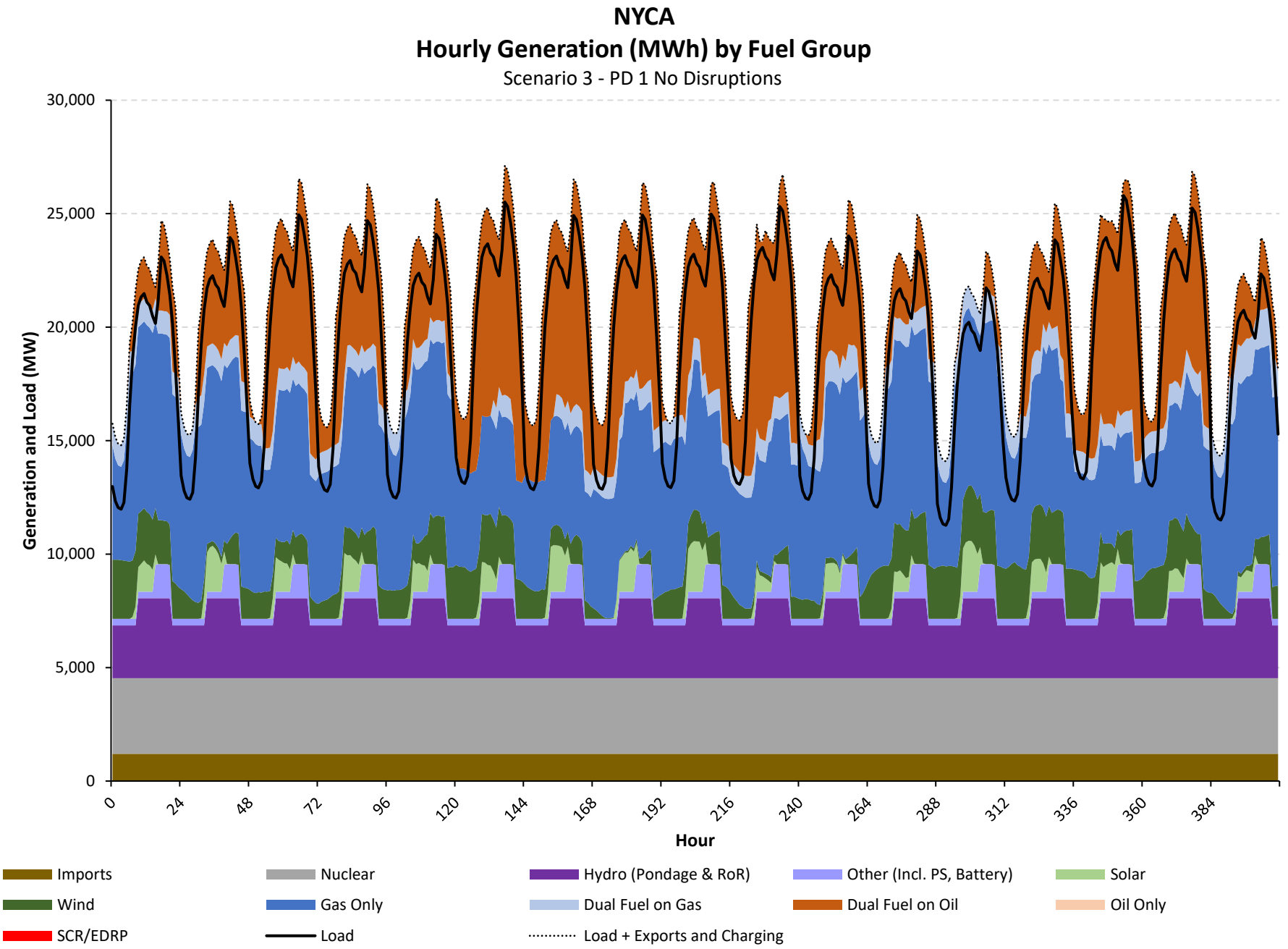


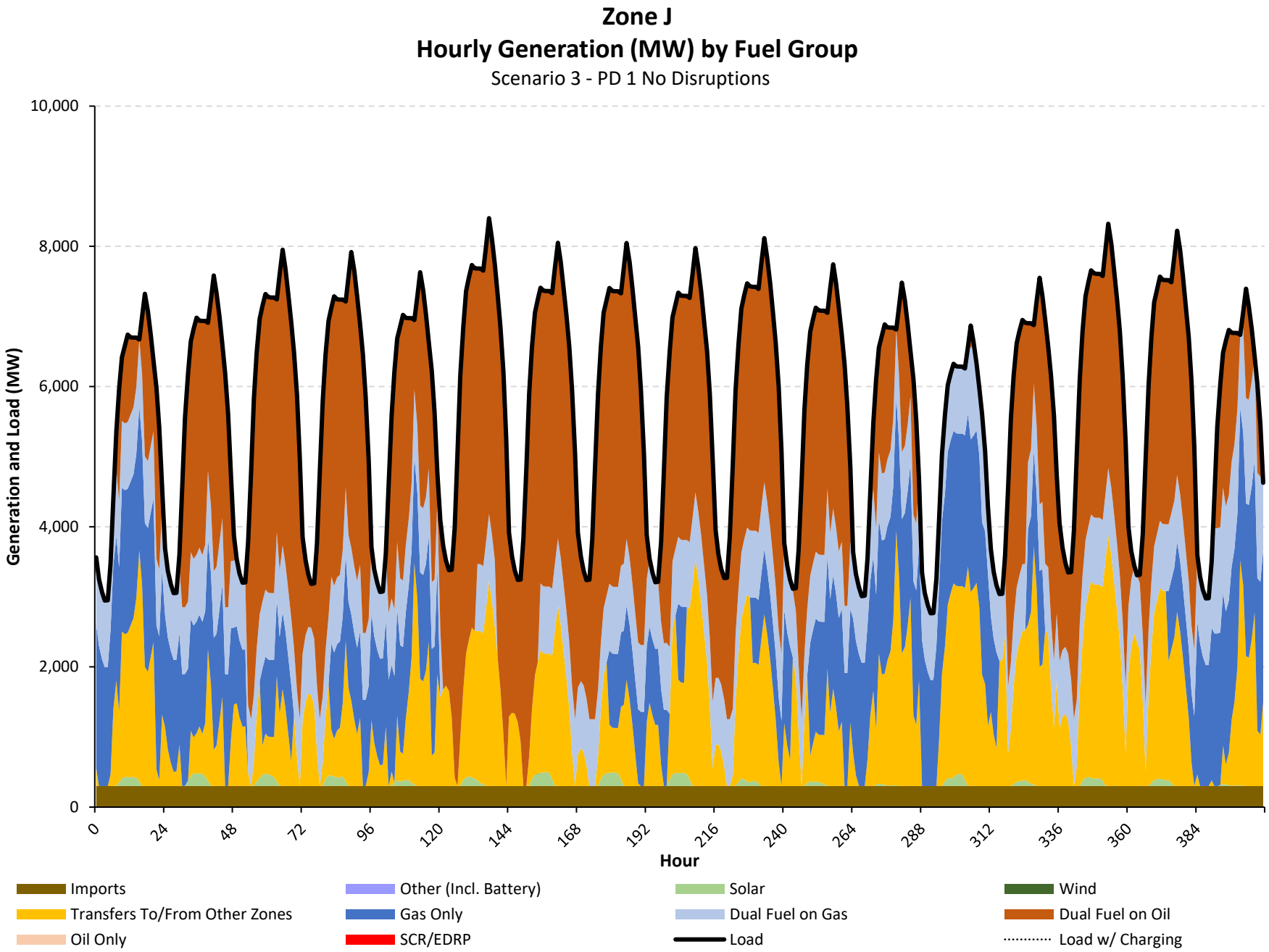




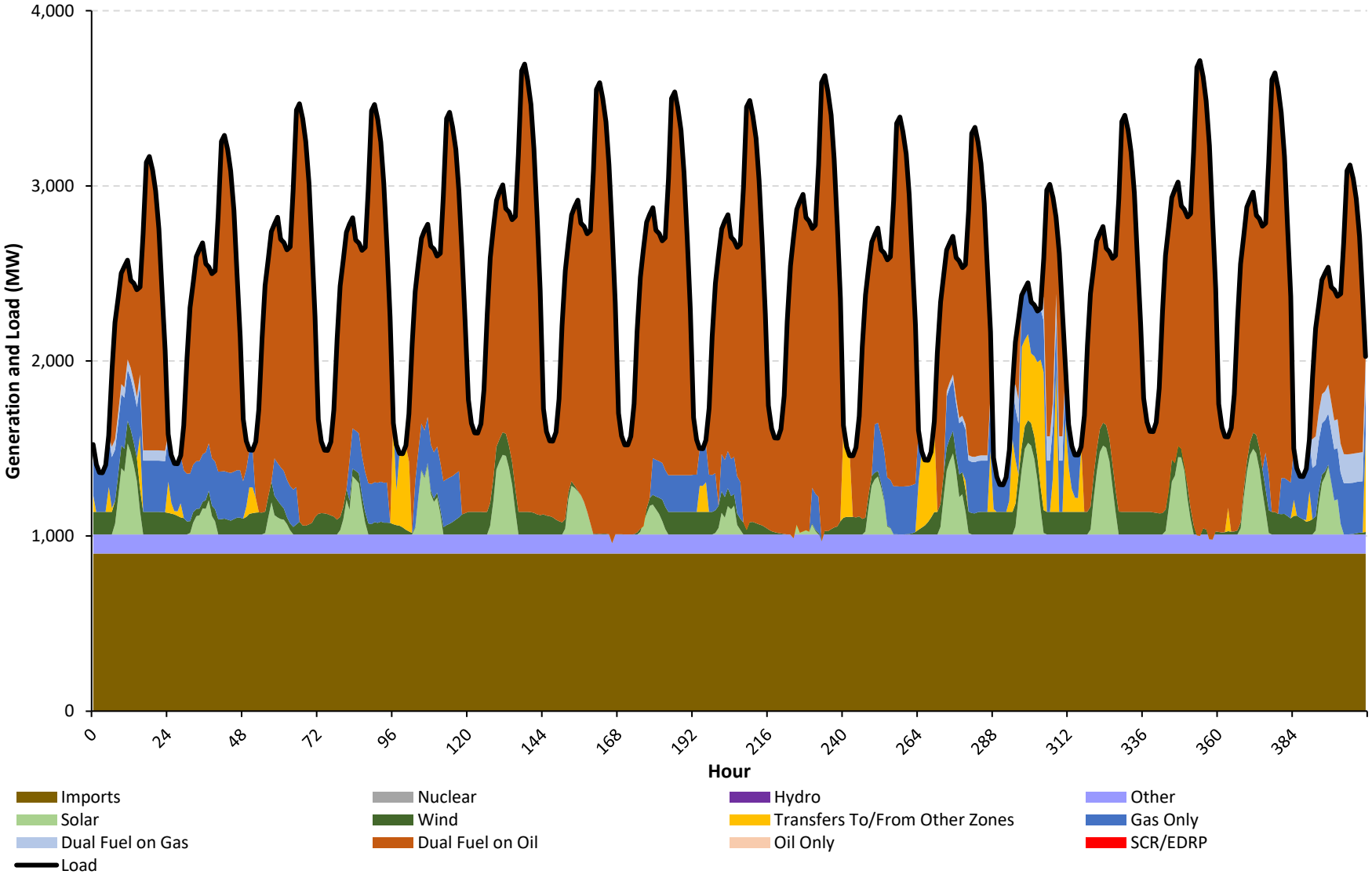


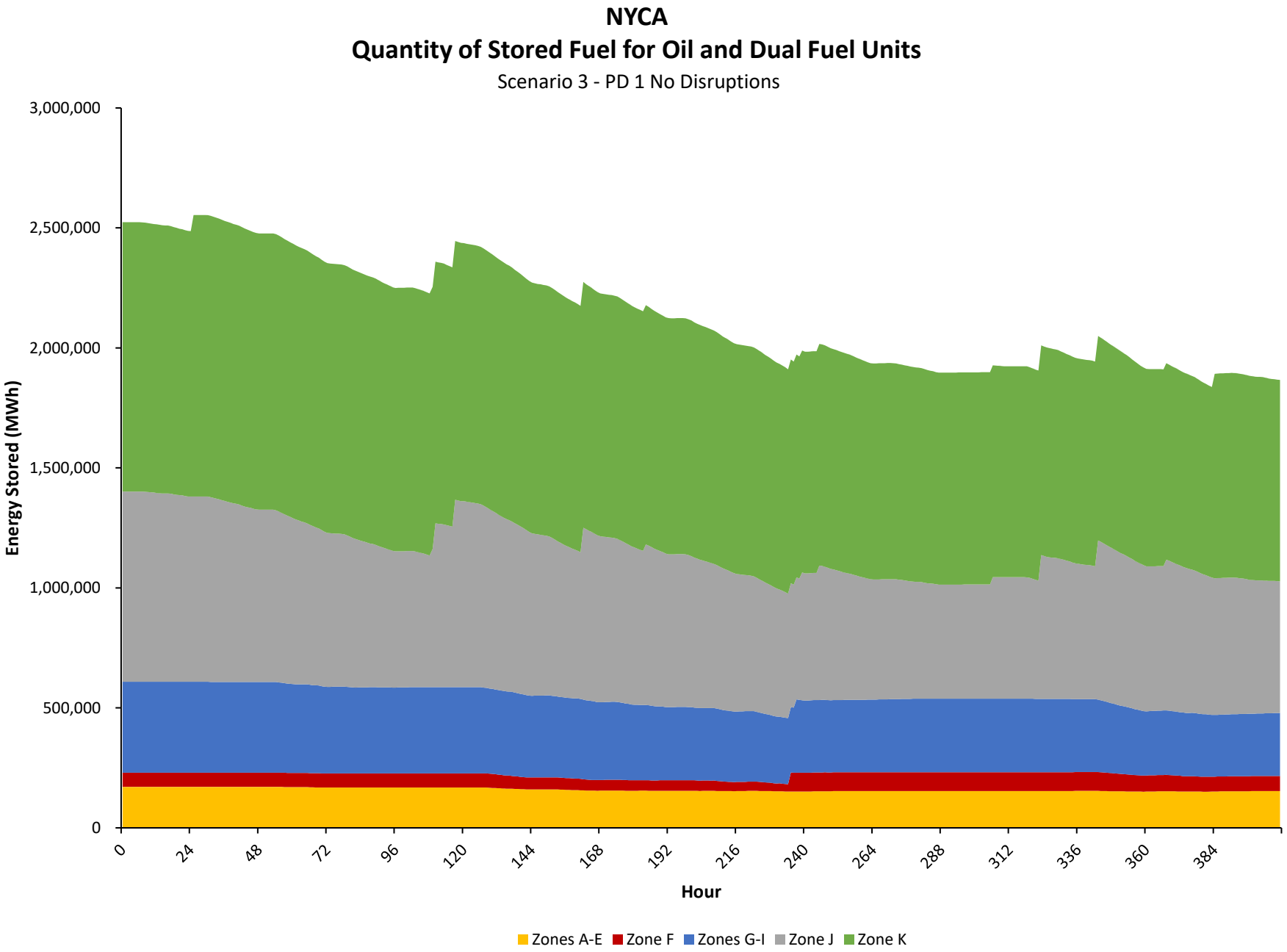


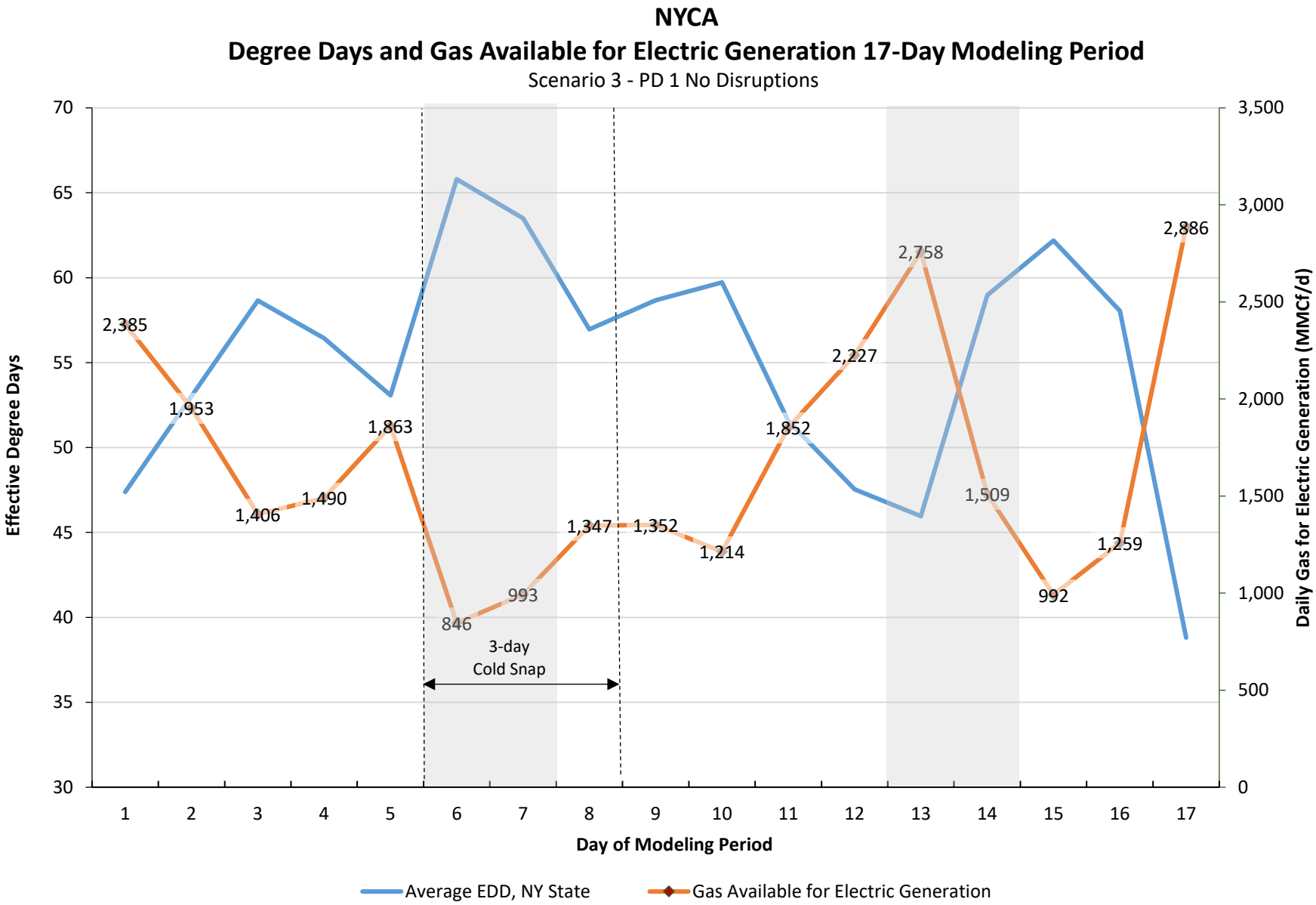

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 1 No Disruptions
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 1 No Disruptions
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

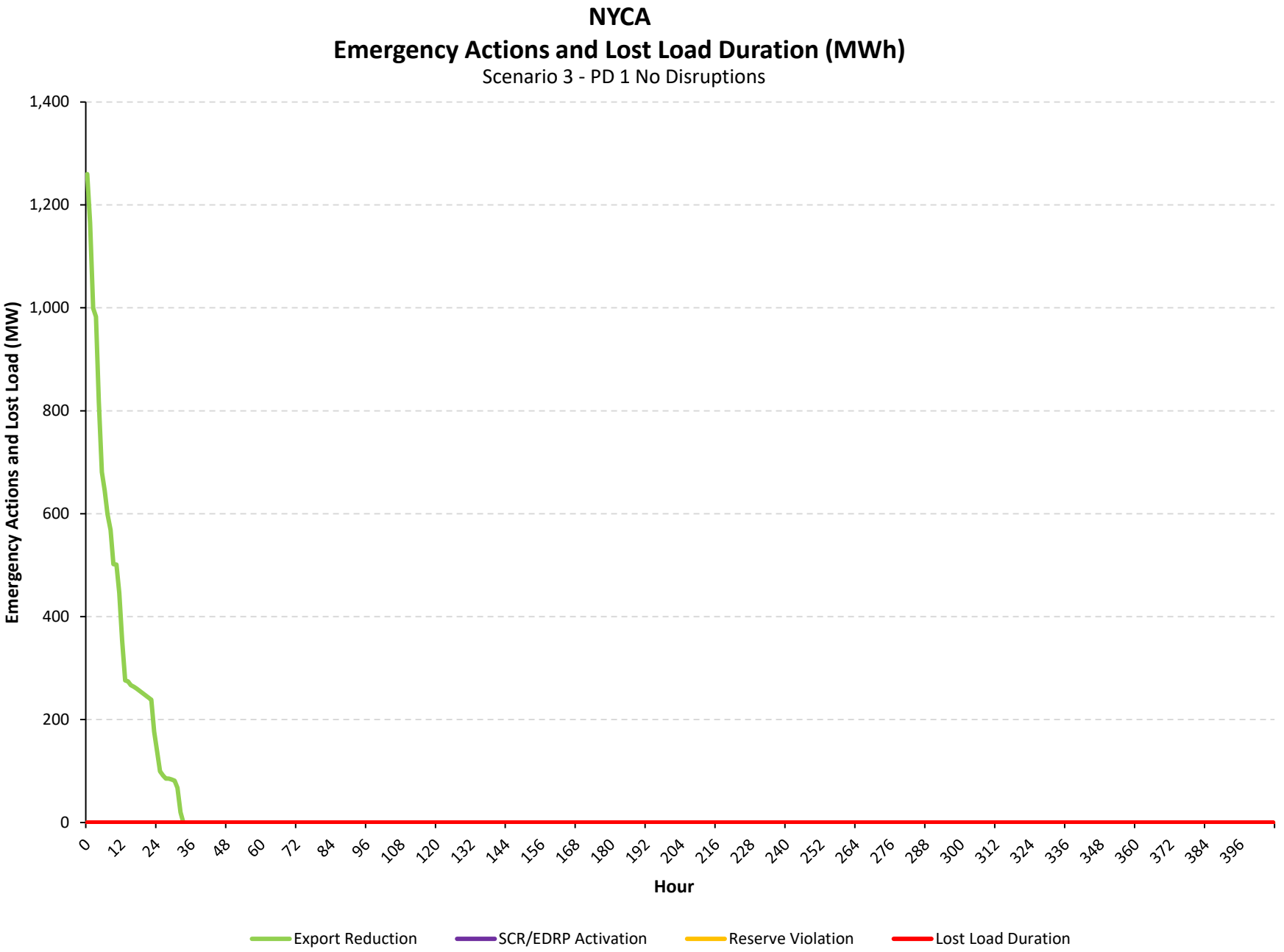
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 1 No Disruptions

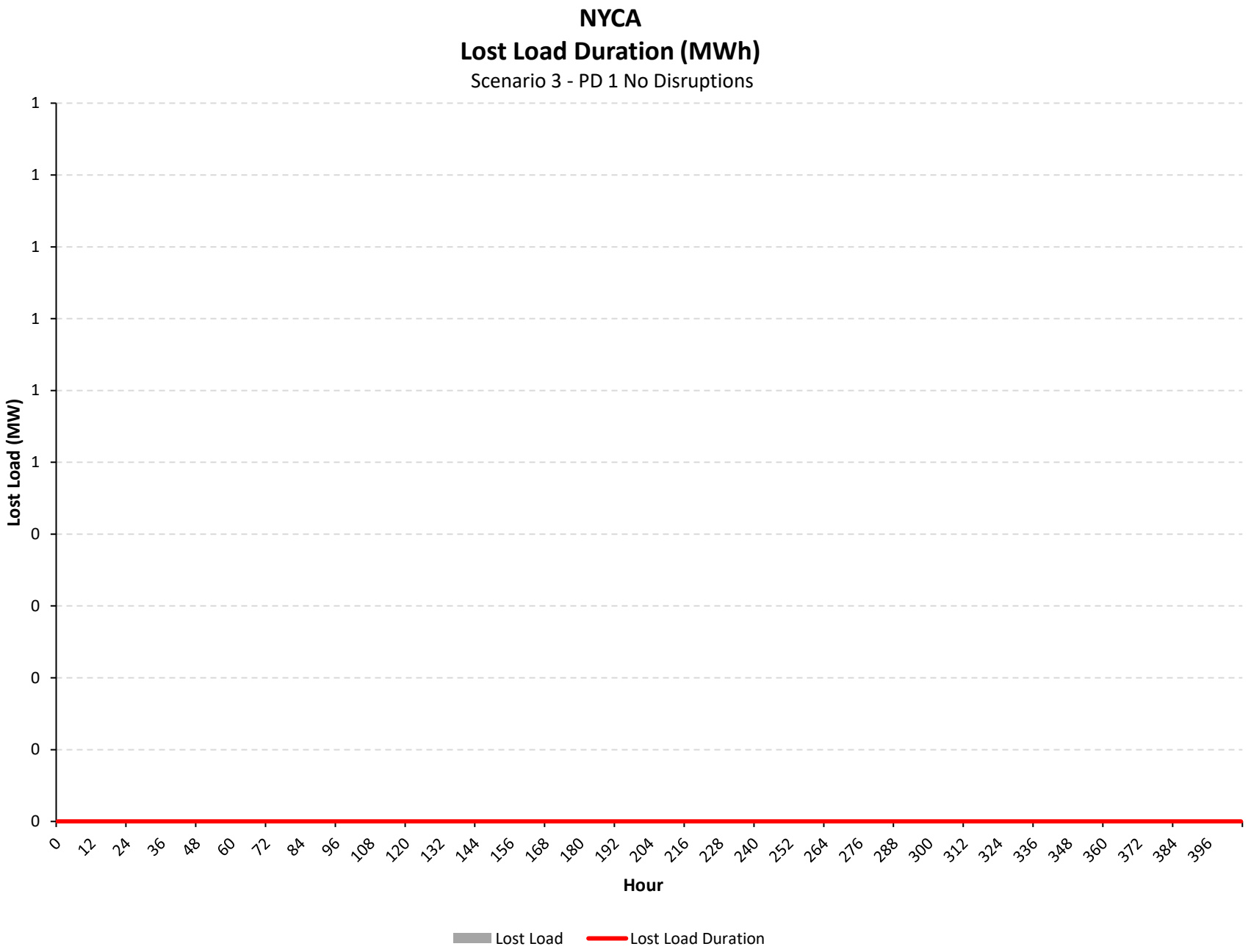



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 3 - PD 1 No Disruptions
Energy Stored (MWh)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 1 No Disruptions
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 1 No Disruptions
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

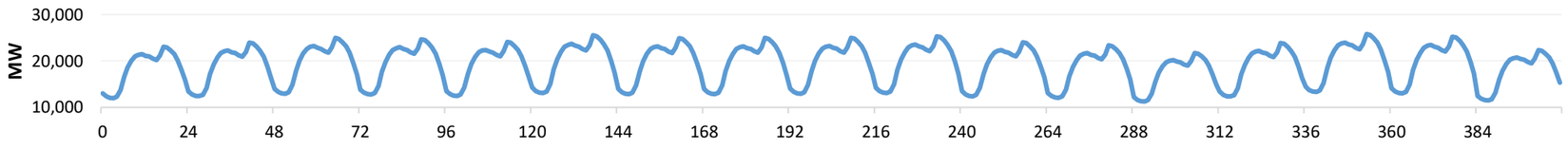
Case: Scenario 3 - PD 2 High Outage (Winter 2023/2024)

Hourly Results Summary

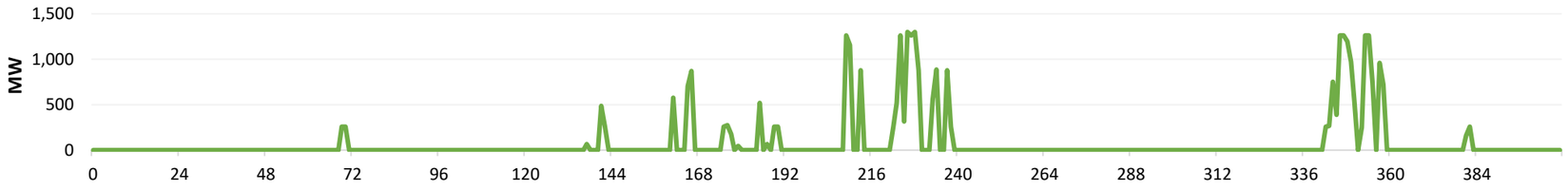
Case Name: Scenario 3 - PD 2 High Outage

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

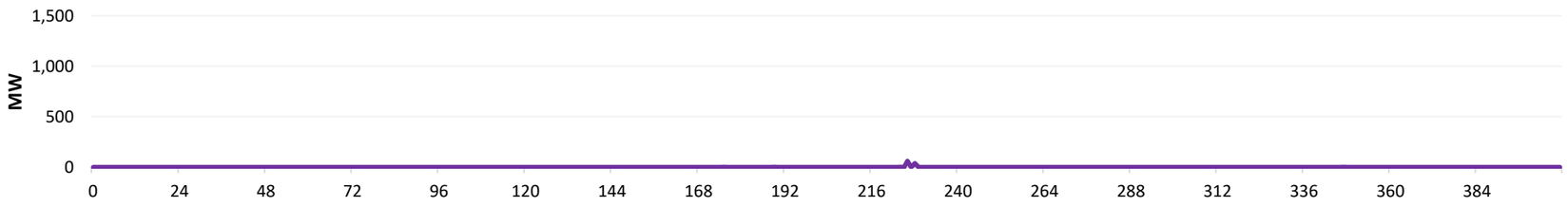


Export to ISO-NE Reduction During Modeling Period



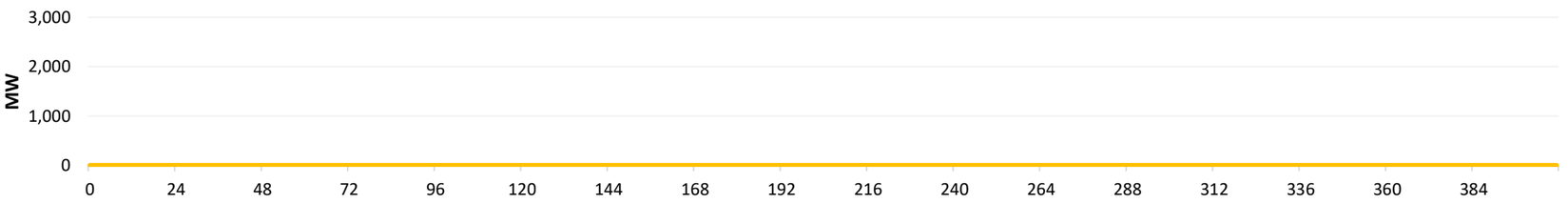
Export Reductions	
Total Hrs.	48
Total MWh	30,815
Avg. MW	75.5

SCR/EDRP Deployed During Modeling Period



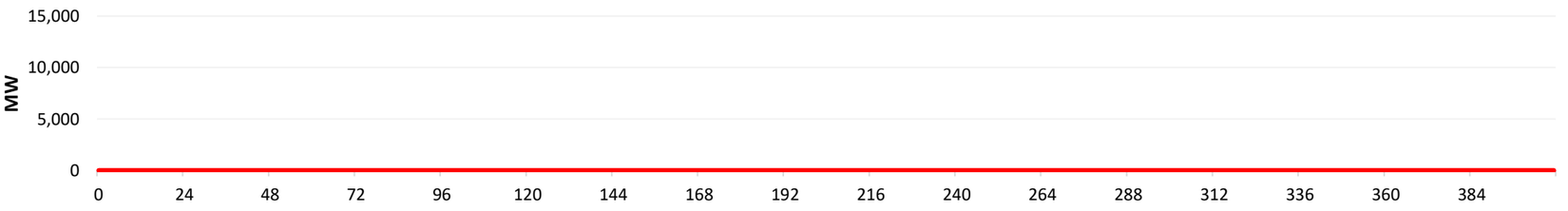
SCR Deployment	
Total Hrs.	2
Total MWh	101
Avg. MW	0.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

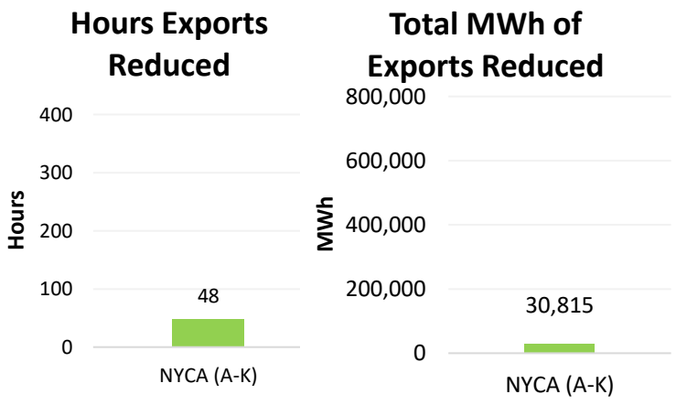


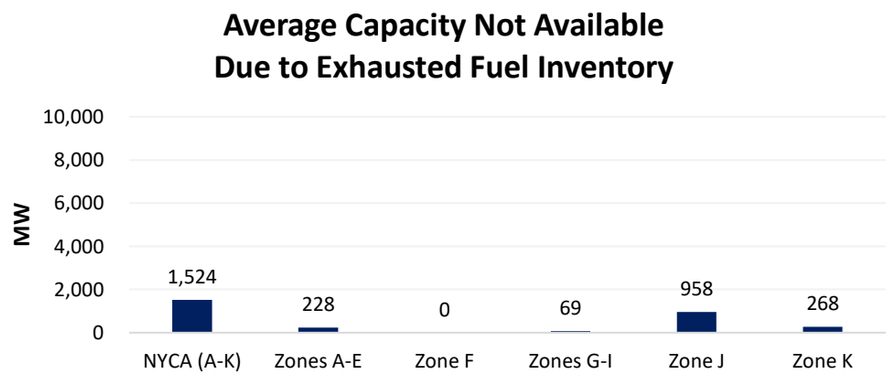
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

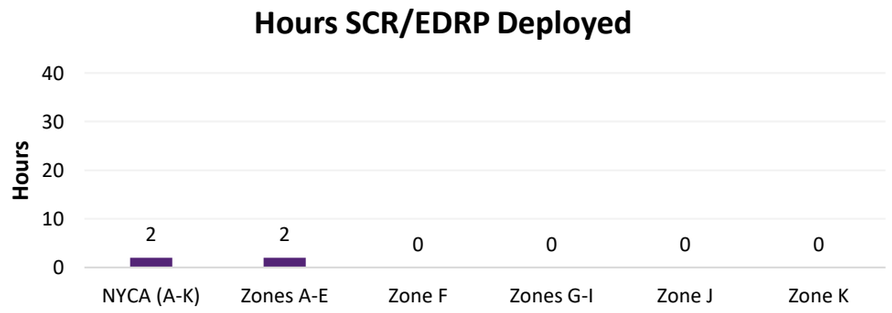
Full Period Results Summary

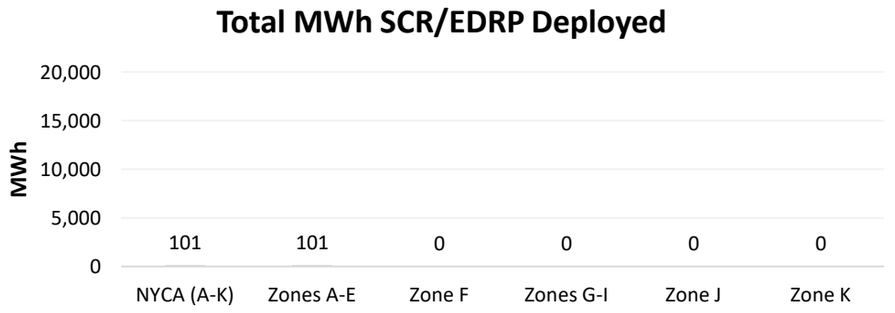
Case Name: Scenario 3 - PD 2 High Outage

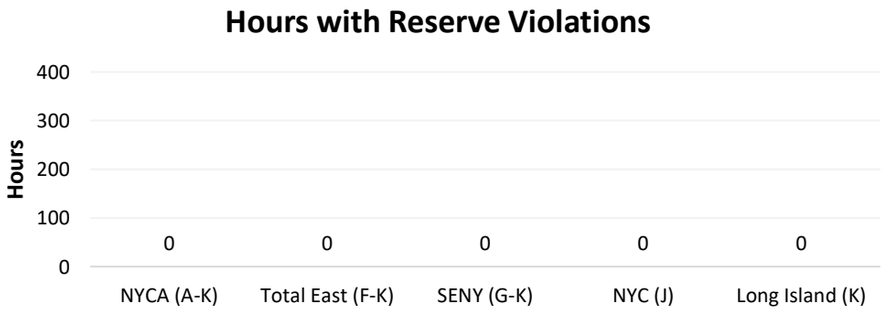
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

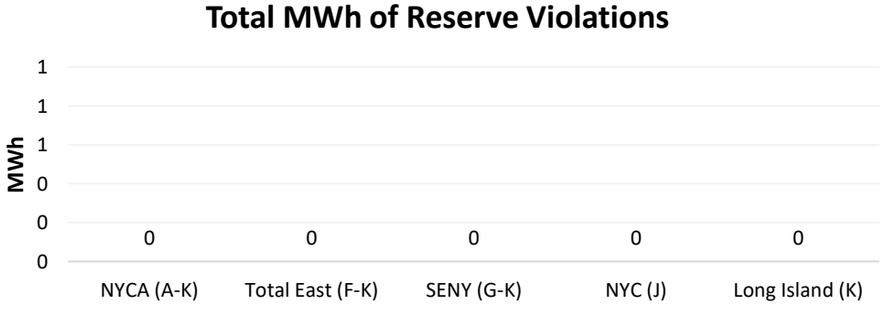


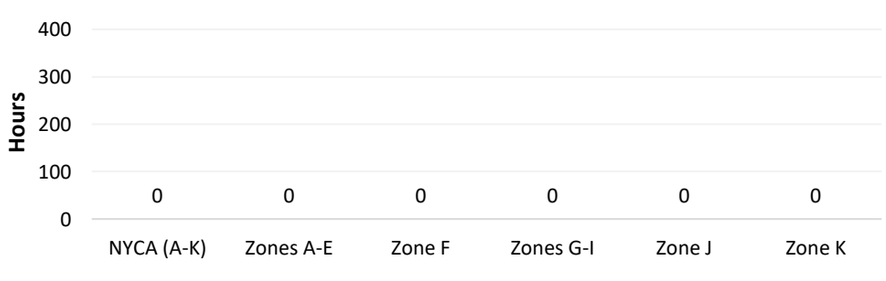


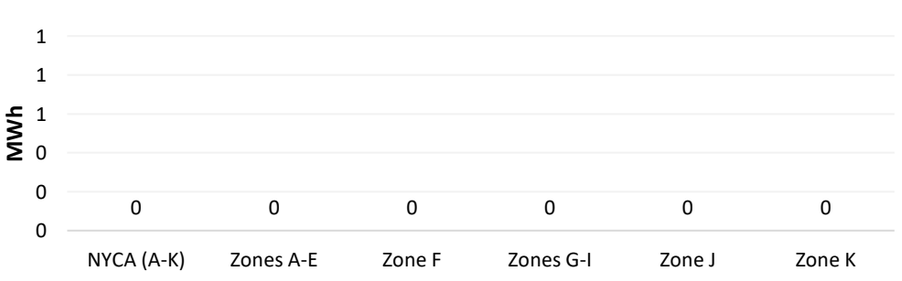


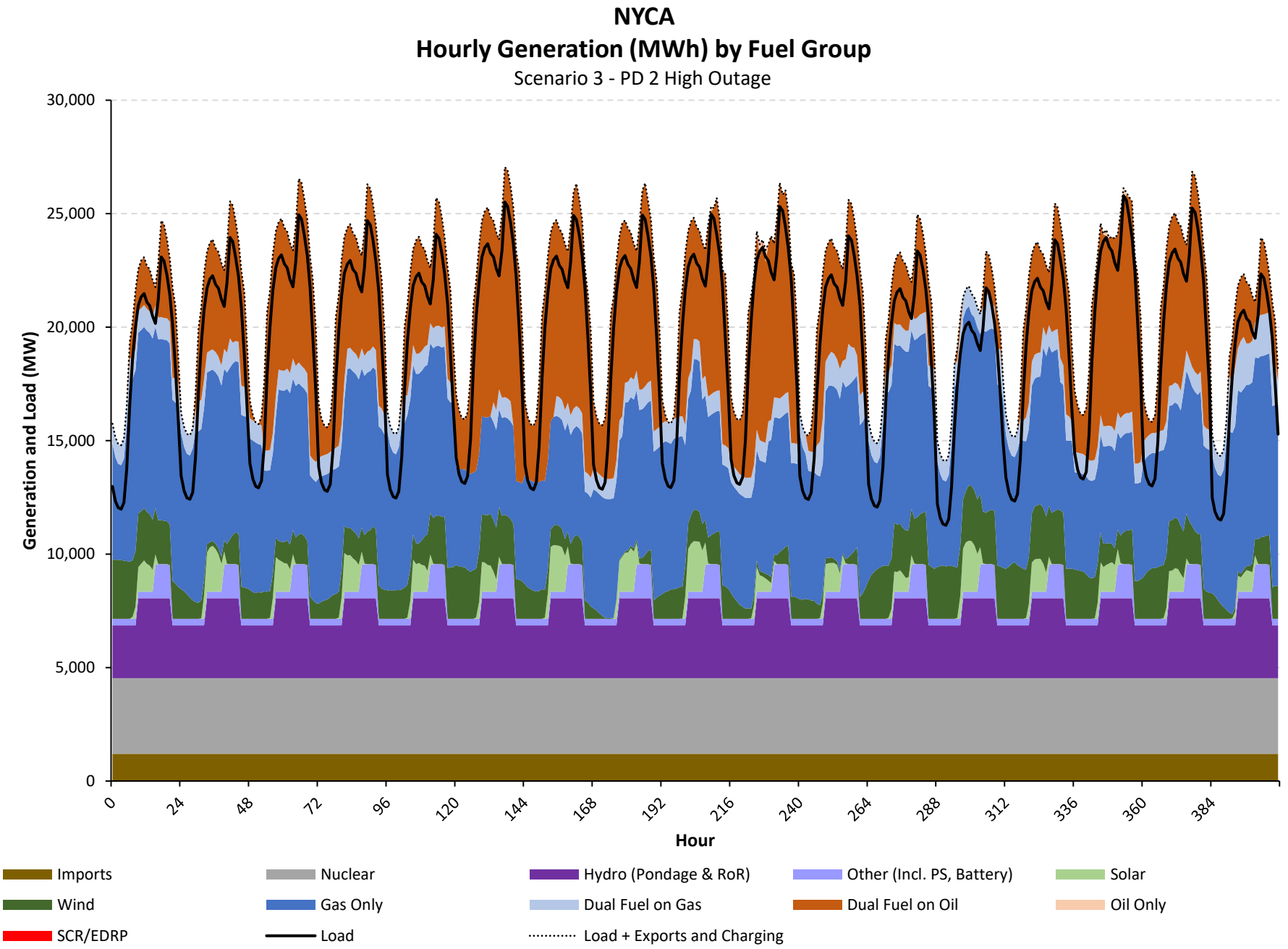


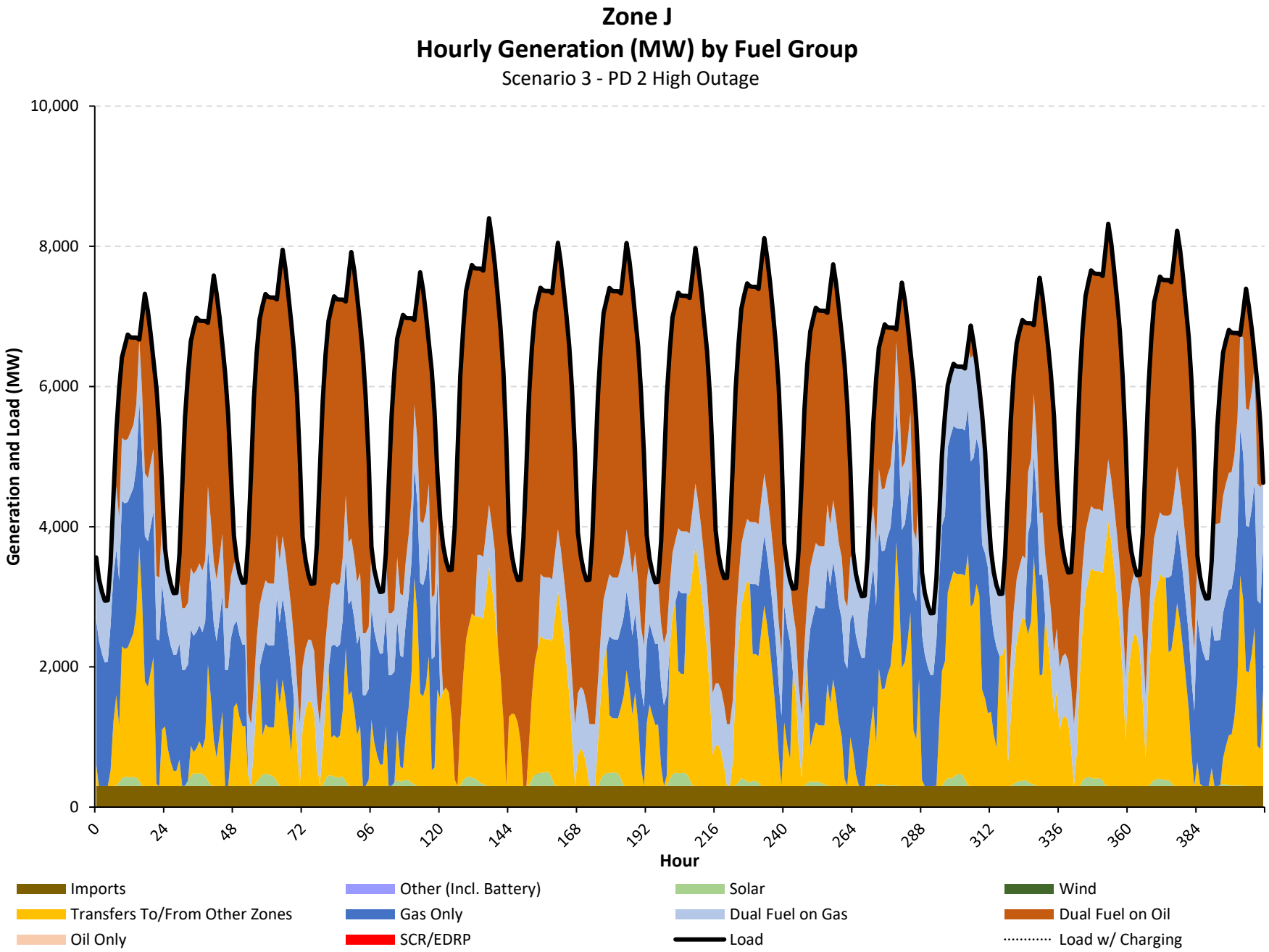




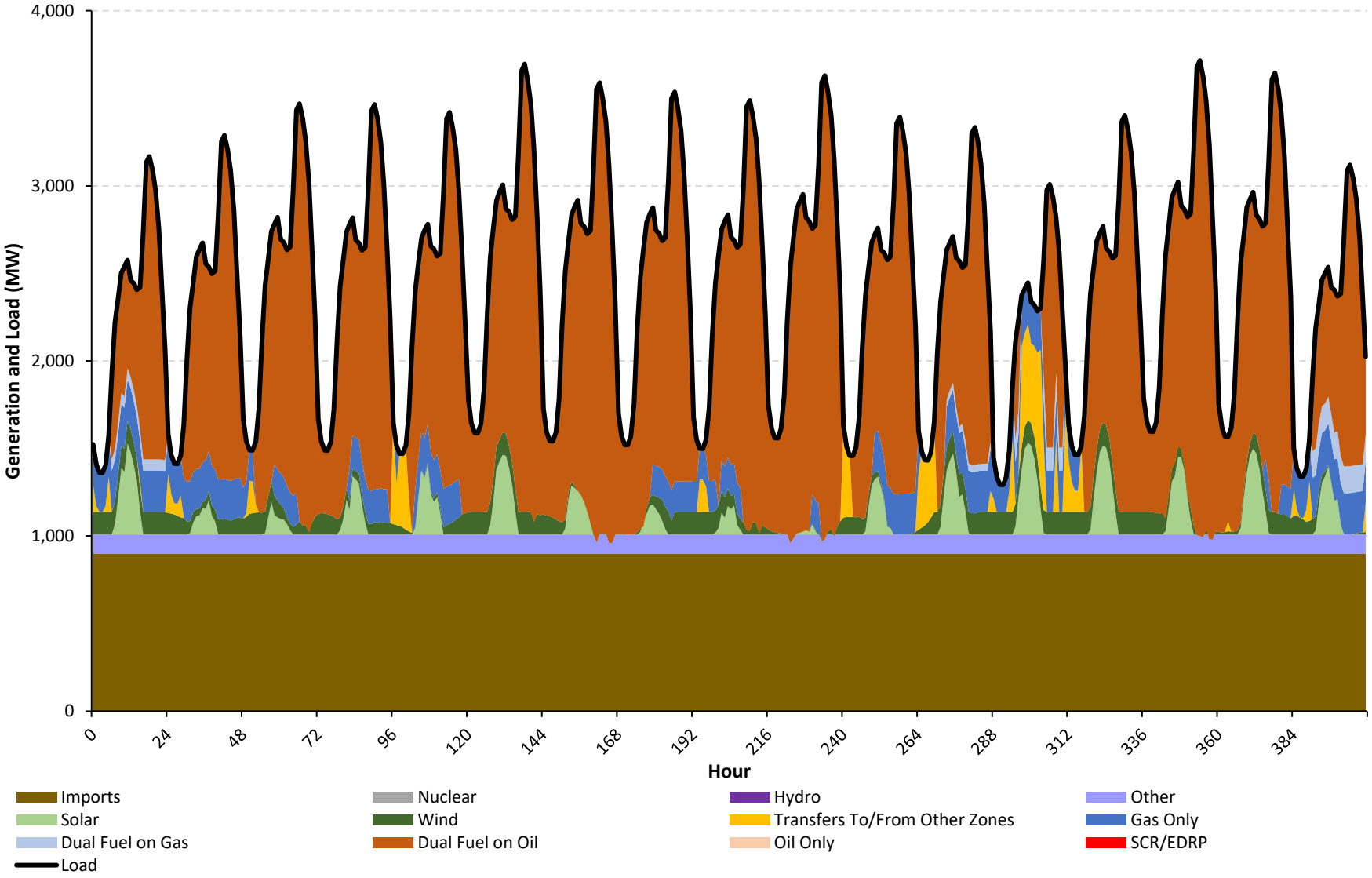




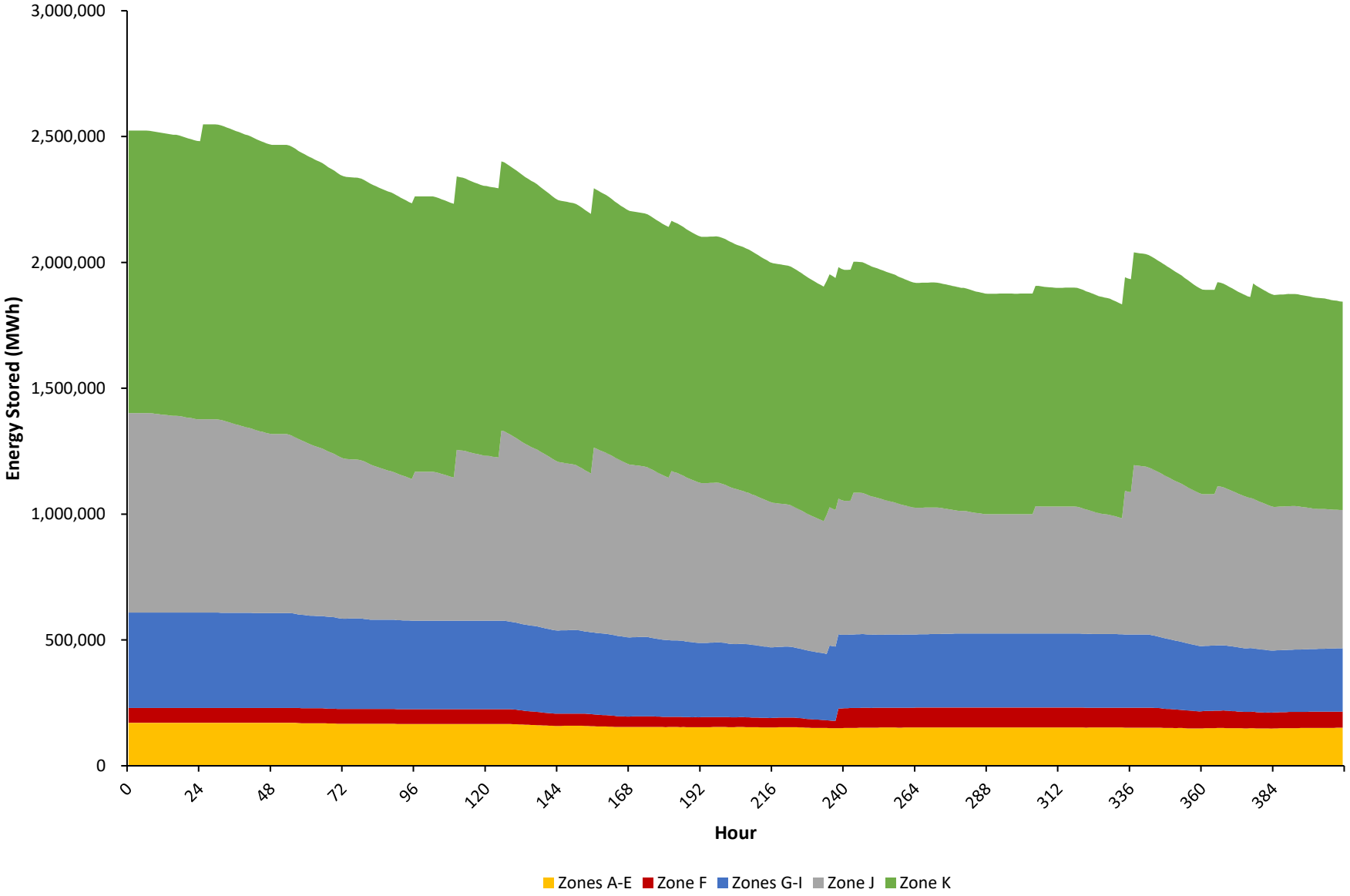

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 2 High Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 2 High Outage
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

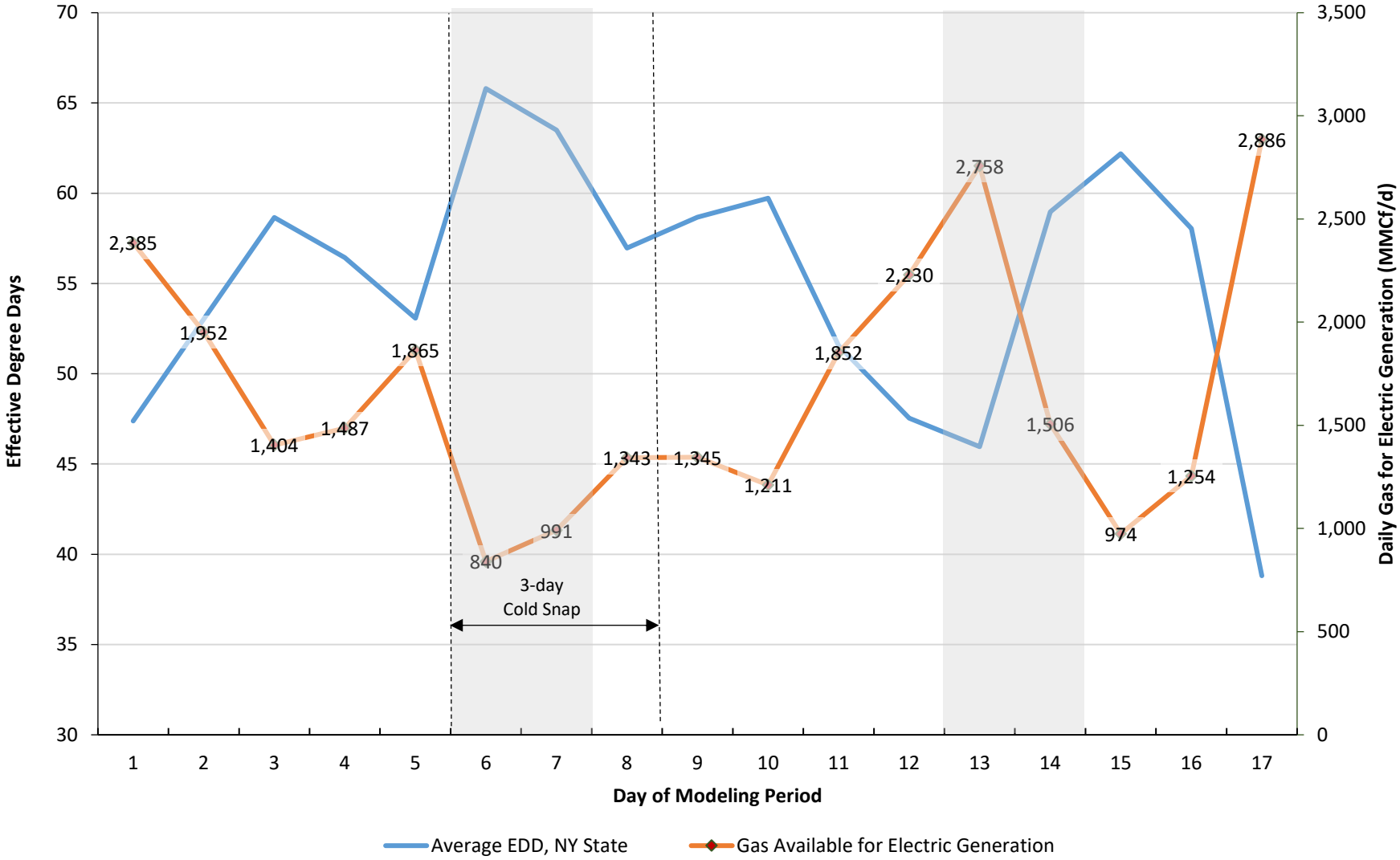
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 2 High Outage



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 3 - PD 2 High Outage



NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 3 - PD 2 High Outage

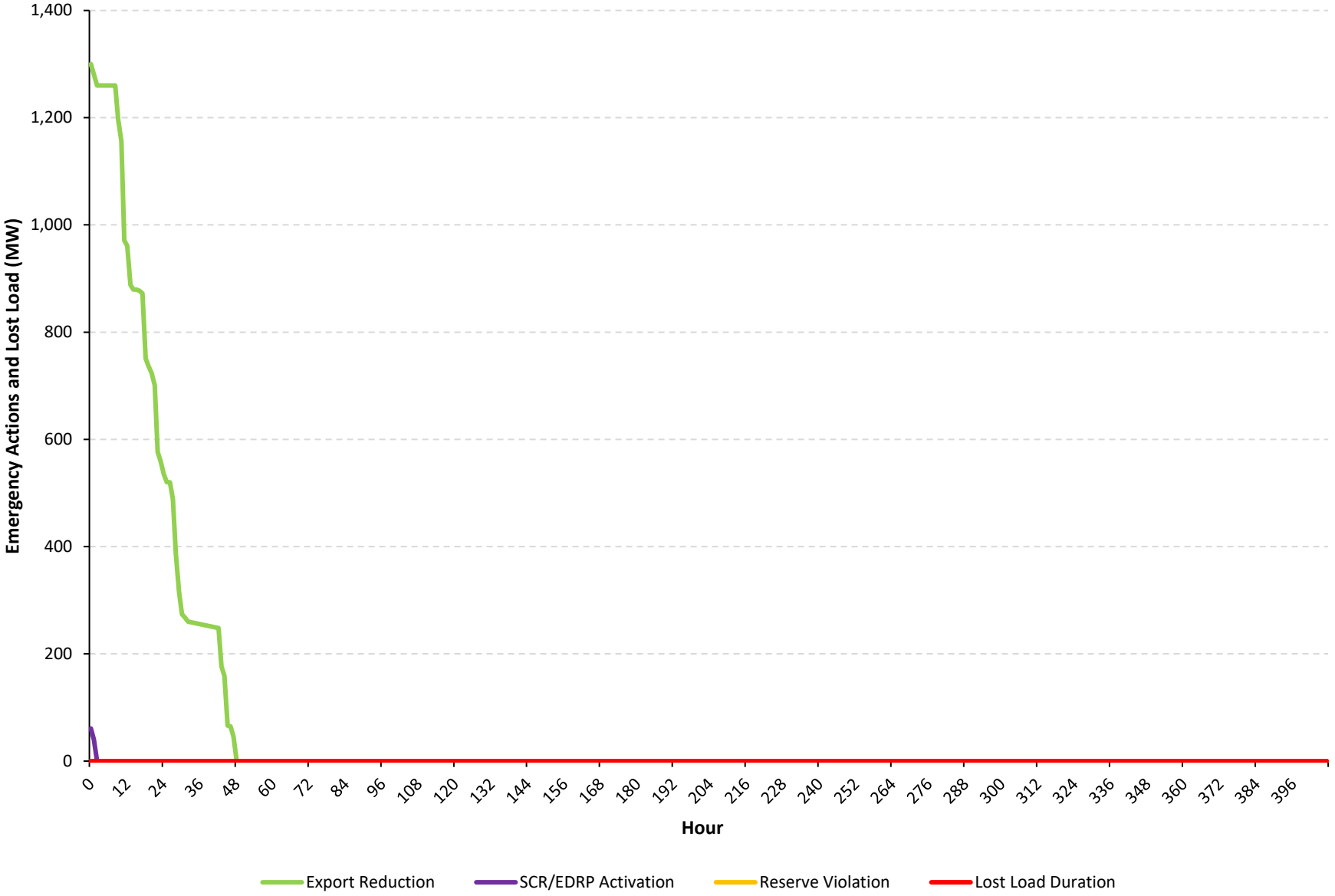


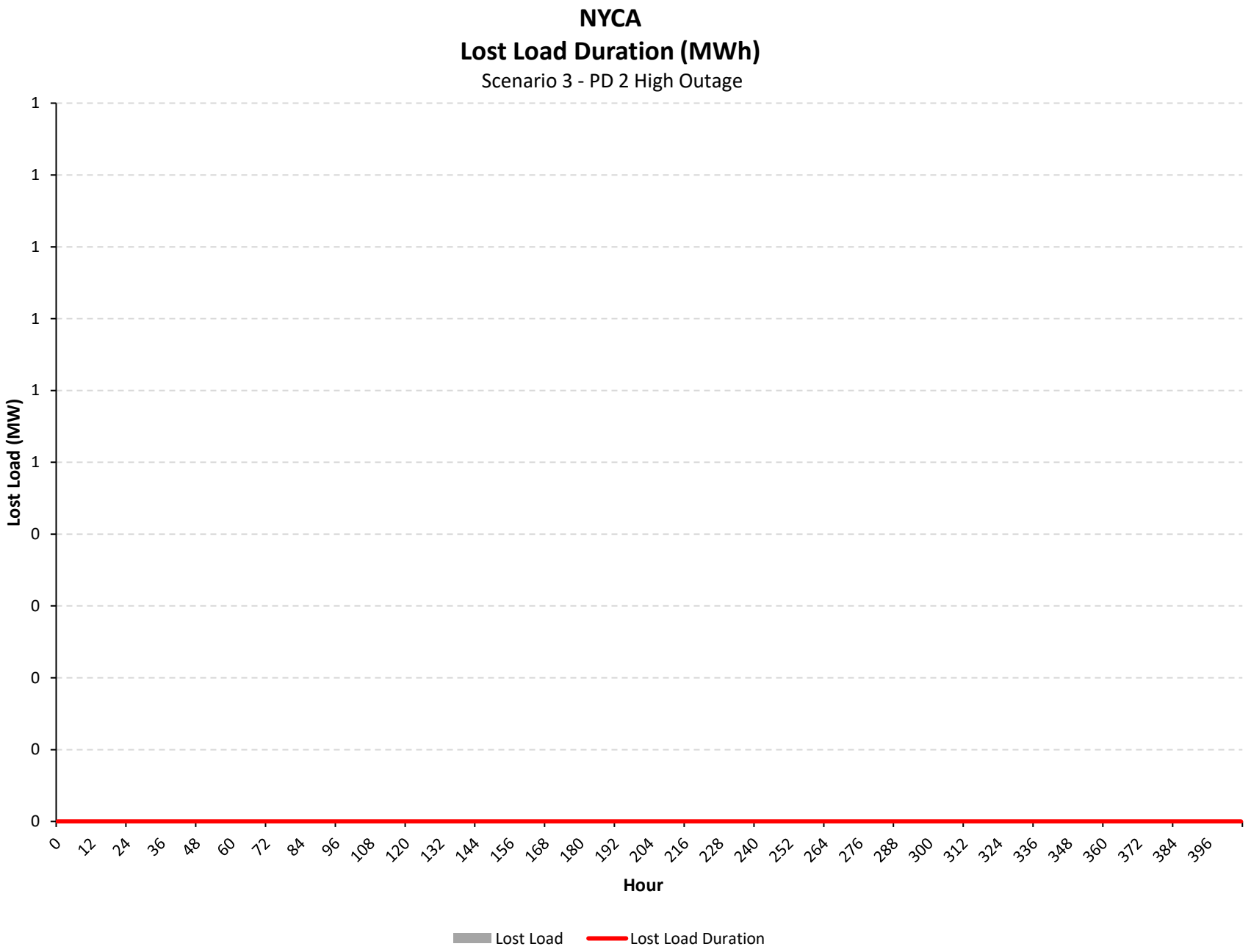
Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.

NYCA

Emergency Actions and Lost Load Duration (MWh)

Scenario 3 - PD 2 High Outage




NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 2 High Outage
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

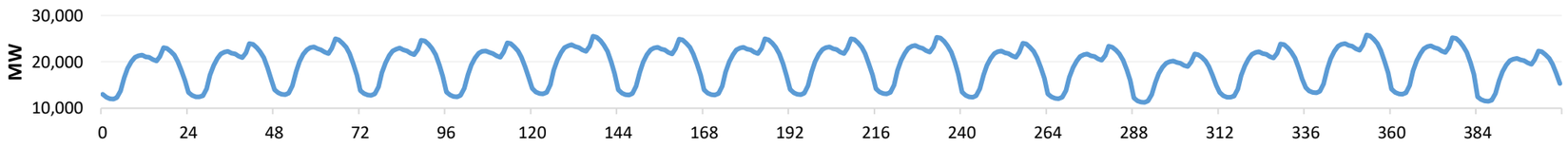
Case: Scenario 3 - PD 3 SENY Deactivation (Winter 2023/2024)

Hourly Results Summary

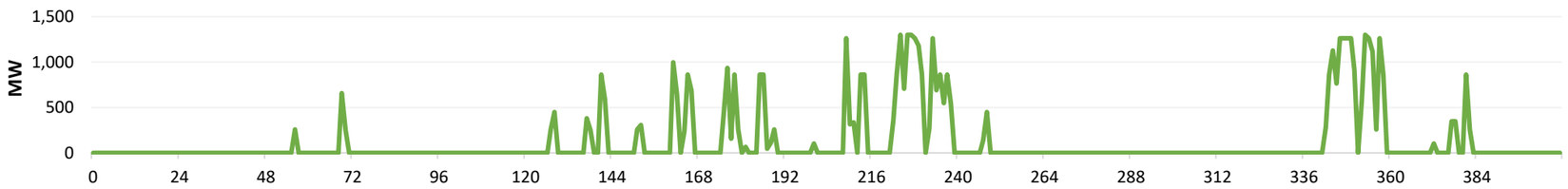
Case Name: Scenario 3 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	All

Load During Modeling Period

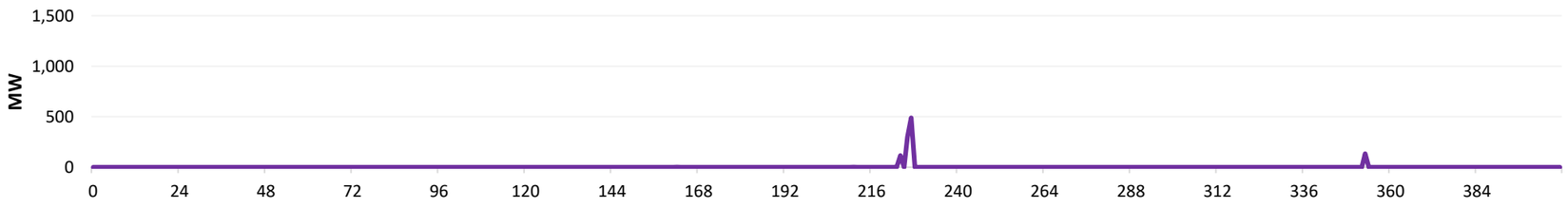


Export to ISO-NE Reduction During Modeling Period



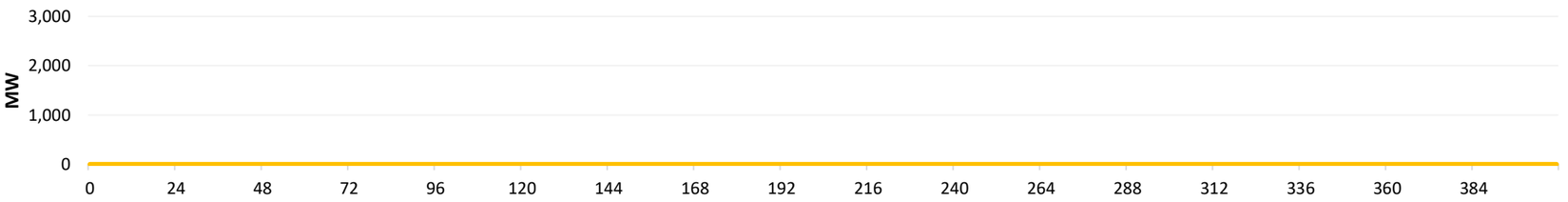
Export Reductions	
Total Hrs.	72
Total MWh	48,874
Avg. MW	119.8

SCR/EDRP Deployed During Modeling Period



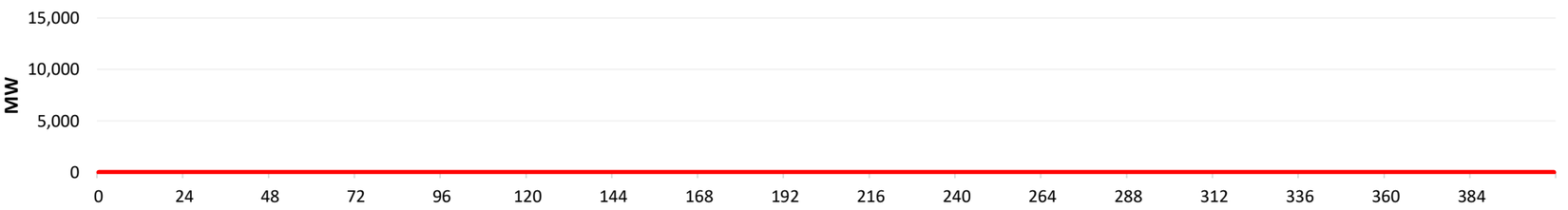
SCR Deployment	
Total Hrs.	4
Total MWh	1,036
Avg. MW	2.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period



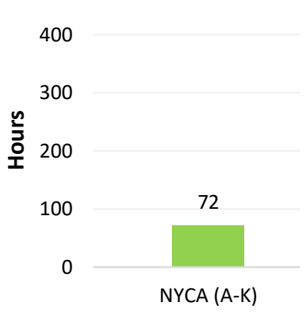
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

Full Period Results Summary

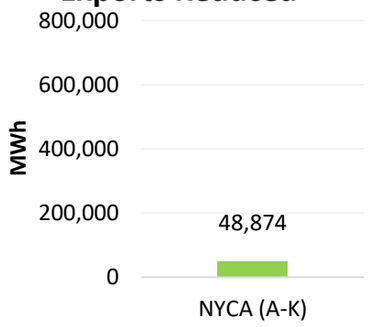
Case Name: Scenario 3 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	All

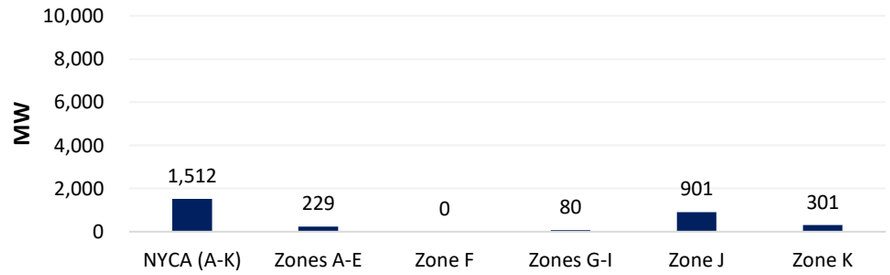
Hours Exports Reduced



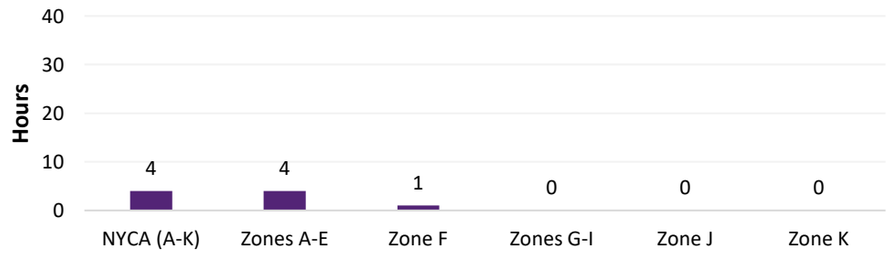
Total MWh of Exports Reduced



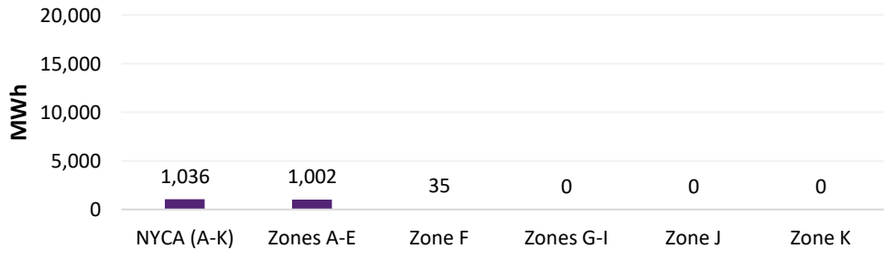
Average Capacity Not Available Due to Exhausted Fuel Inventory



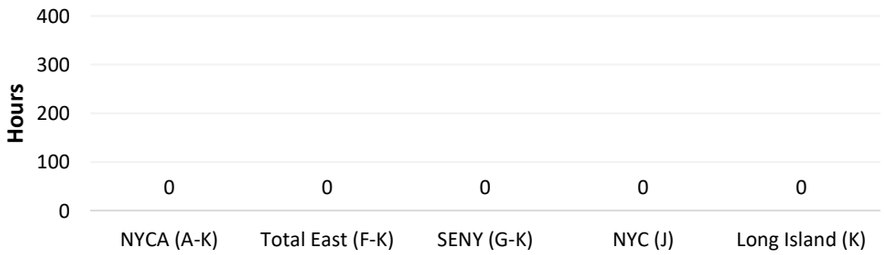
Hours SCR/EDRP Deployed



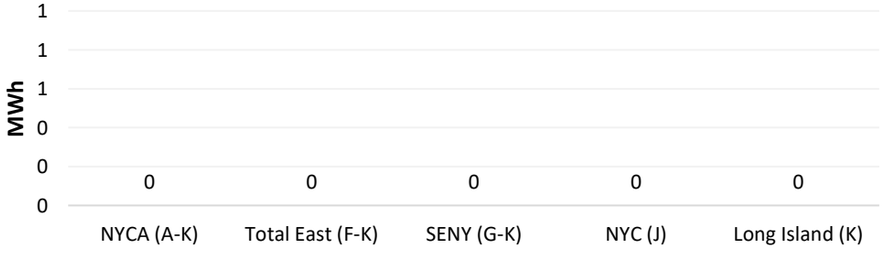
Total MWh SCR/EDRP Deployed



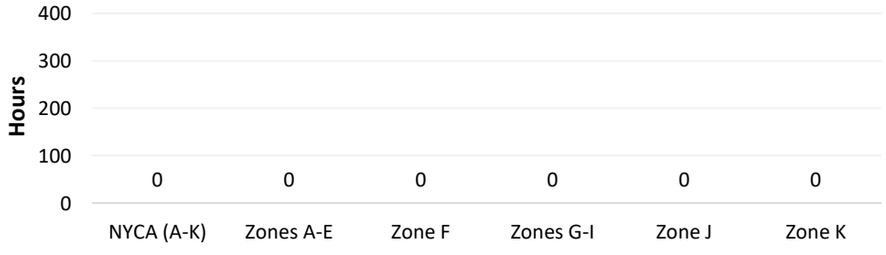
Hours with Reserve Violations



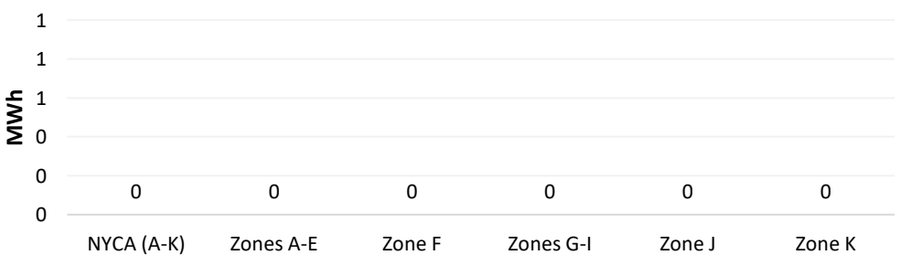
Total MWh of Reserve Violations

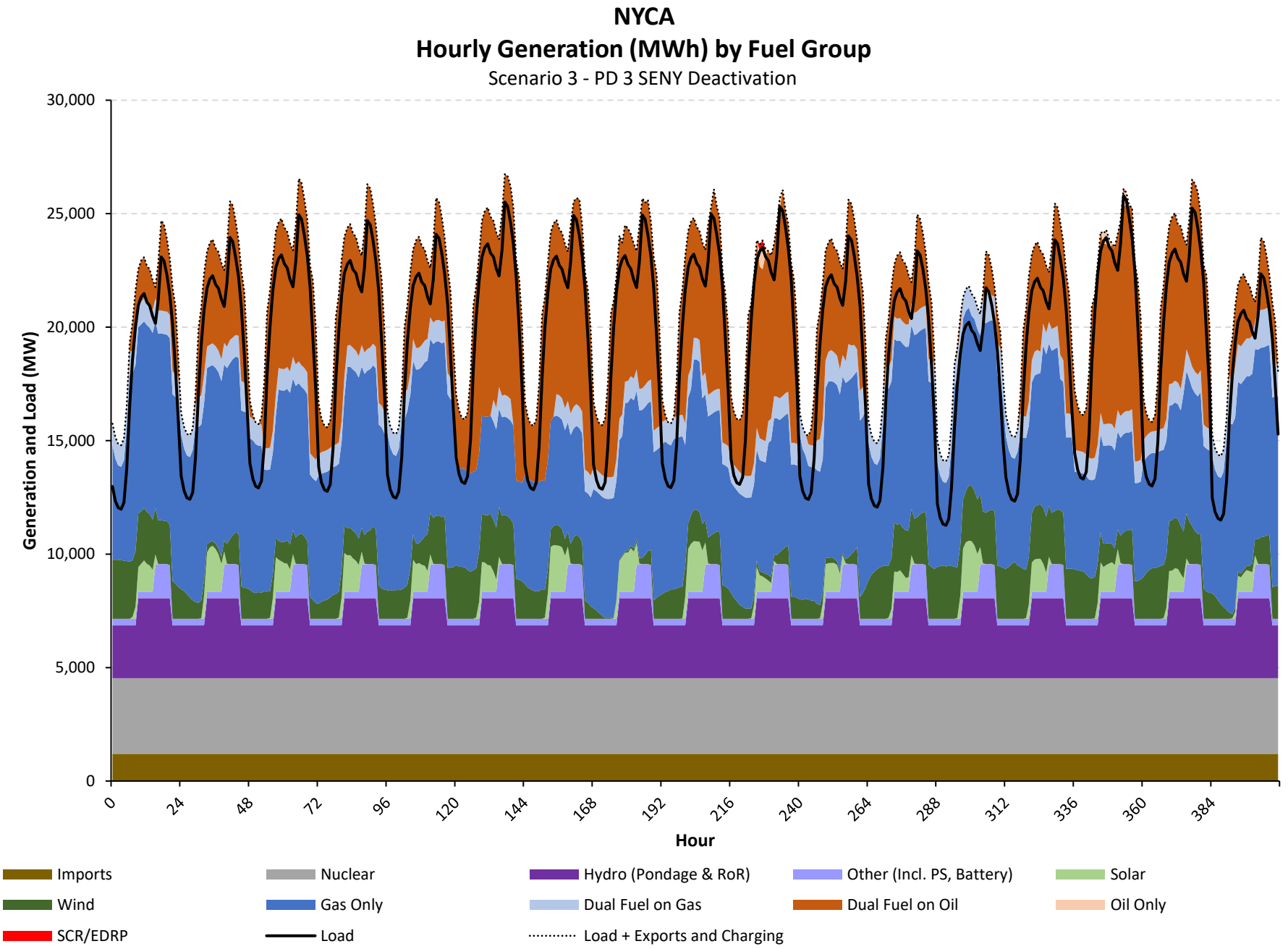


Hours with Loss of Load

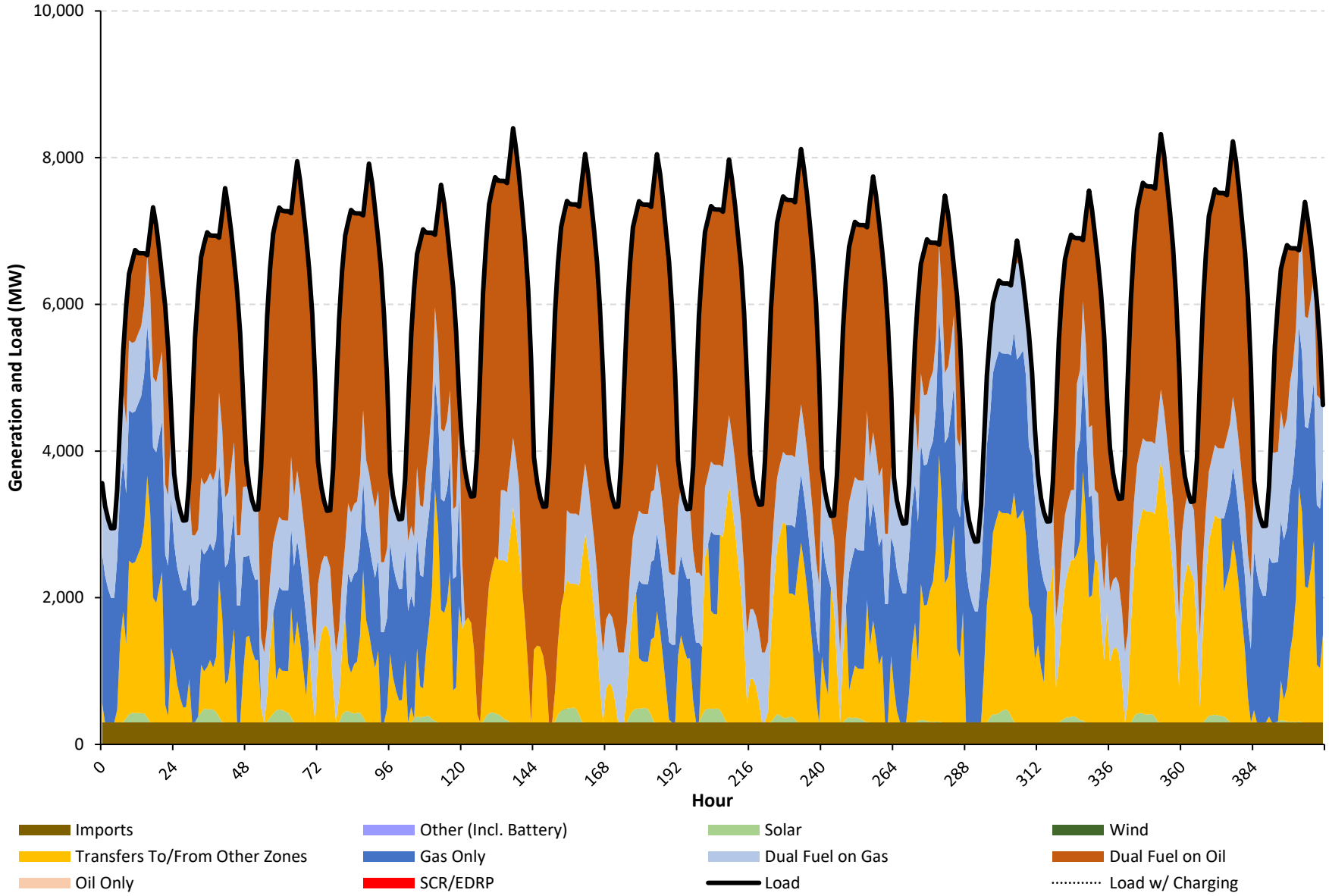


Total MWh of Lost Load

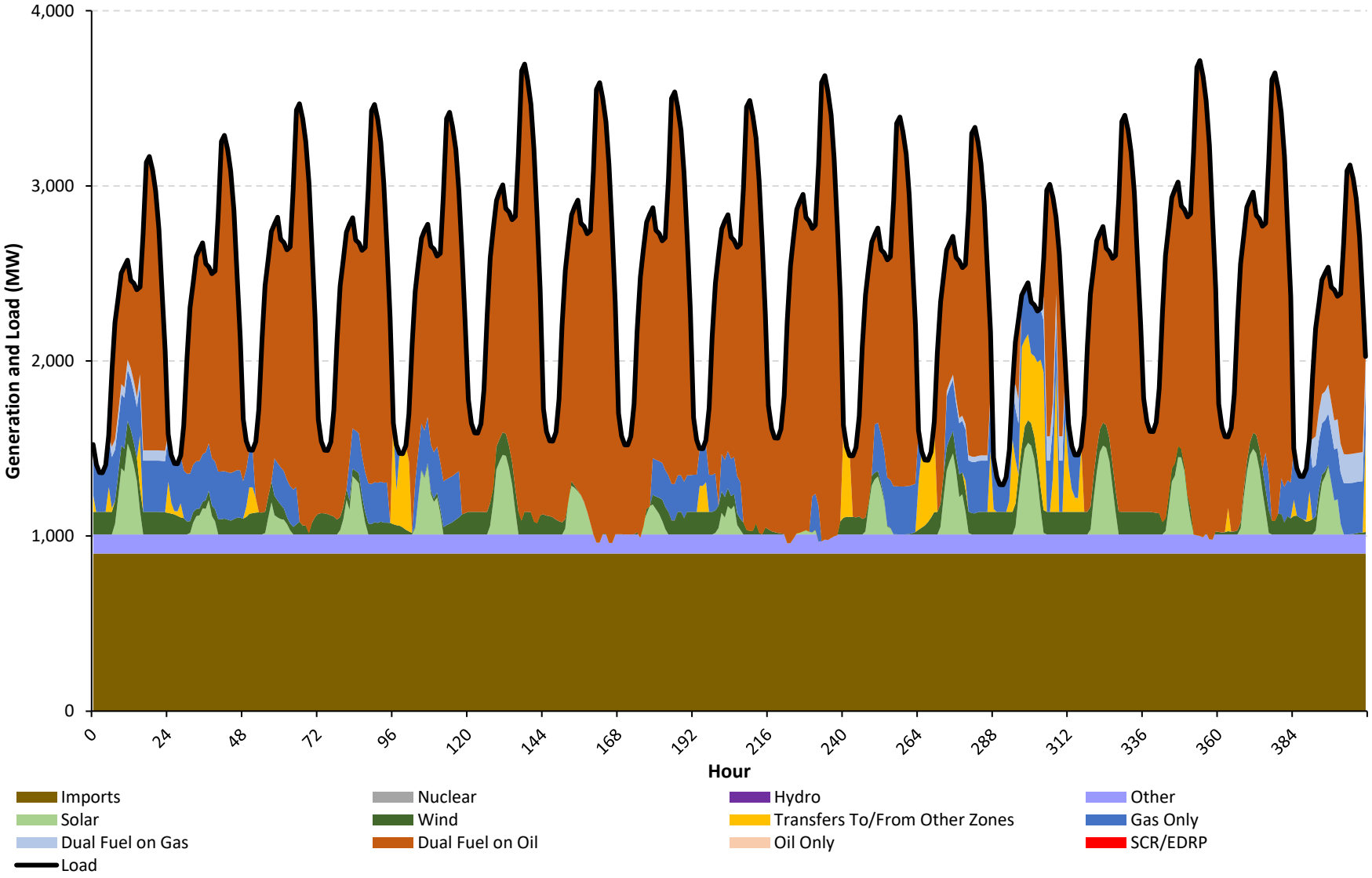



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 3 SENY Deactivation
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 3 SENY Deactivation



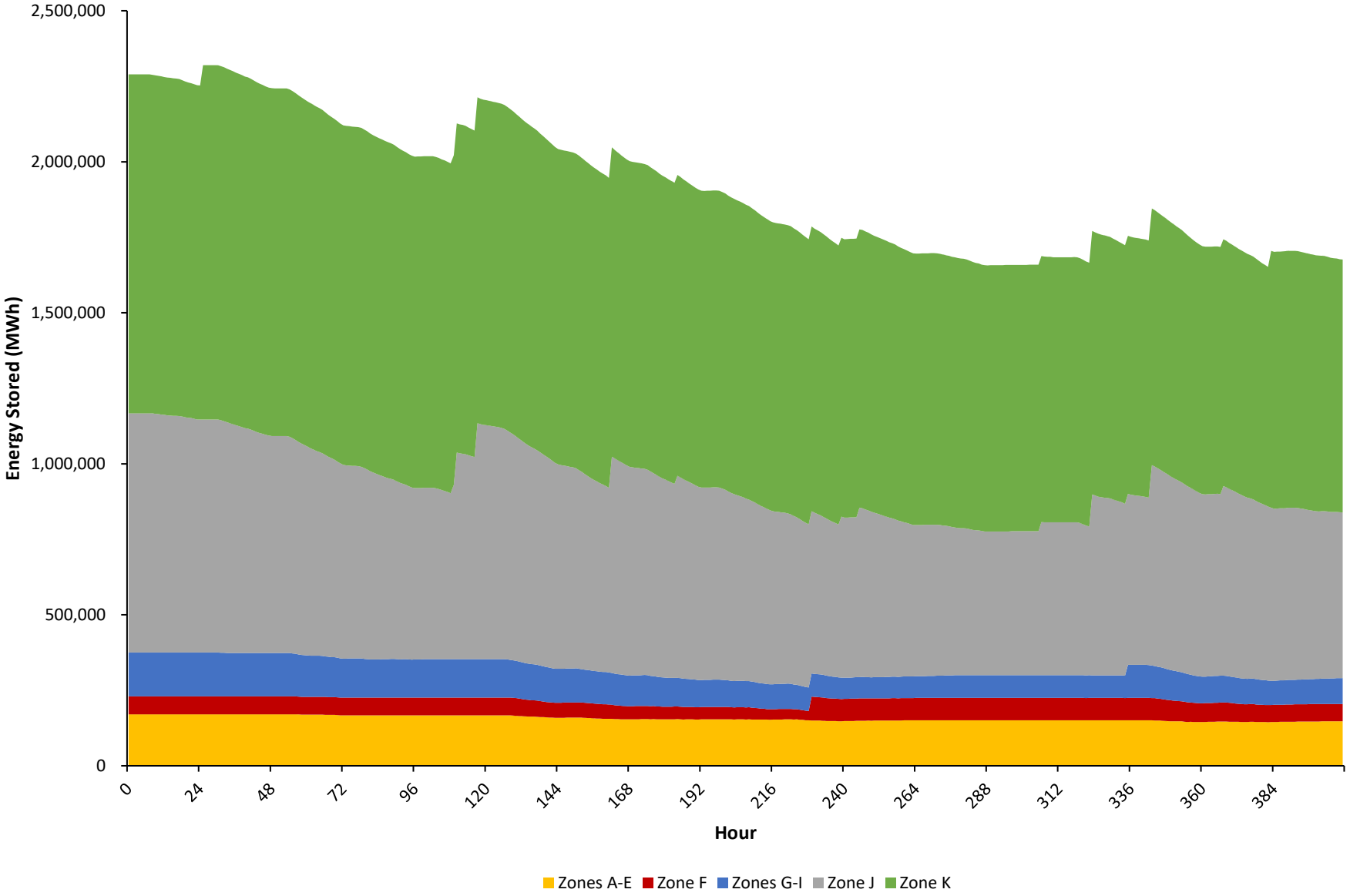
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 3 SENY Deactivation

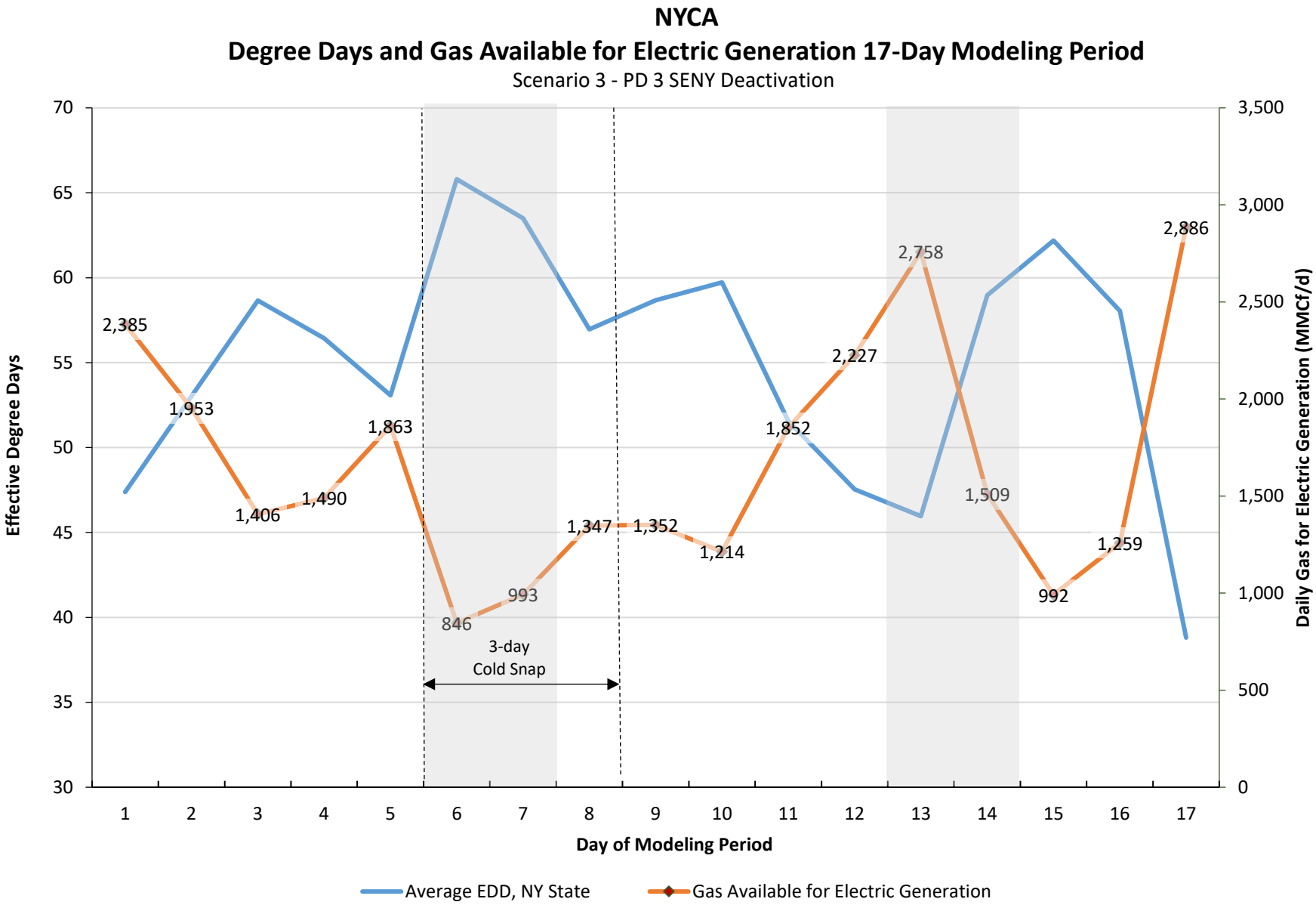


NYCA

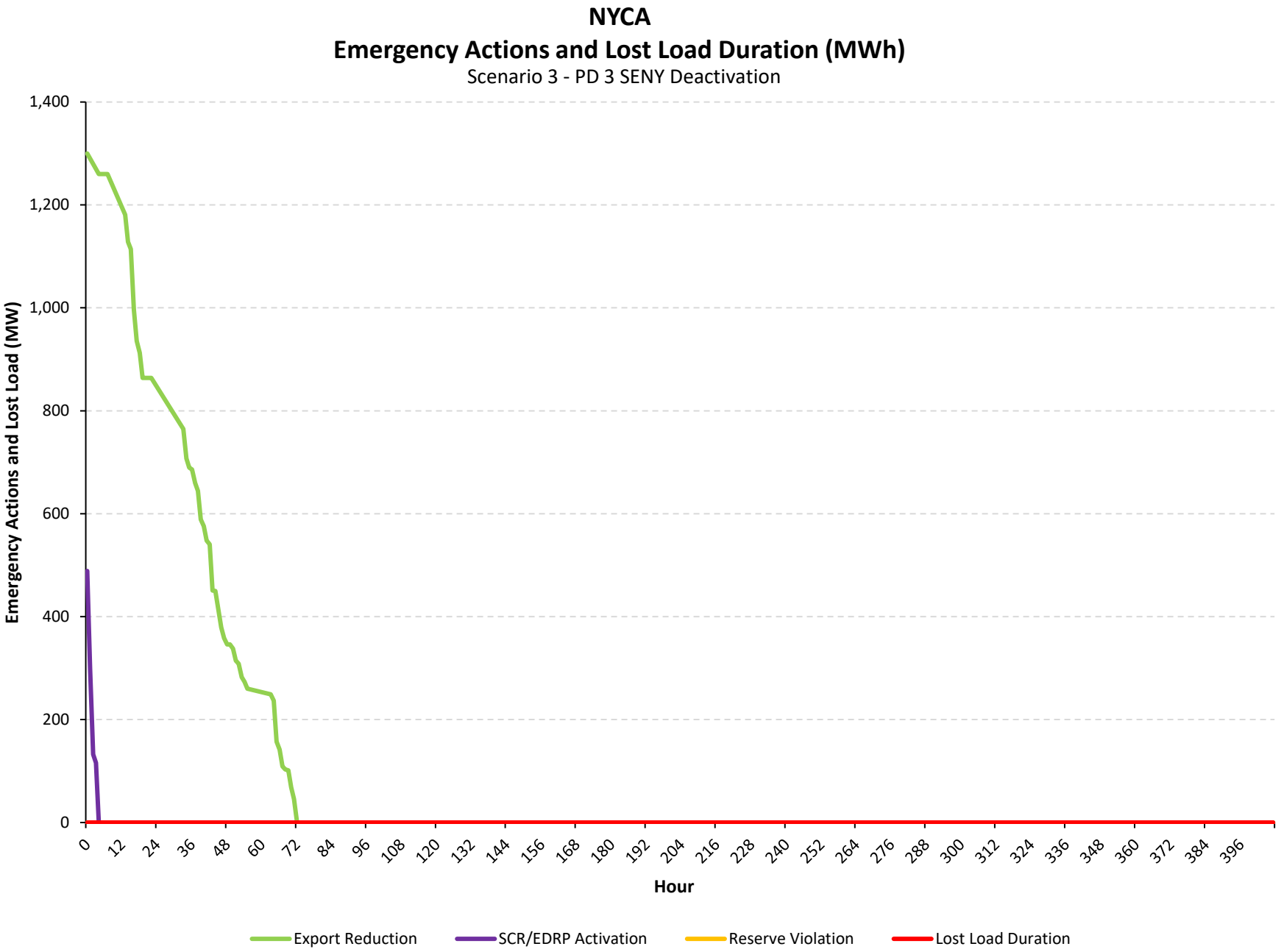
Quantity of Stored Fuel for Oil and Dual Fuel Units

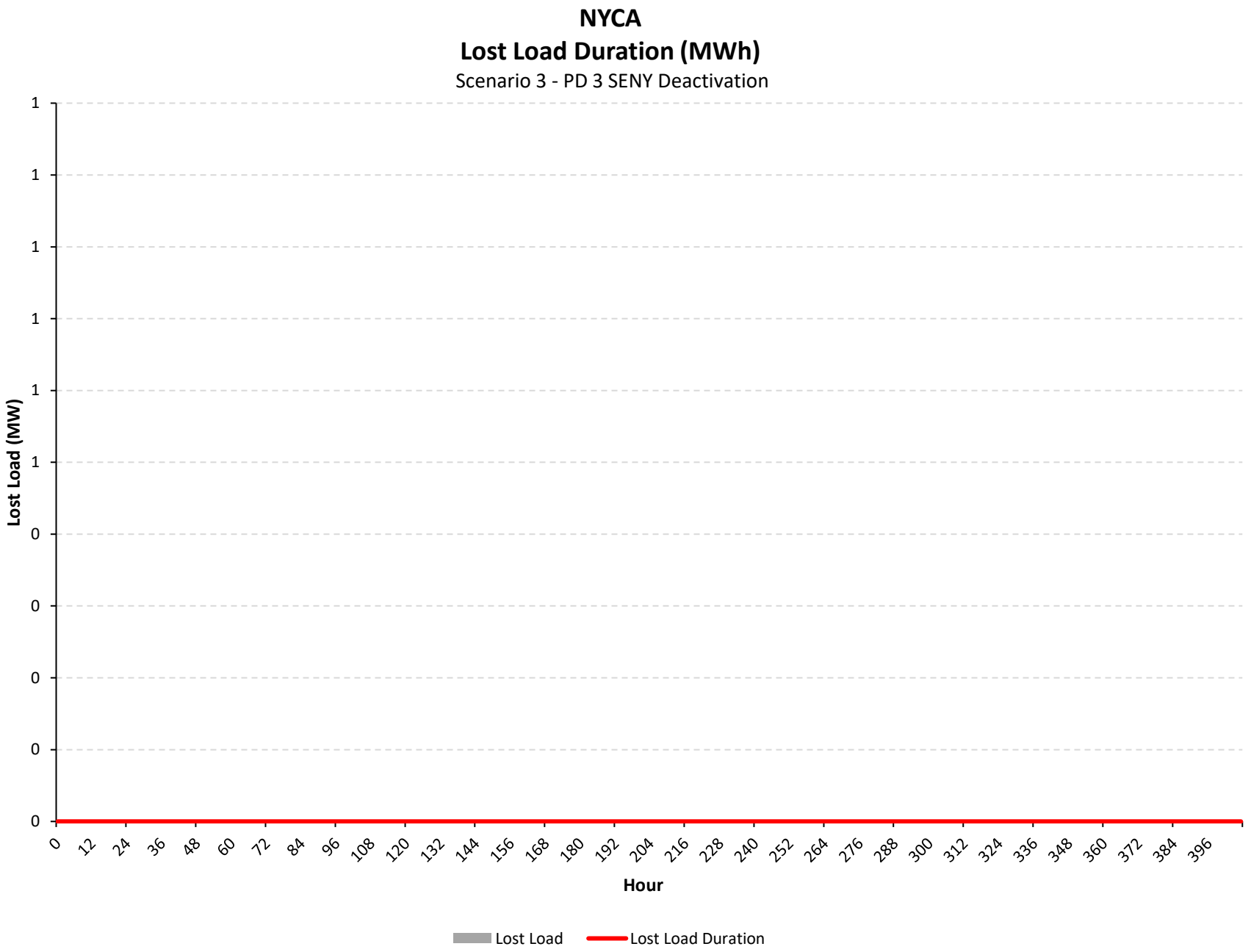
Scenario 3 - PD 3 SENY Deactivation





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 3 SENY Deactivation
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 3 SENY Deactivation
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

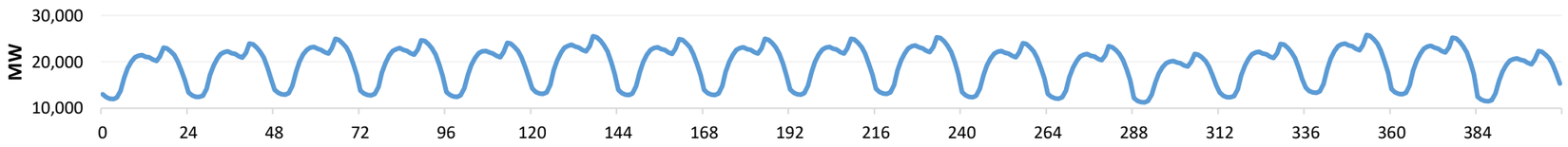
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 3 - PD 4 Nuclear Station Outage (Winter 2023/2024)

Hourly Results Summary

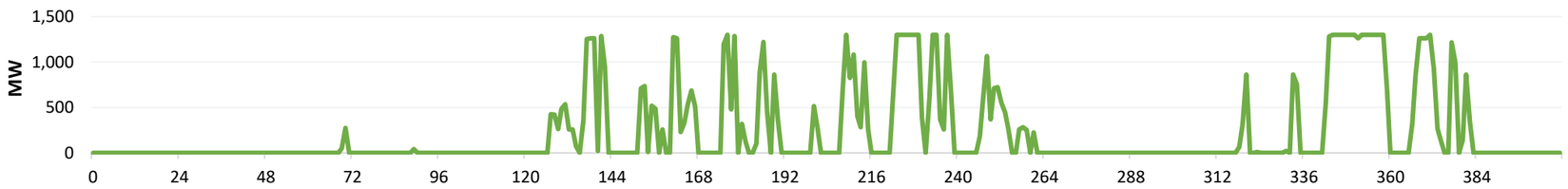
Case Name: Scenario 3 - PD 4 Nuclear Station Outage

Load During Modeling Period



Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period

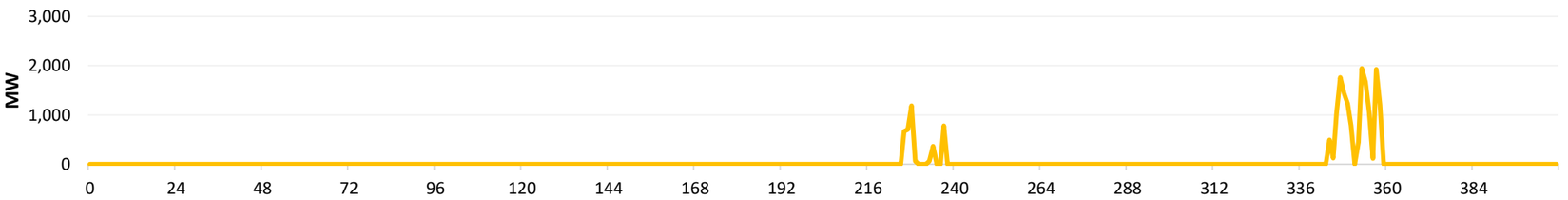


Export Reductions	
Total Hrs.	121
Total MWh	90,232
Avg. MW	221.2

SCR/EDRP Deployed During Modeling Period

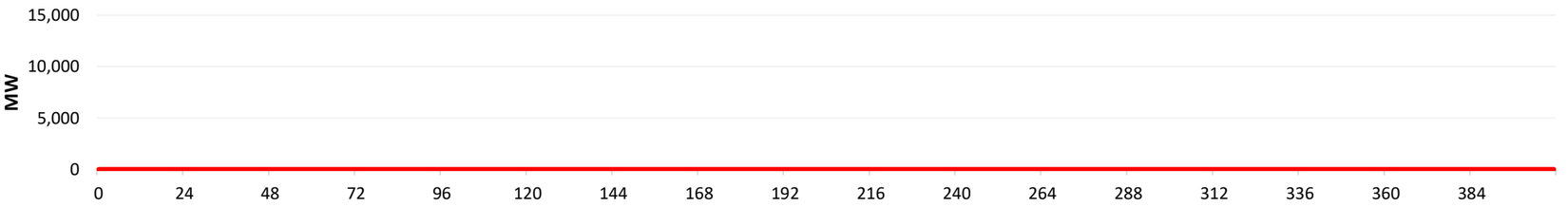
SCR Deployment	
Total Hrs.	14
Total MWh	4,604
Avg. MW	11.3

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	21
Total MWh	19,031
Avg. MW	46.6
First Hour with Viol.	224

Loss of Load During Modeling Period

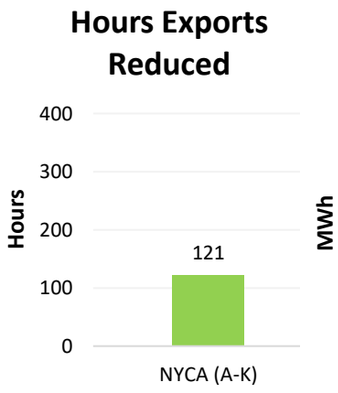


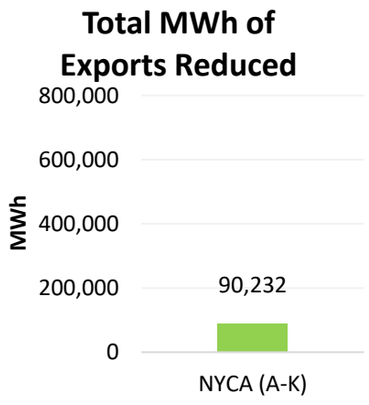
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

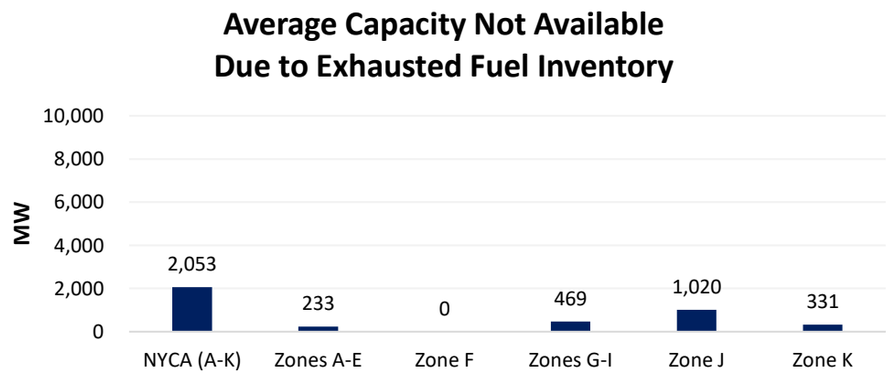
Full Period Results Summary

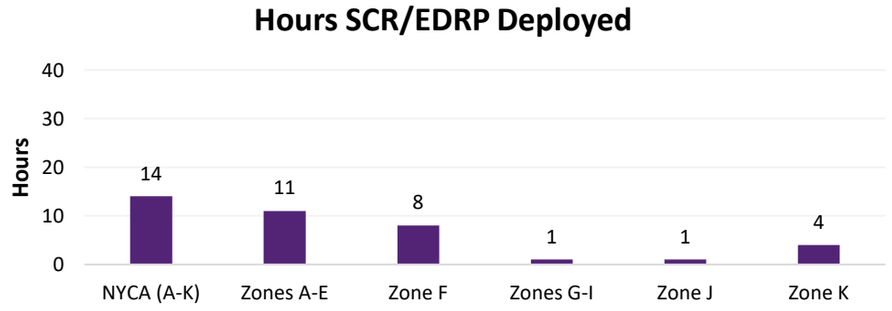
Case Name: Scenario 3 - PD 4 Nuclear Station Outage

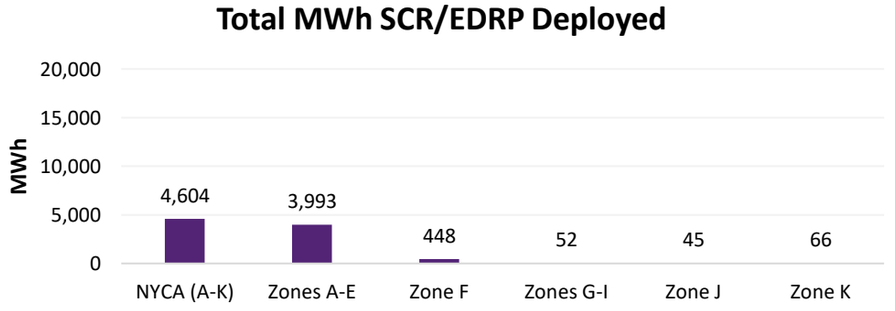
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	All

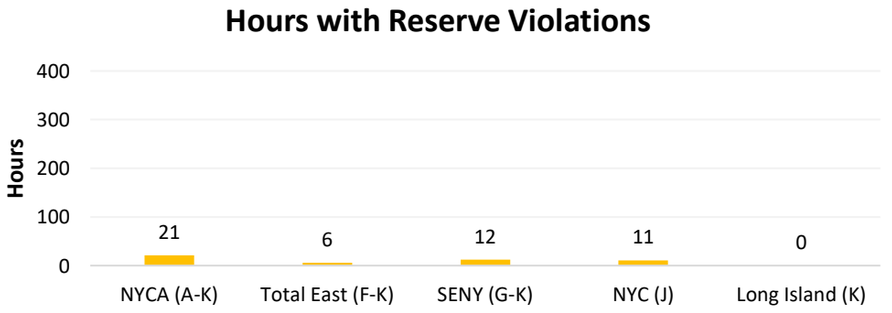


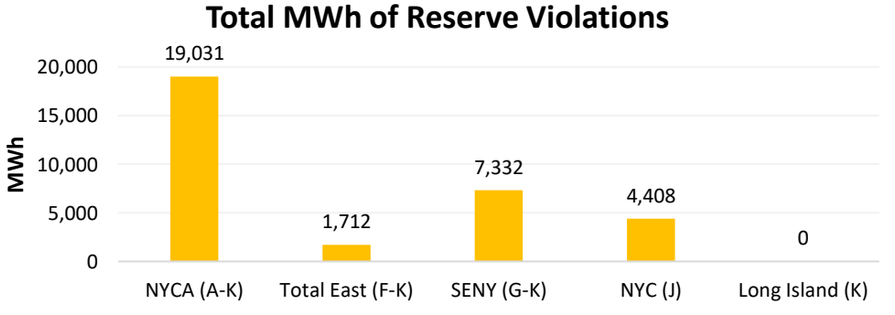


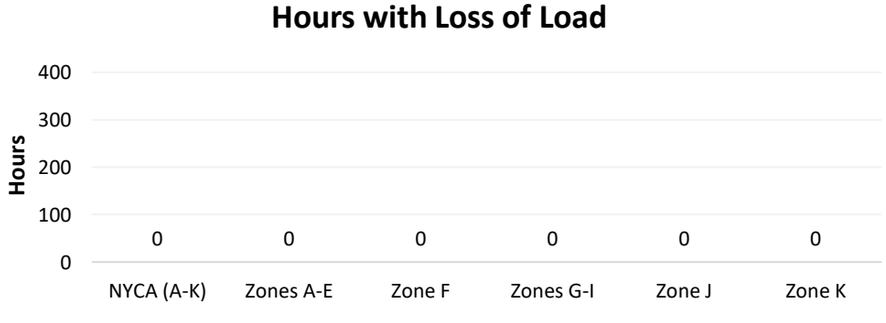


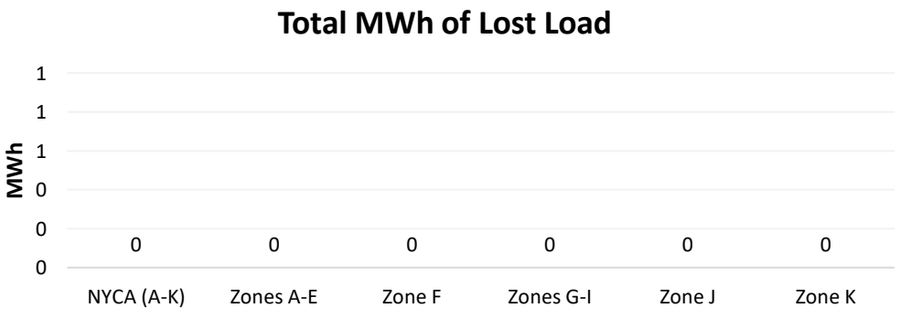


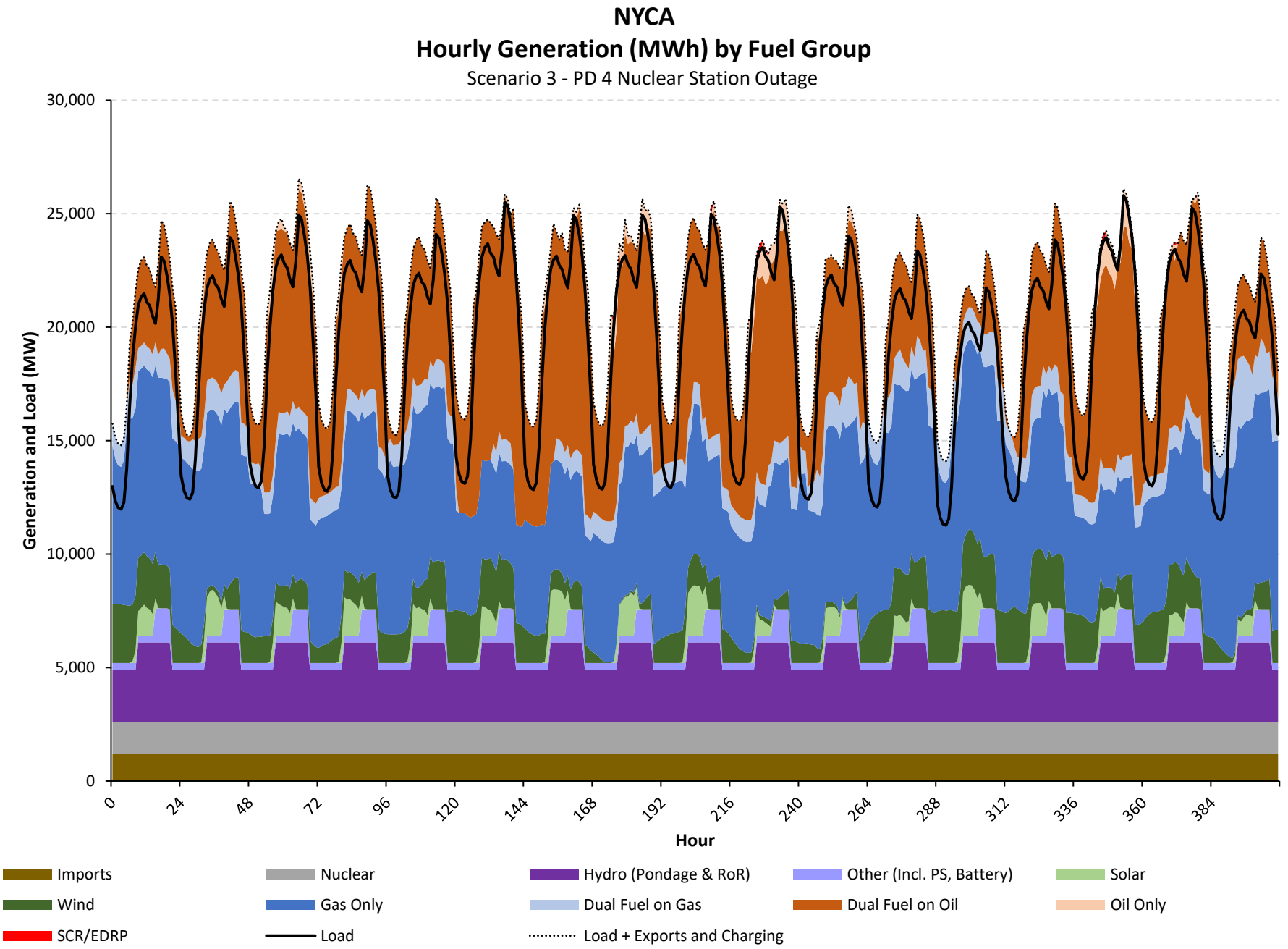




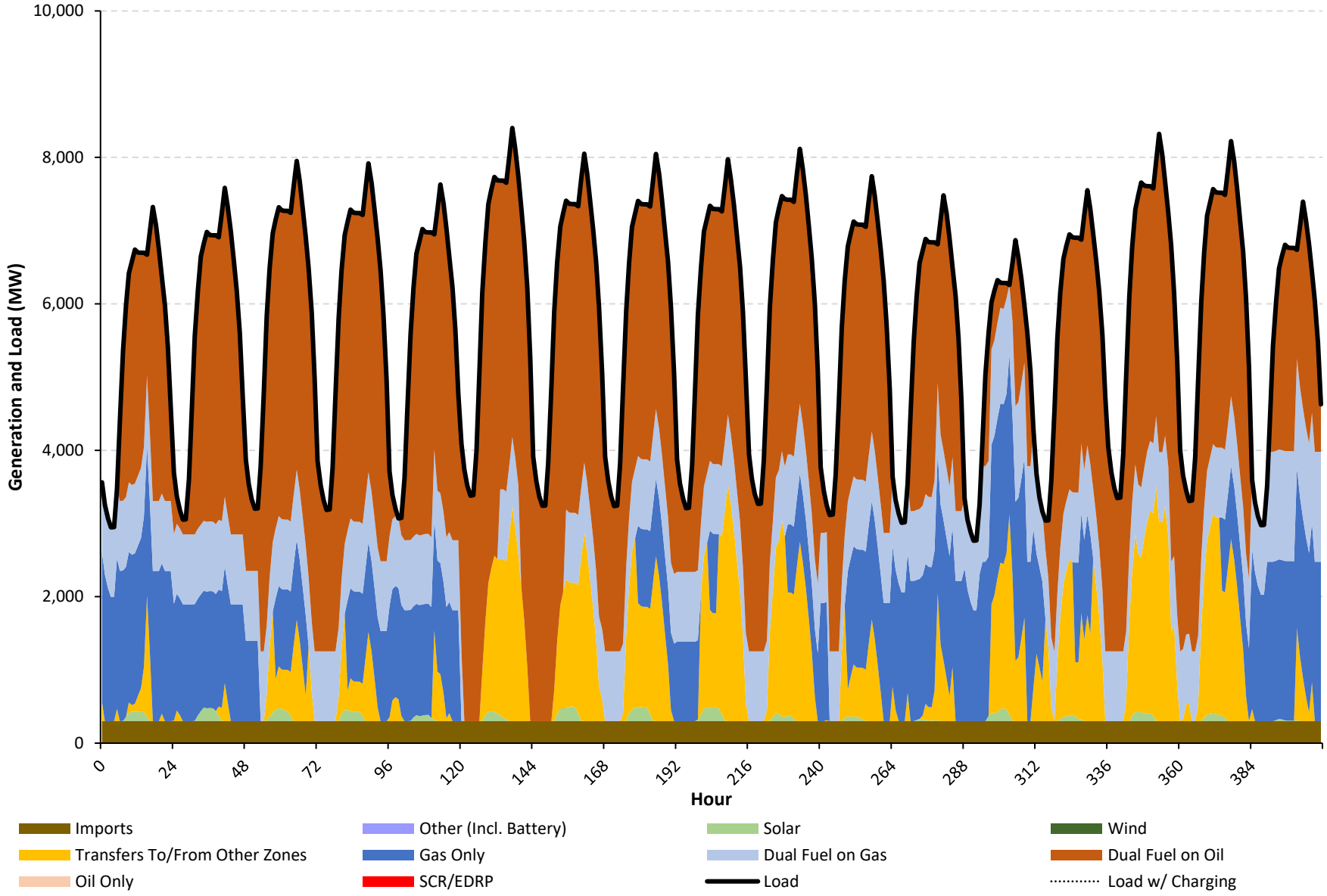




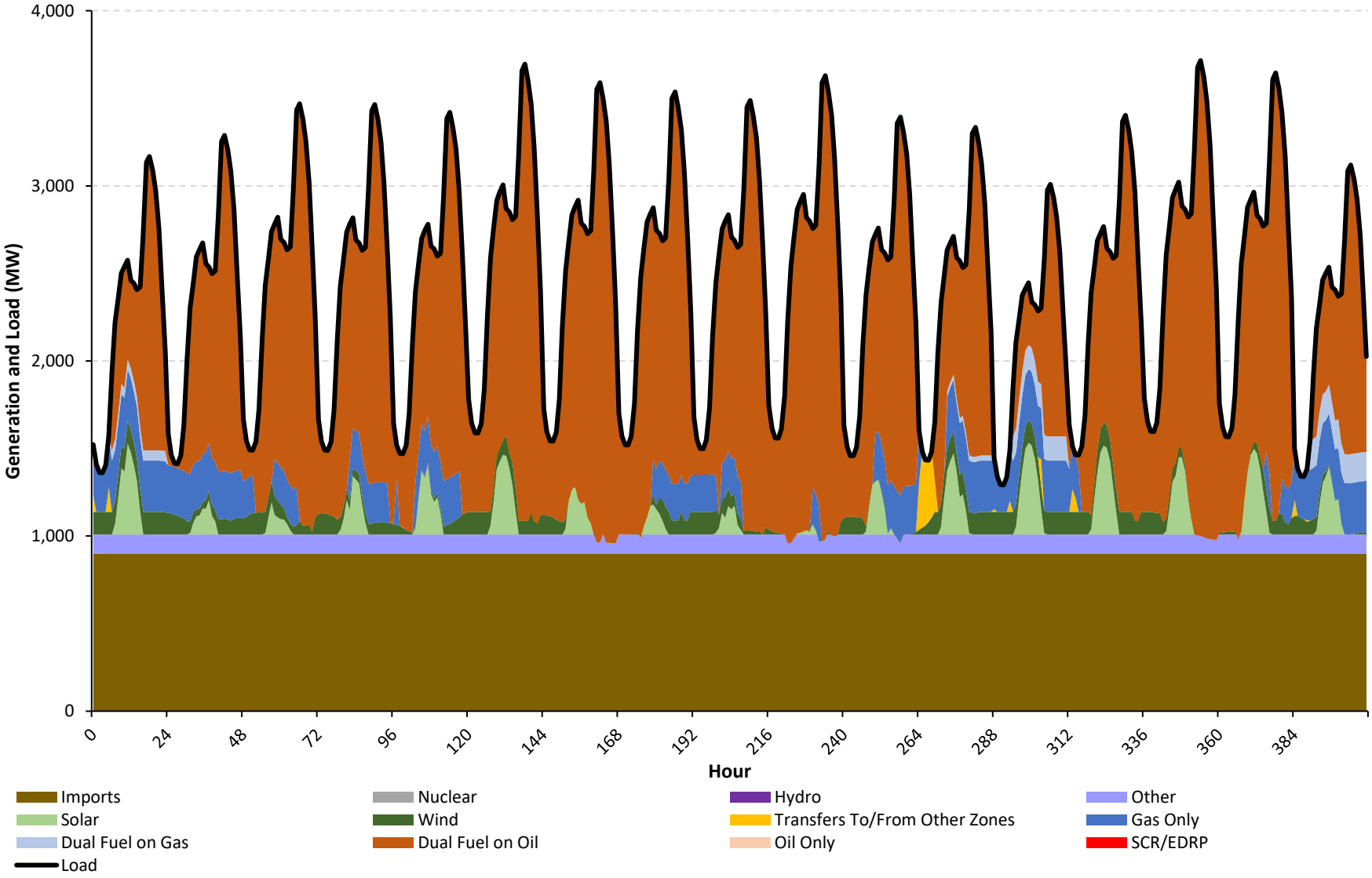



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 4 Nuclear Station Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 4 Nuclear Station Outage



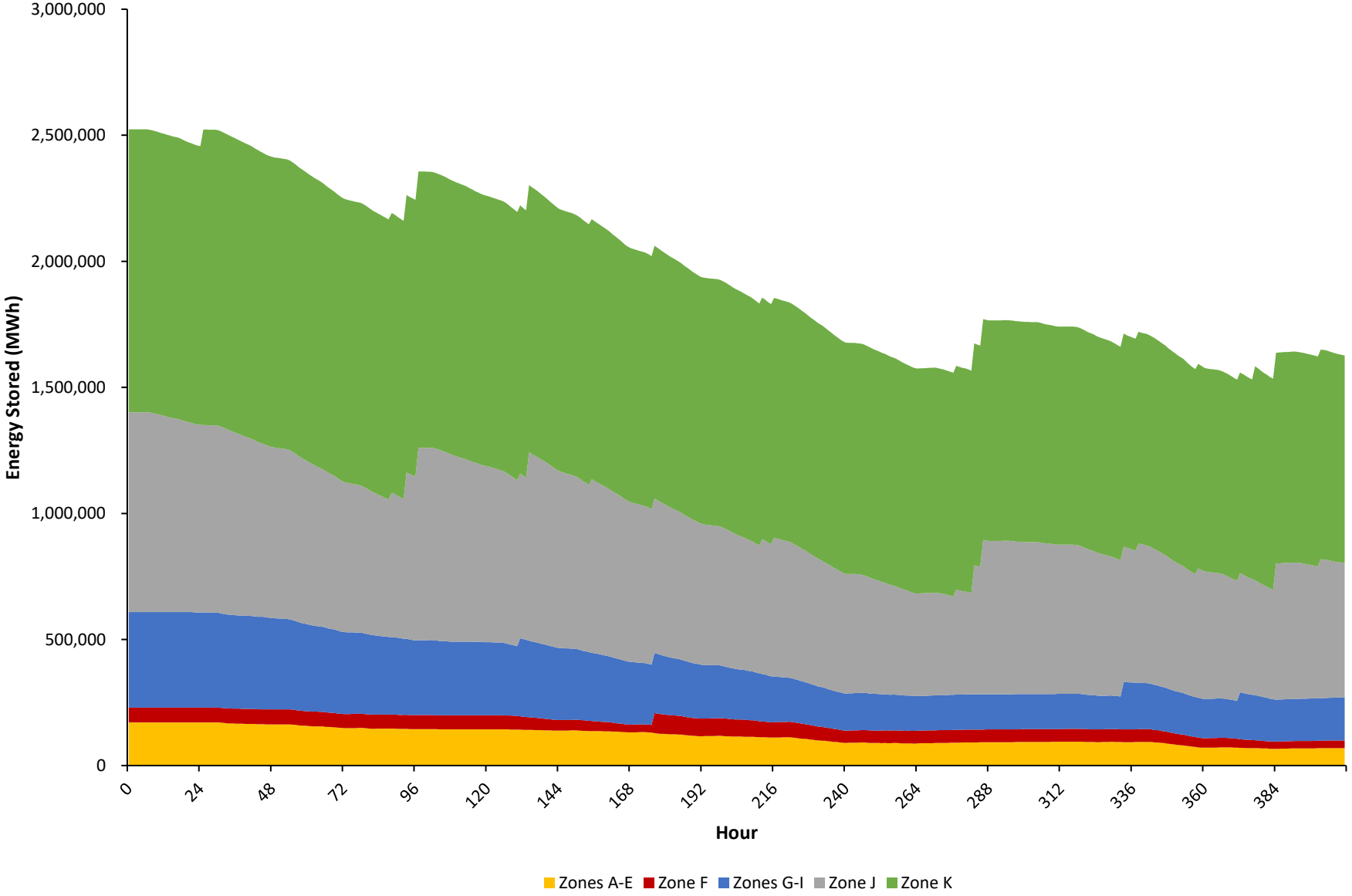
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 4 Nuclear Station Outage



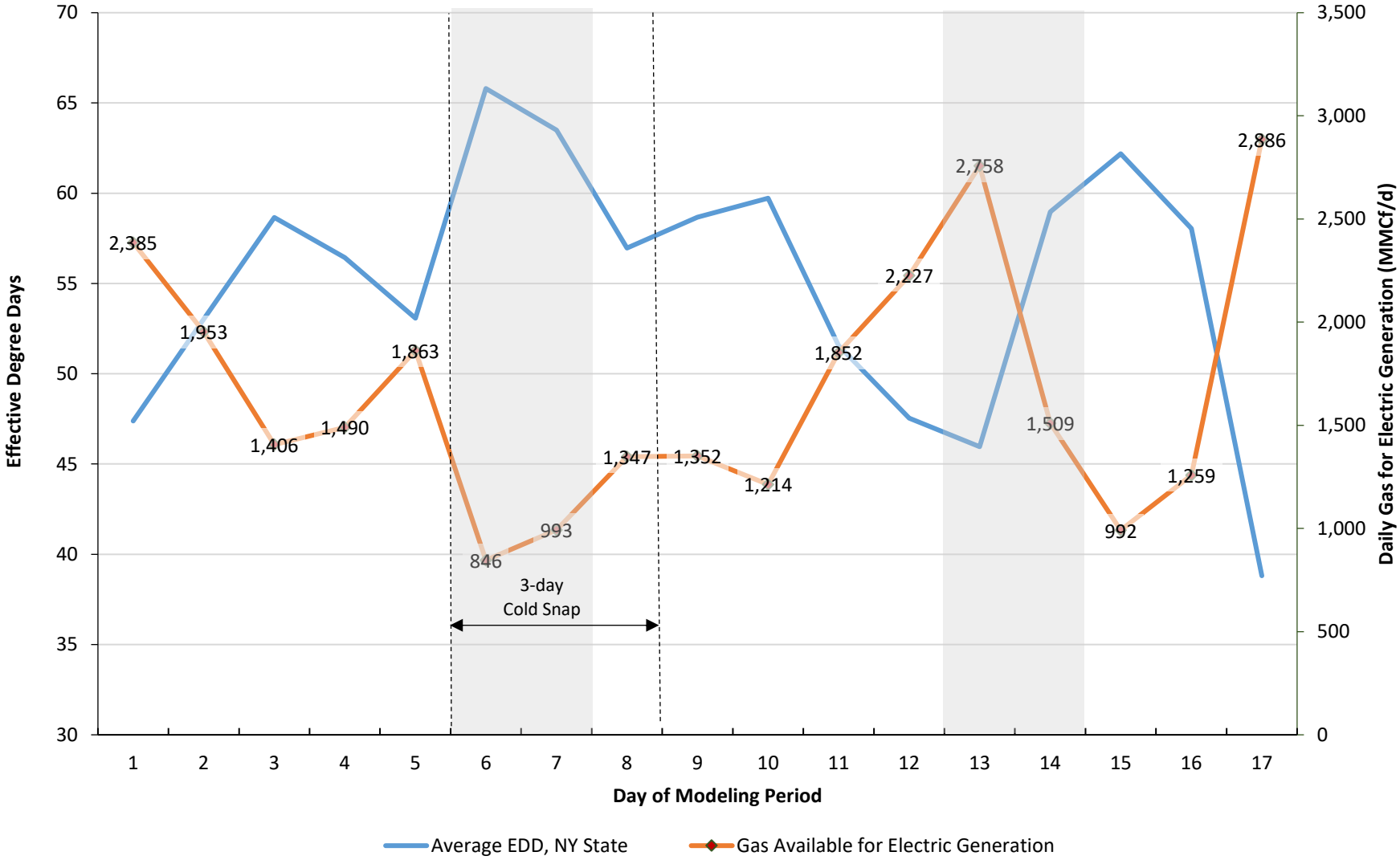
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

Scenario 3 - PD 4 Nuclear Station Outage



NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 3 - PD 4 Nuclear Station Outage

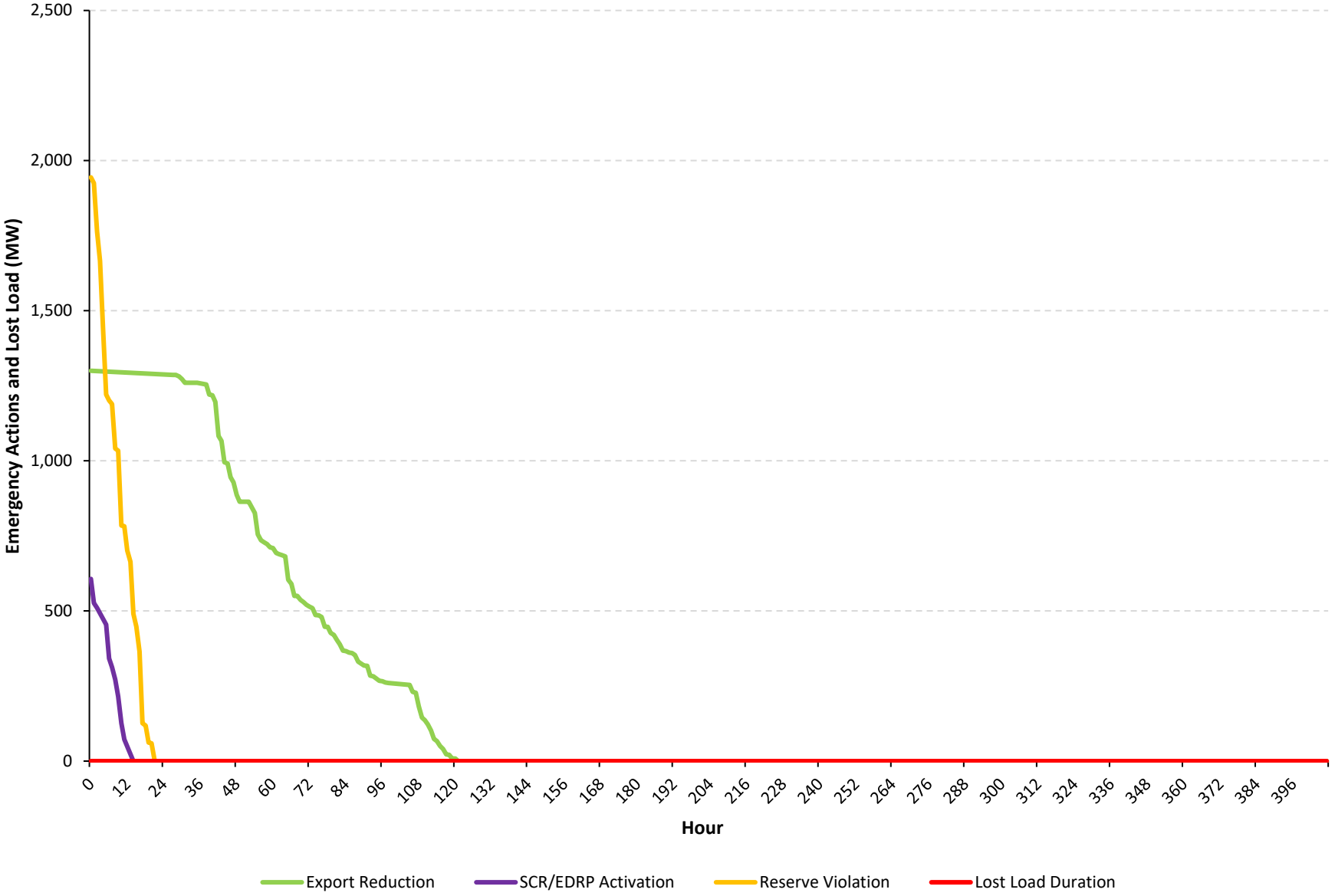


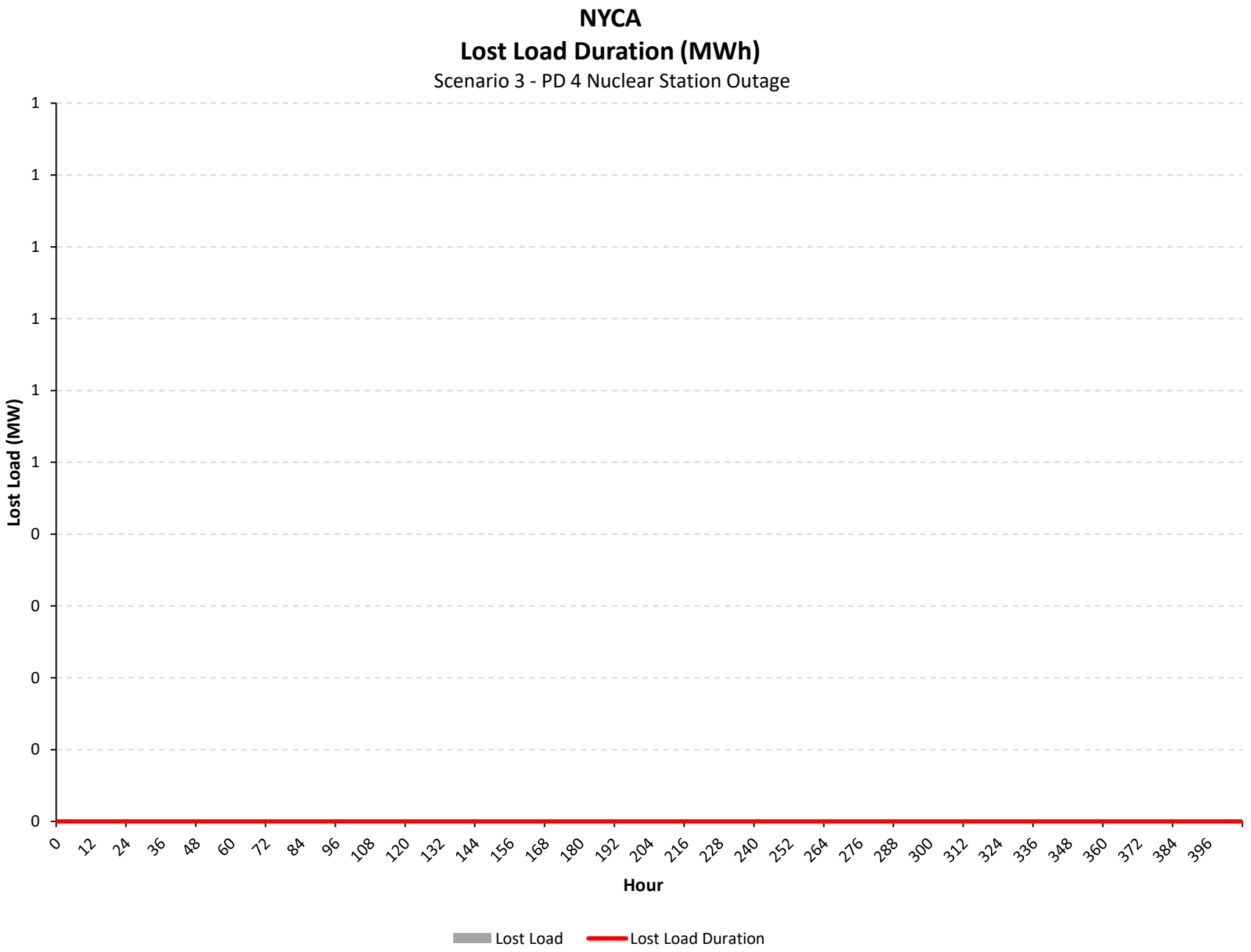
Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.

NYCA

Emergency Actions and Lost Load Duration (MWh)

Scenario 3 - PD 4 Nuclear Station Outage




NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 4 Nuclear Station Outage
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

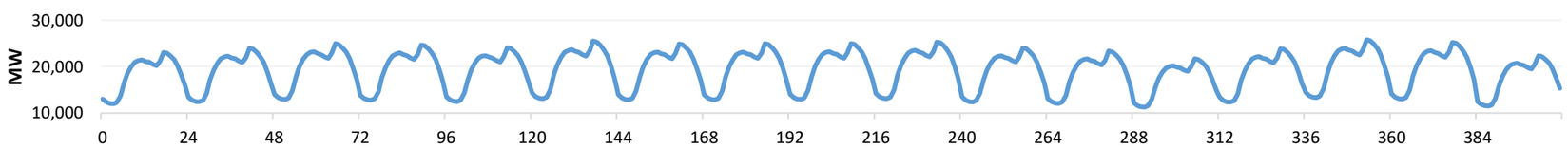
Case: Scenario 3 - PD 5 No Truck Refill (Winter 2023/2024)

Hourly Results Summary

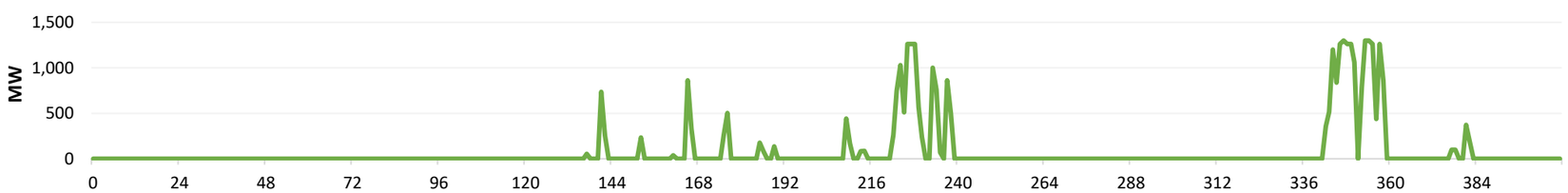
Case Name: Scenario 3 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

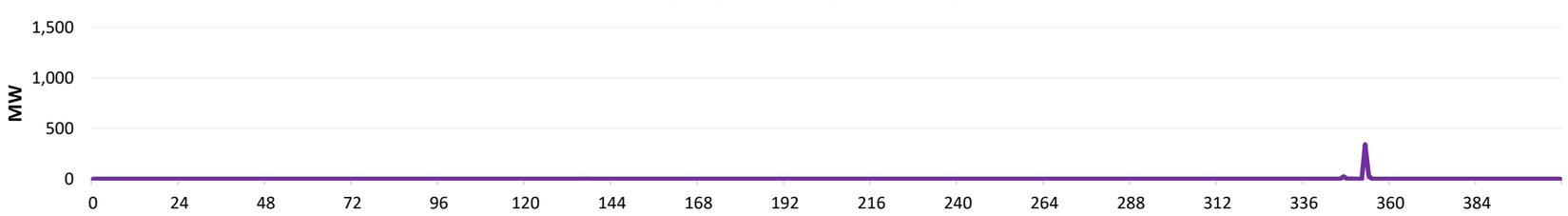


Export to ISO-NE Reduction During Modeling Period



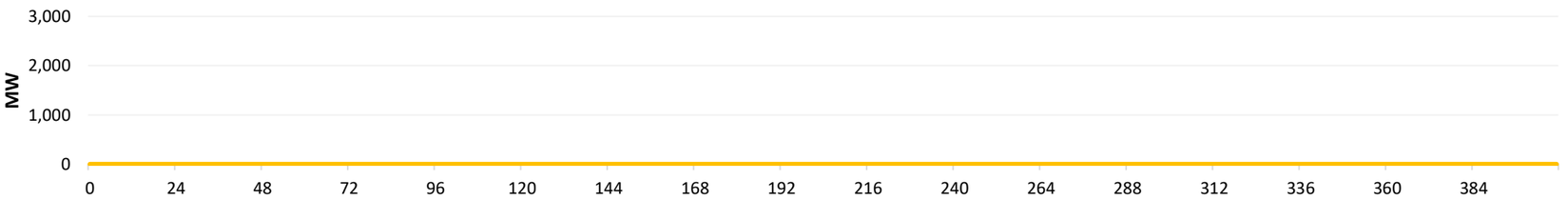
Export Reductions	
Total Hrs.	50
Total MWh	31,793
Avg. MW	77.9

SCR/EDRP Deployed During Modeling Period



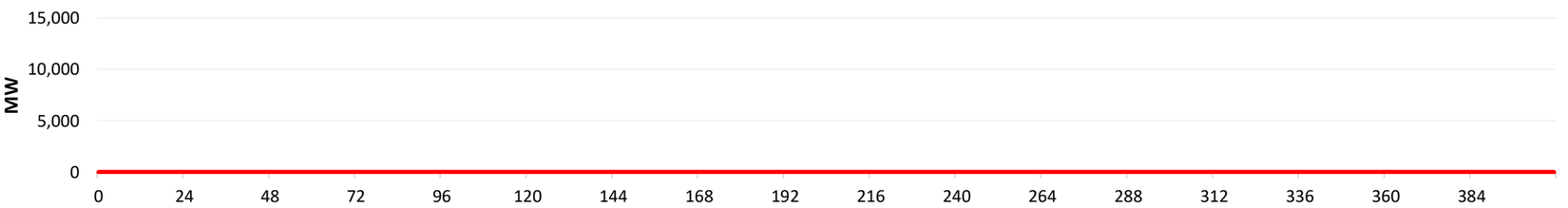
SCR Deployment	
Total Hrs.	3
Total MWh	387
Avg. MW	0.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period



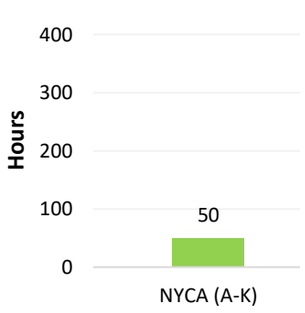
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

Full Period Results Summary

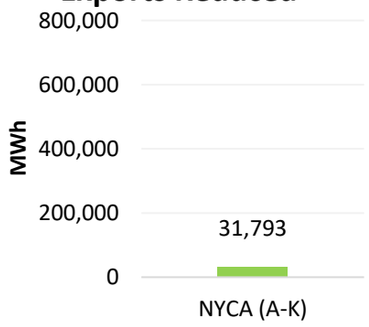
Case Name: Scenario 3 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

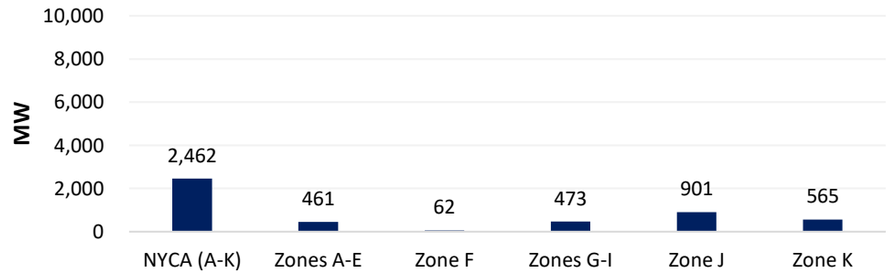
Hours Exports Reduced



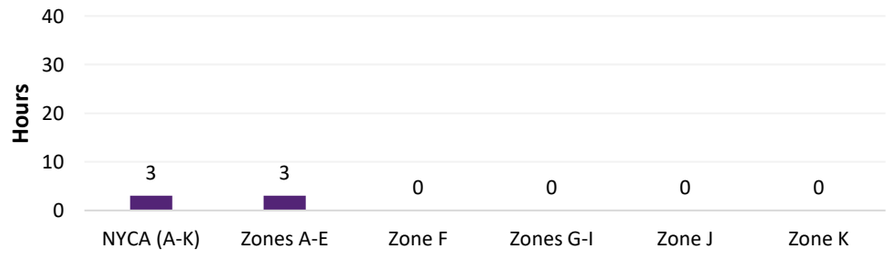
Total MWh of Exports Reduced



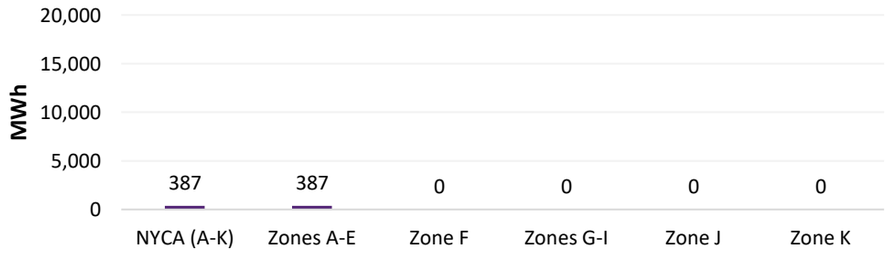
Average Capacity Not Available Due to Exhausted Fuel Inventory



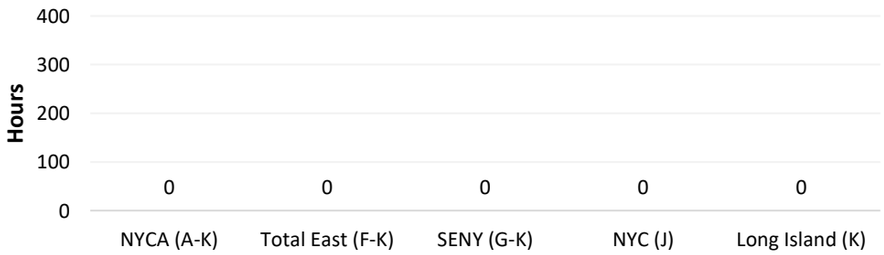
Hours SCR/EDRP Deployed



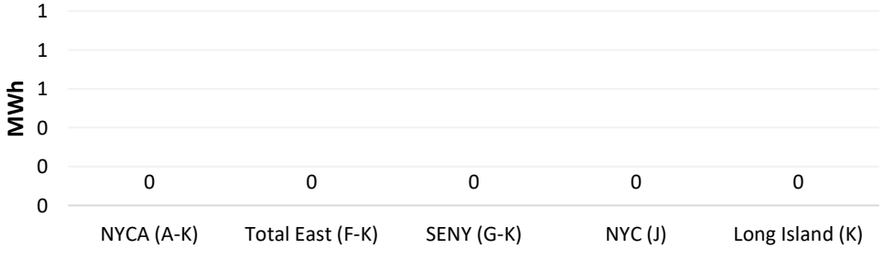
Total MWh SCR/EDRP Deployed



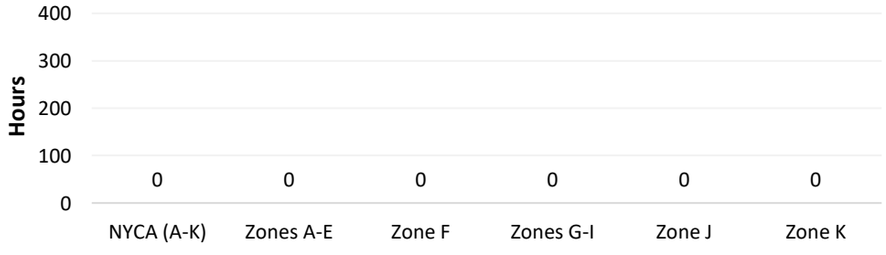
Hours with Reserve Violations



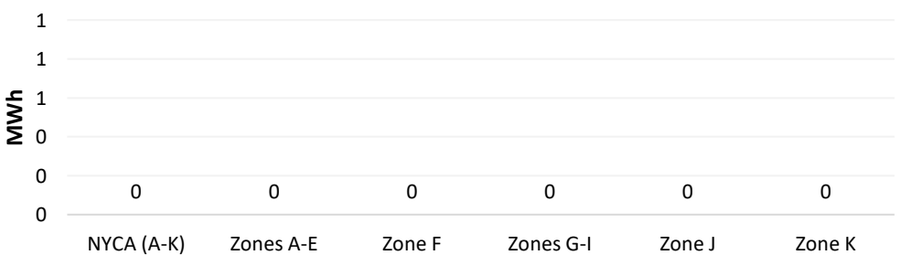
Total MWh of Reserve Violations

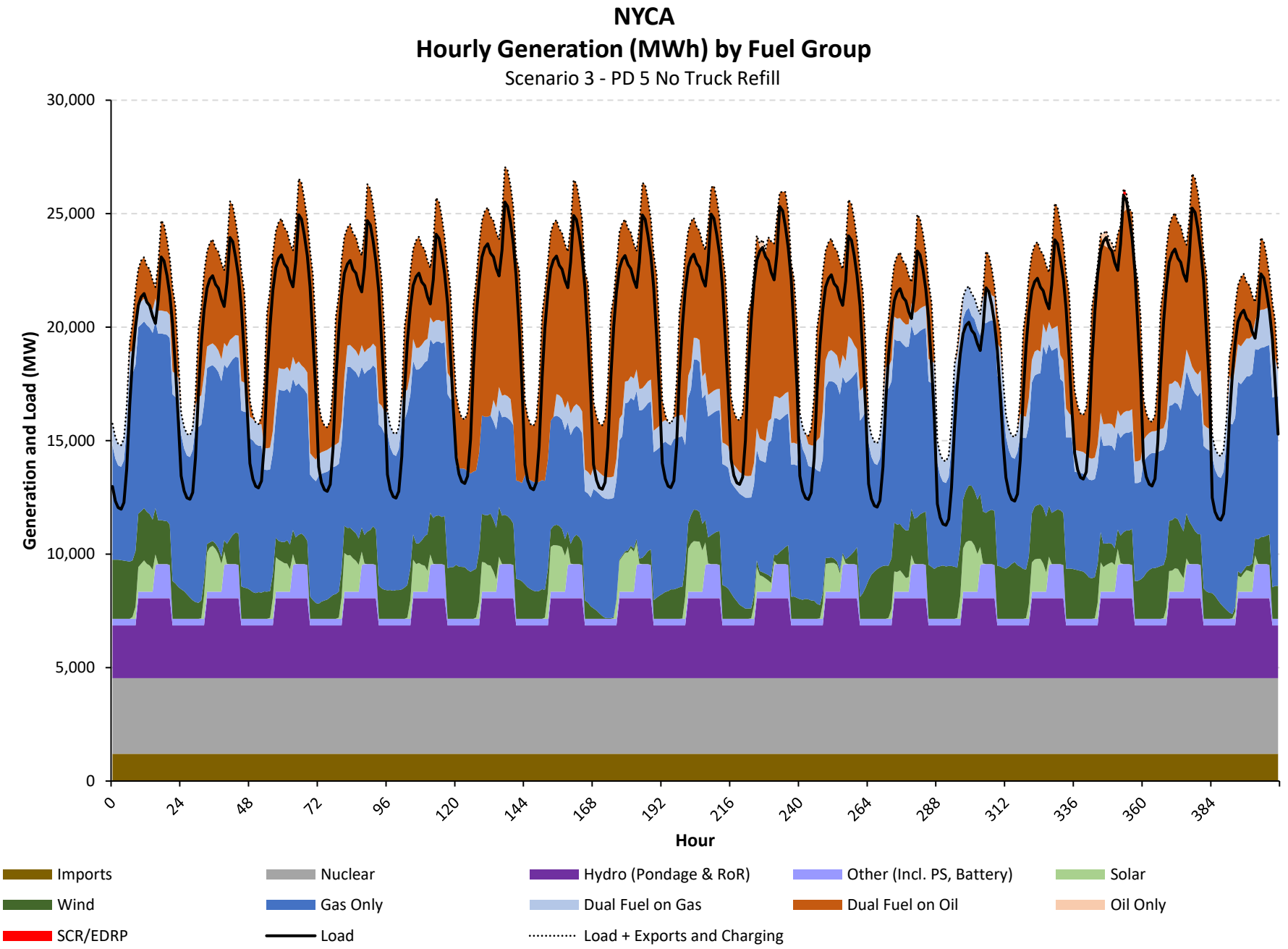


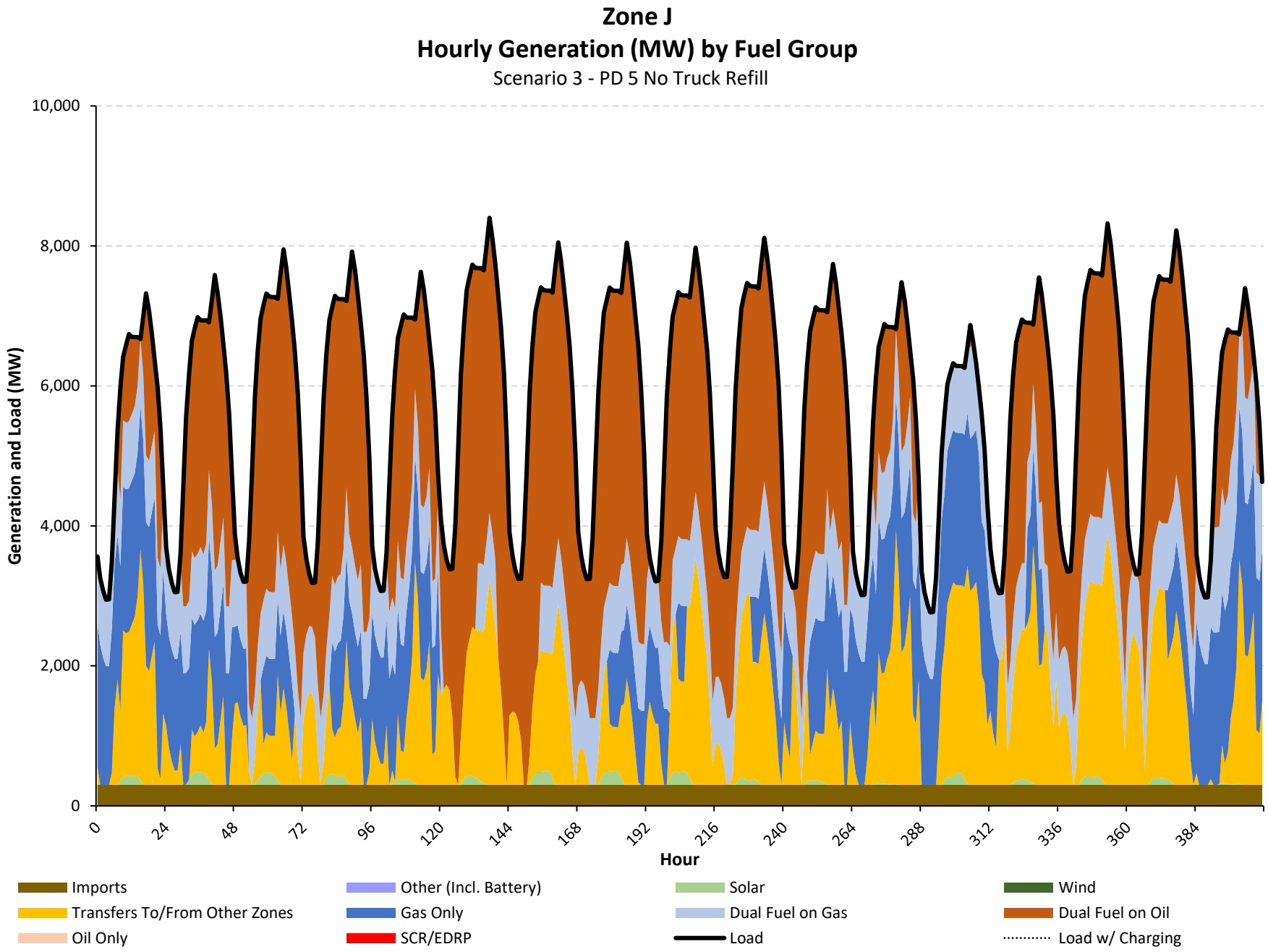
Hours with Loss of Load



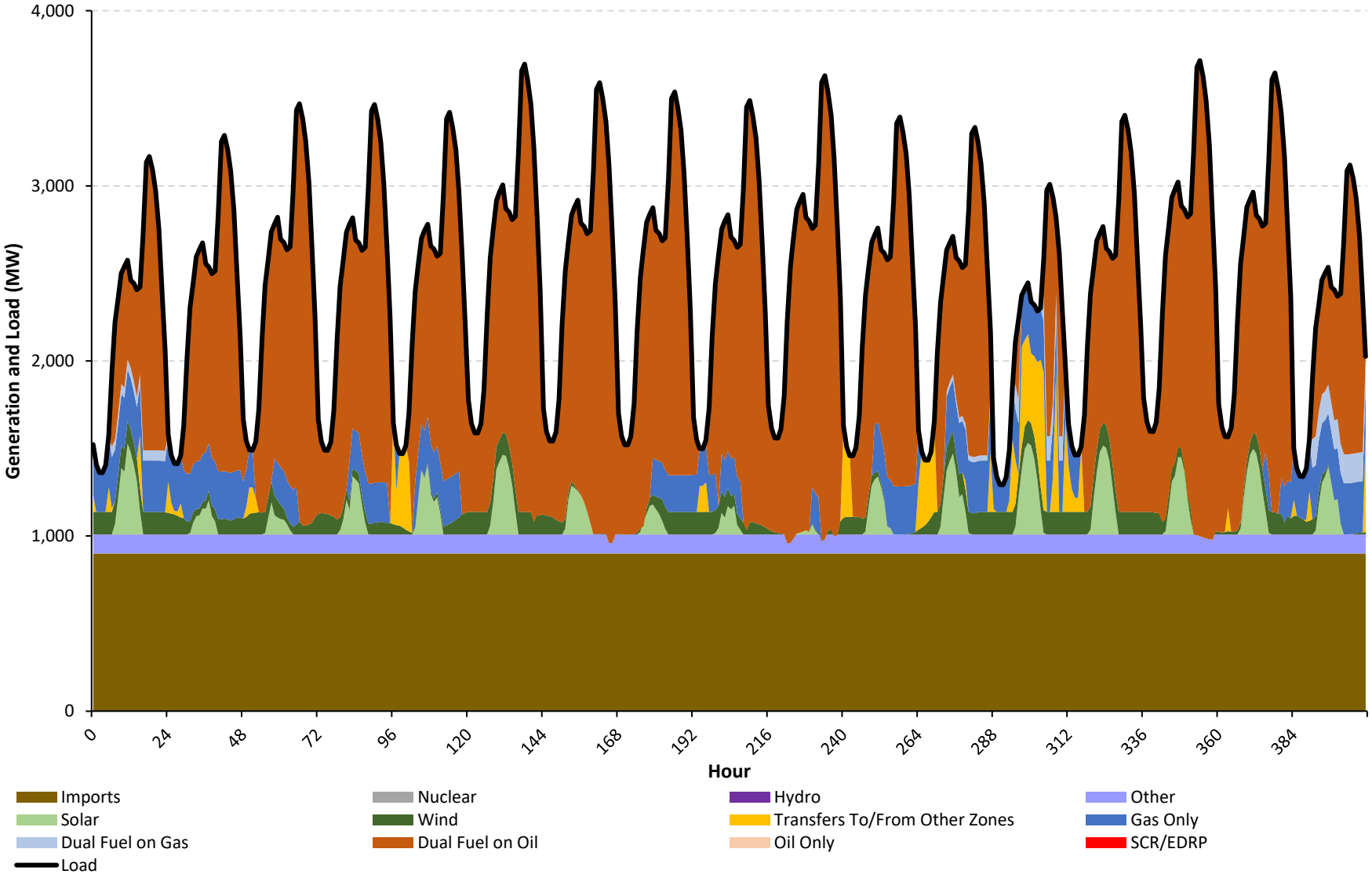
Total MWh of Lost Load

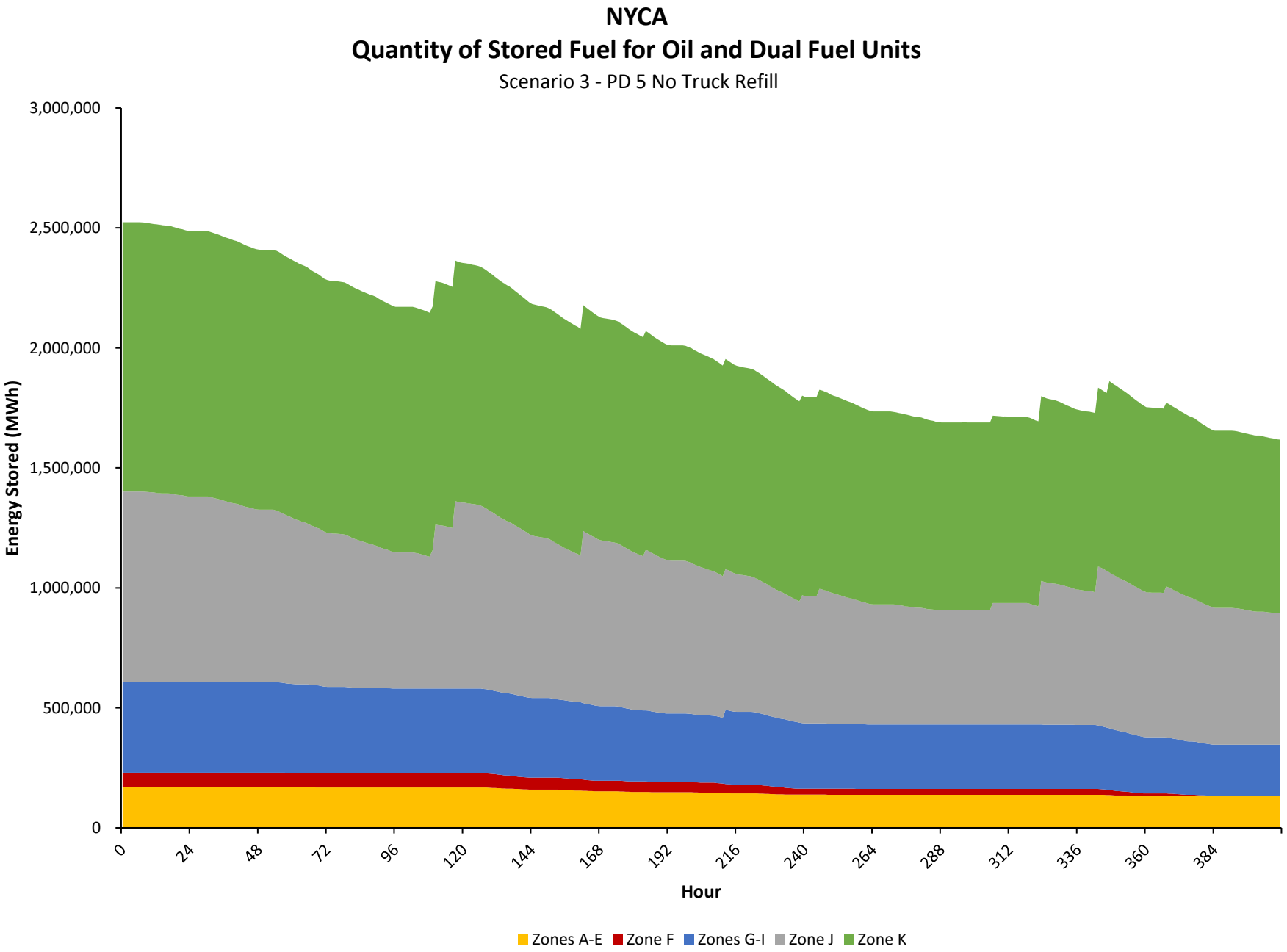


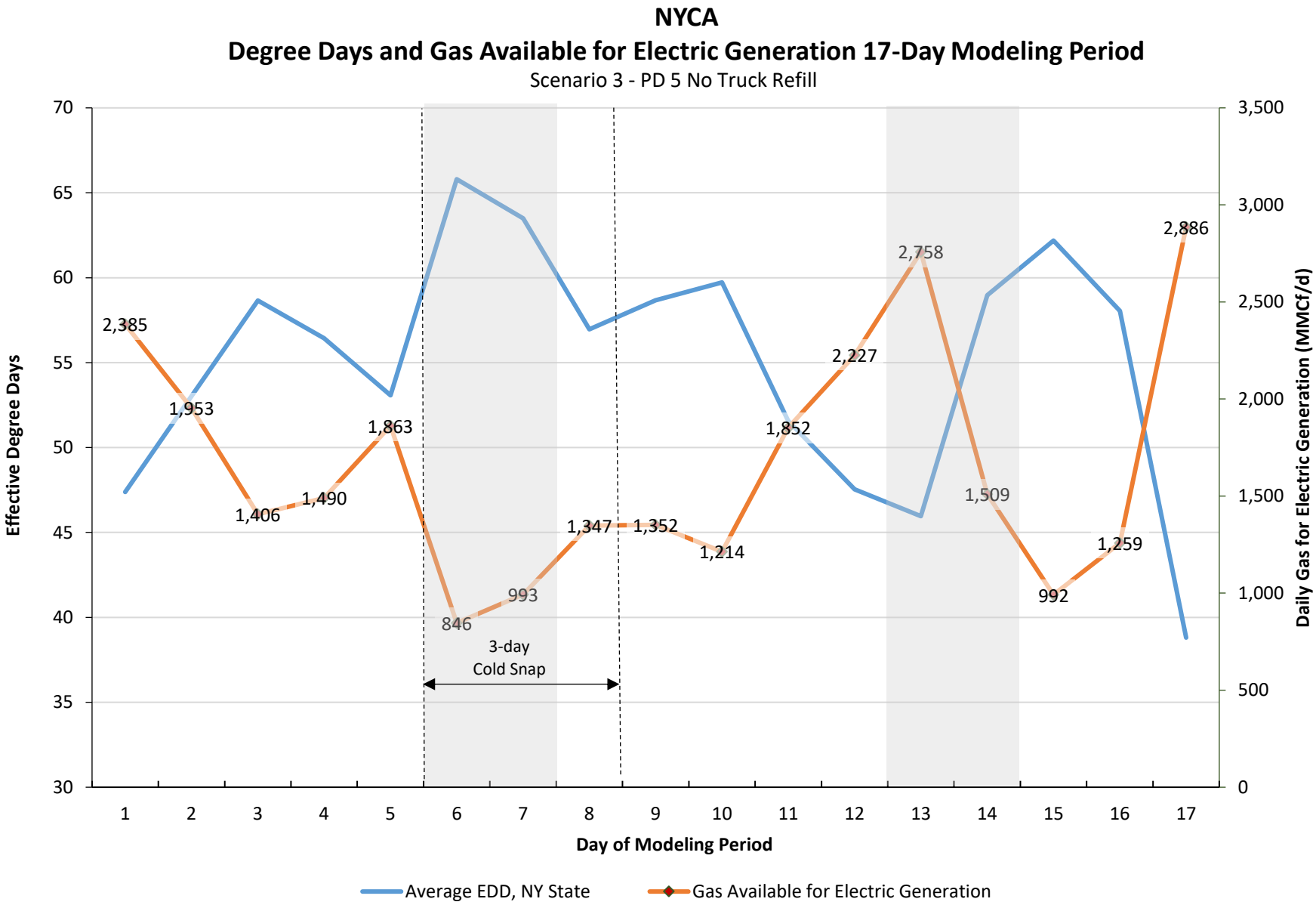

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 5 No Truck Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 5 No Truck Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

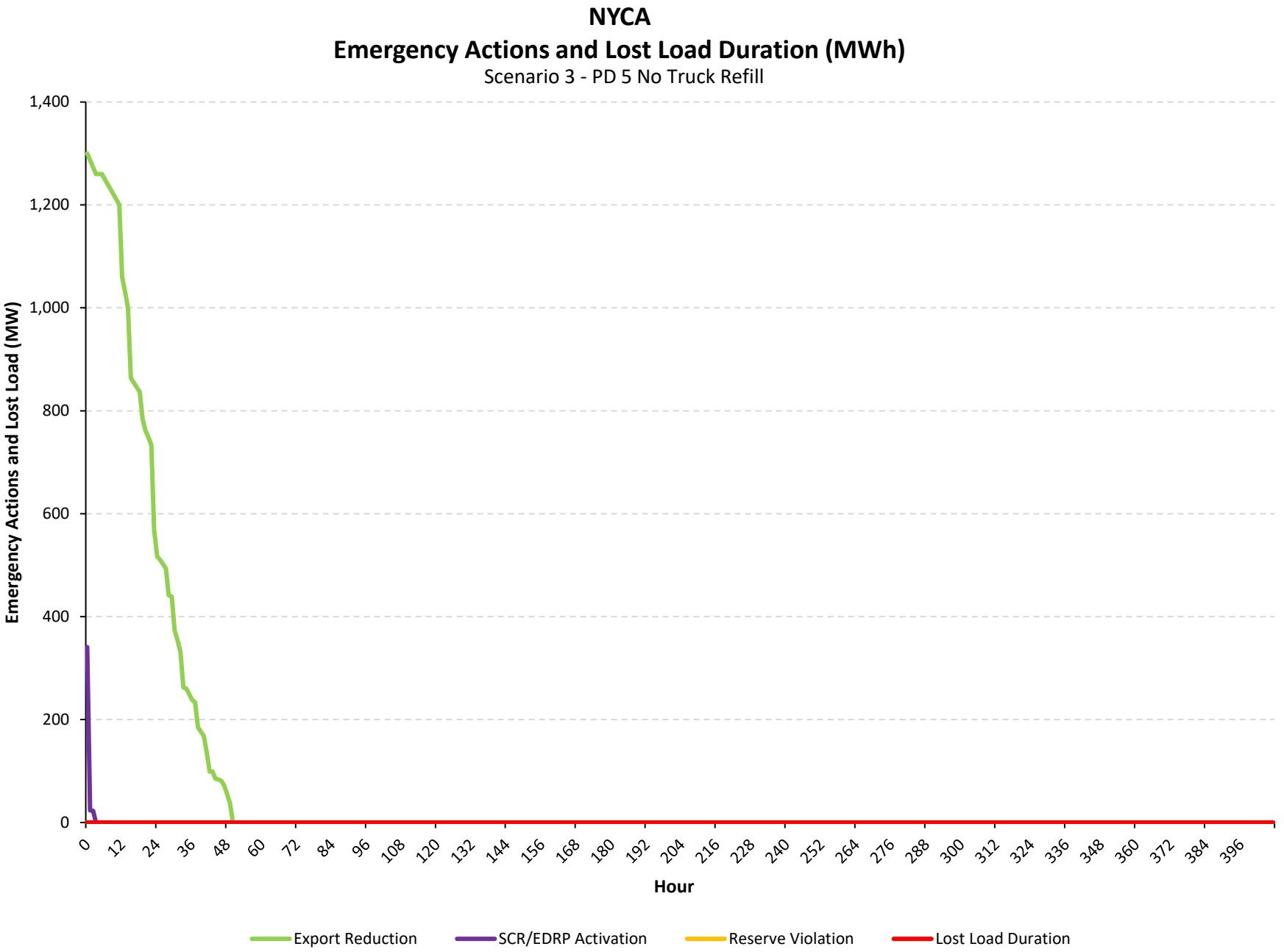
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 5 No Truck Refill

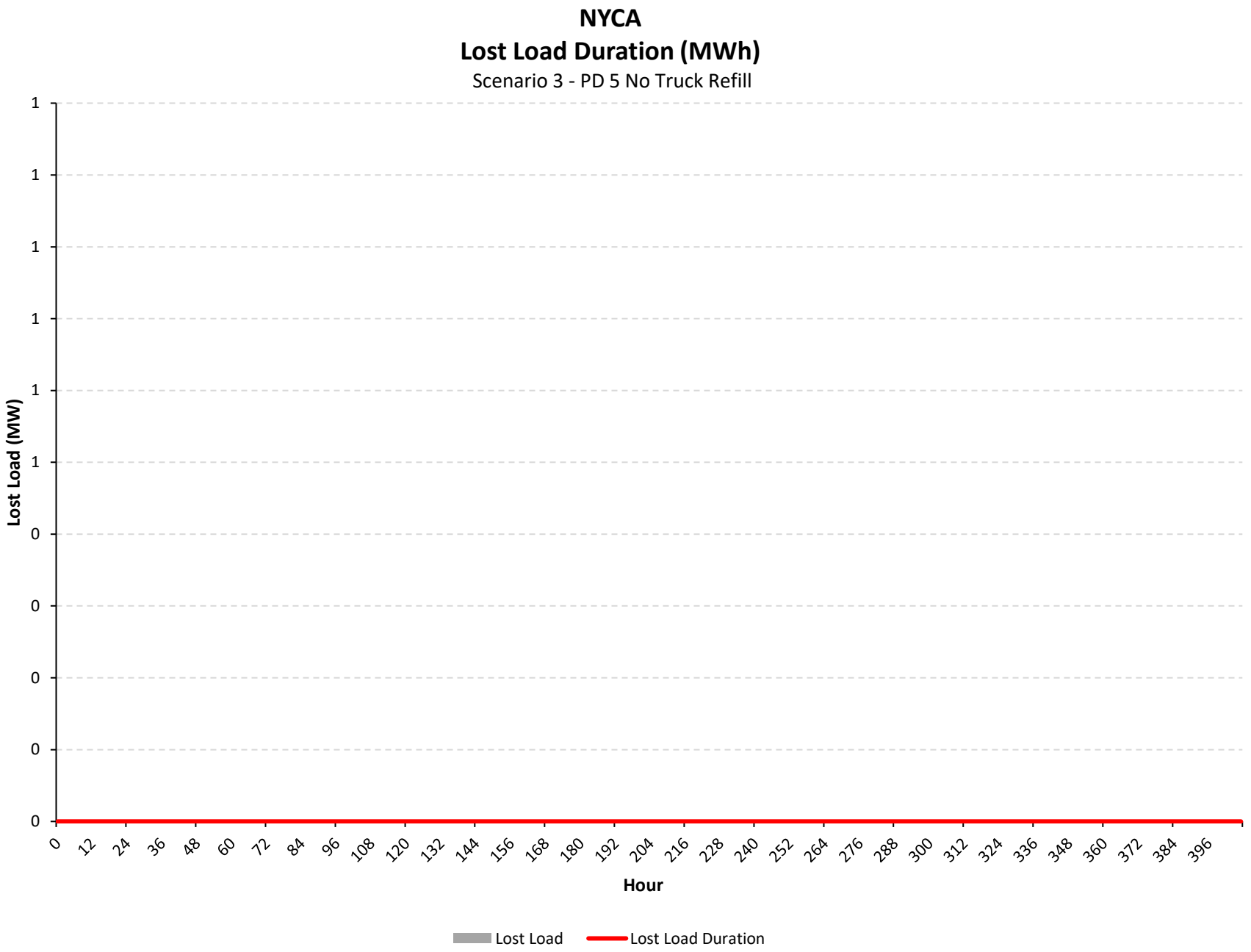



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 3 - PD 5 No Truck Refill
Energy Stored (MWh)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 5 No Truck Refill
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 5 No Truck Refill
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

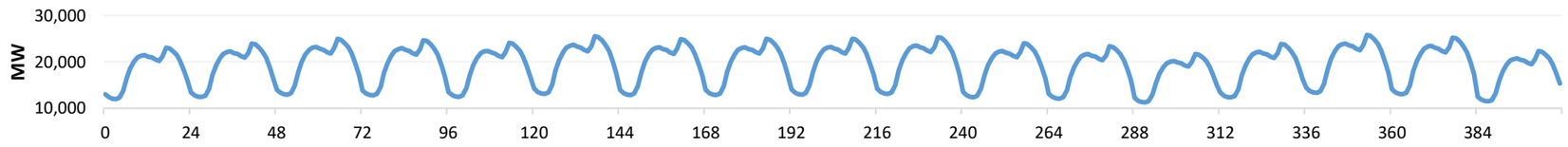
Case: Scenario 3 - PD 6 No Barge Refill (Winter 2023/2024)

Hourly Results Summary

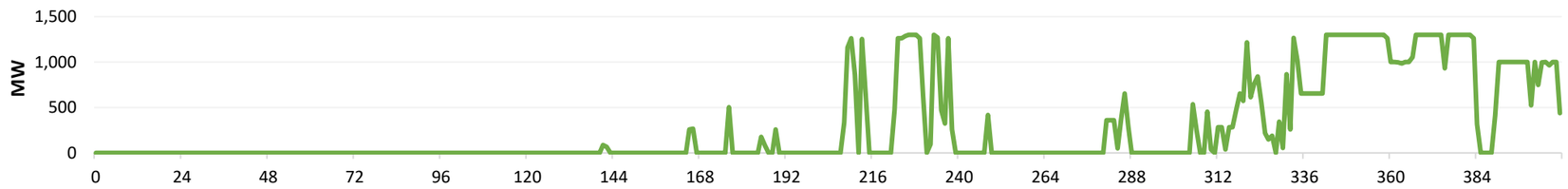
Case Name: Scenario 3 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

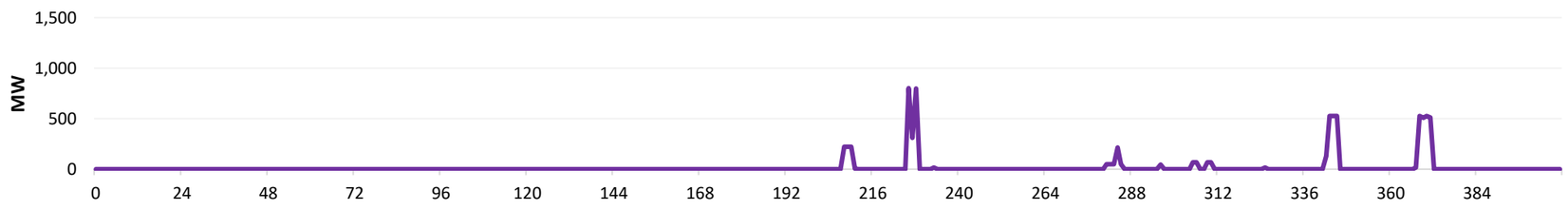


Export to ISO-NE Reduction During Modeling Period



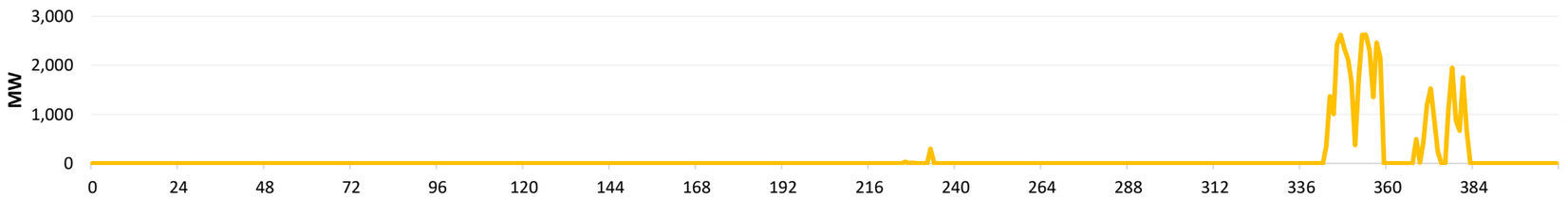
Export Reductions	
Total Hrs.	134
Total MWh	111,643
Avg. MW	273.6

SCR/EDRP Deployed During Modeling Period



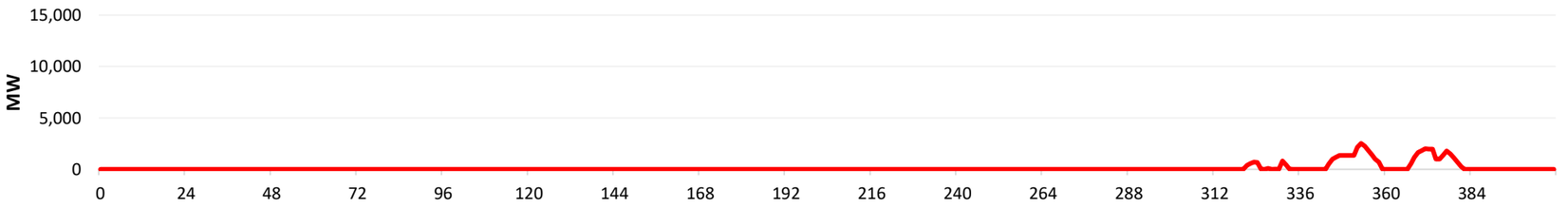
SCR Deployment	
Total Hrs.	28
Total MWh	7,150
Avg. MW	17.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	32
Total MWh	41,716
Avg. MW	102.2
First Hour with Viol.	208

Loss of Load During Modeling Period

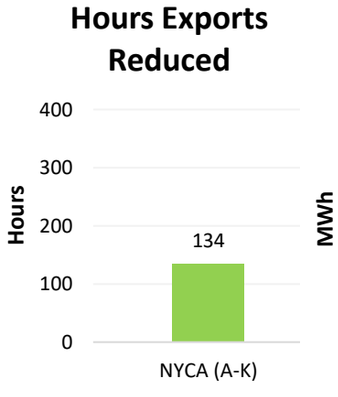


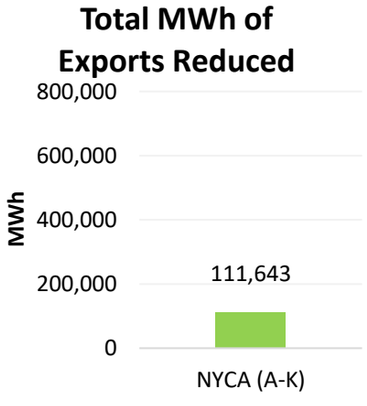
Loss of Load	
Total Hrs.	40
Total MWh	44,884
Avg. MW	110.0
First Hour with Losses	321

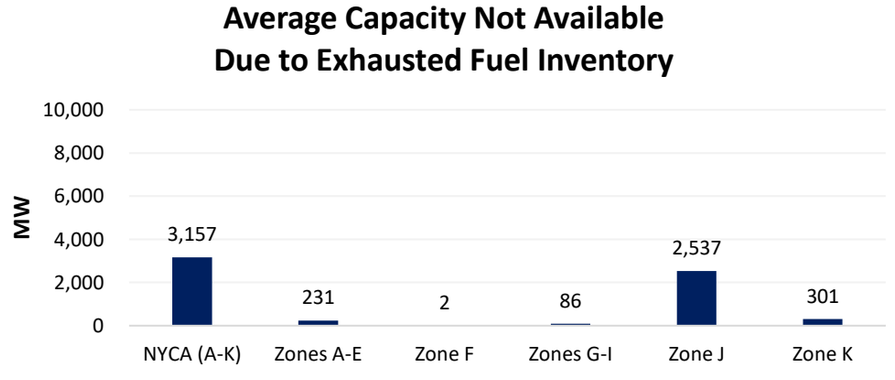
Full Period Results Summary

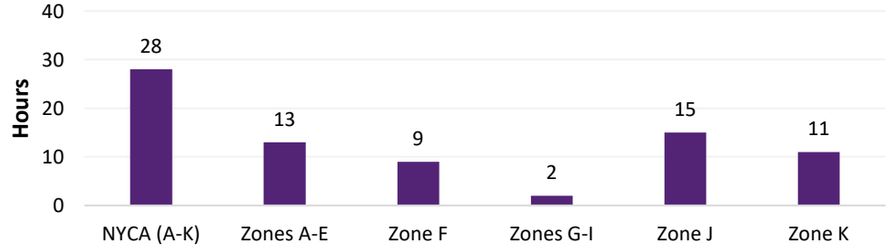
Case Name: Scenario 3 - PD 6 No Barge Refill

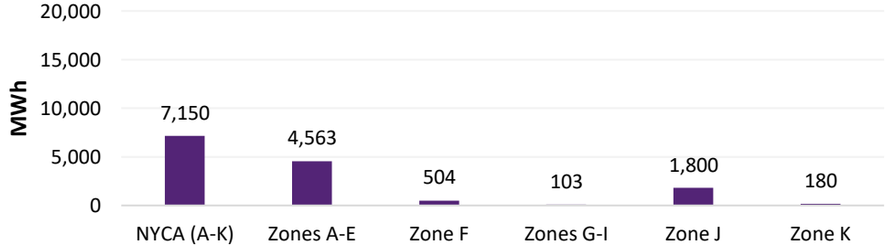
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

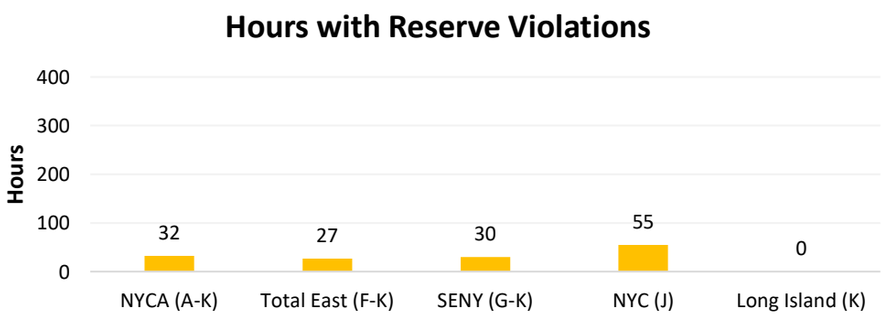


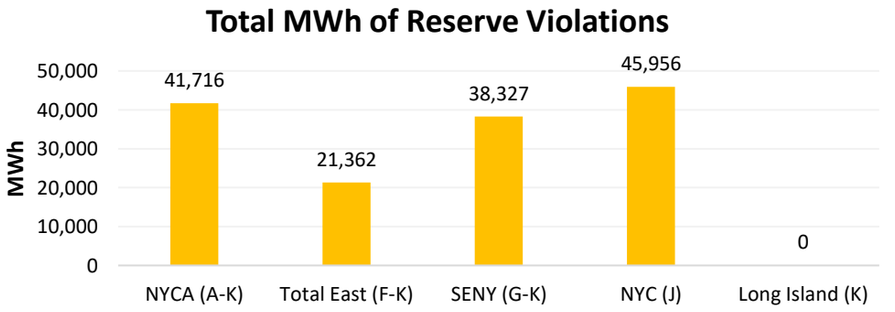


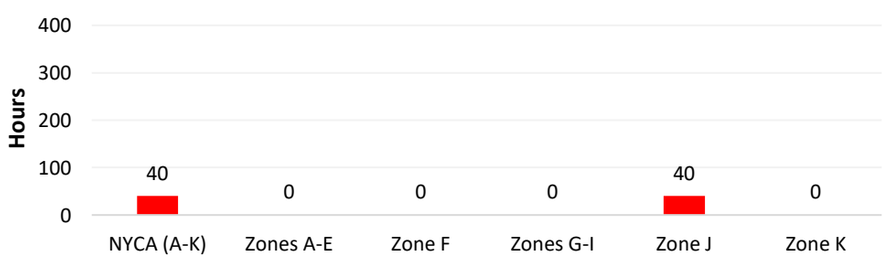


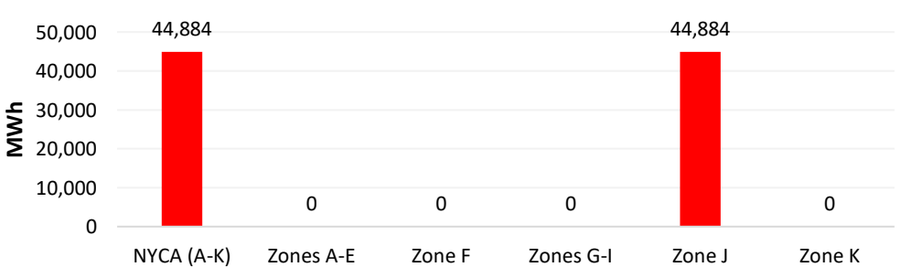


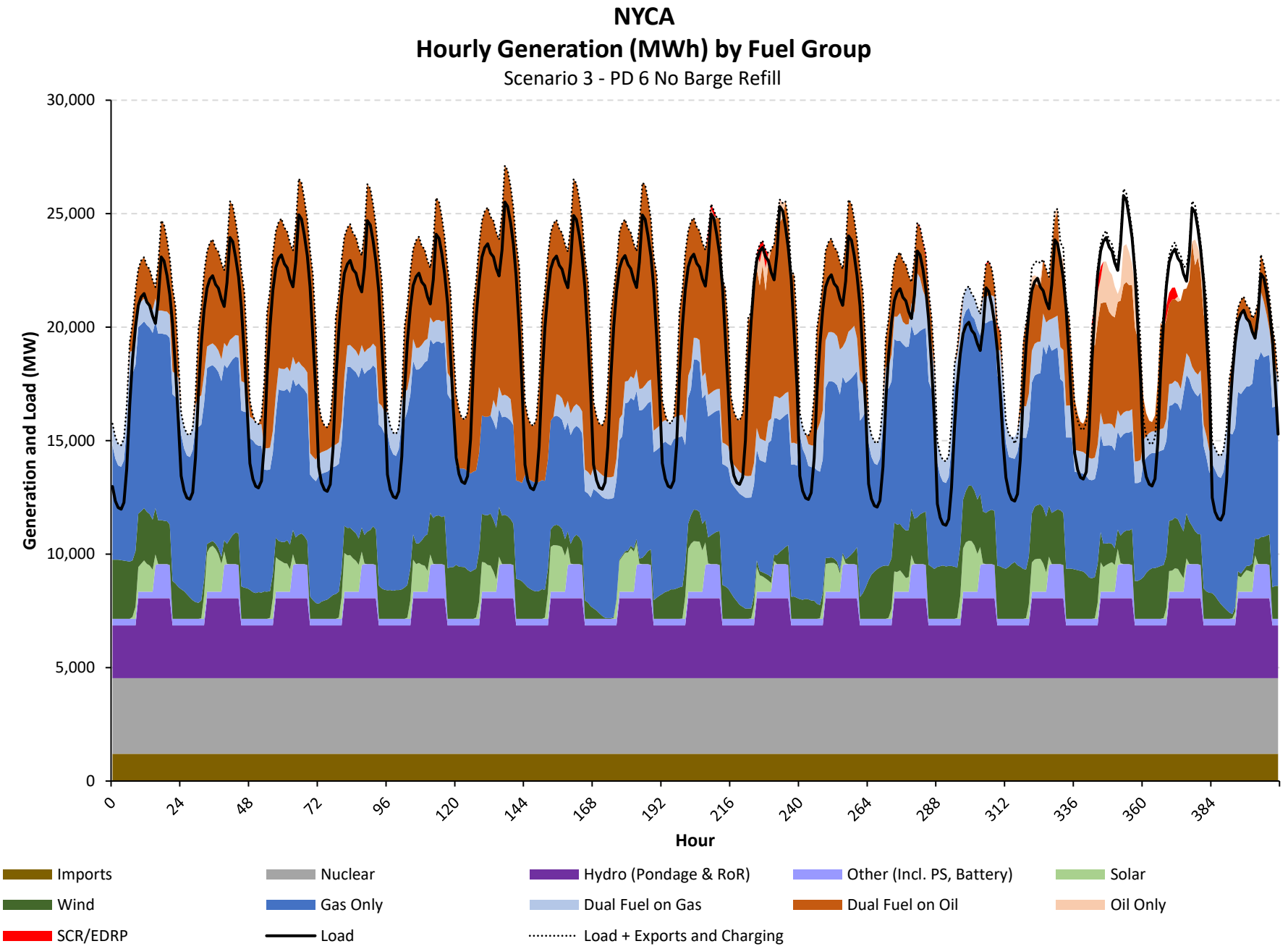


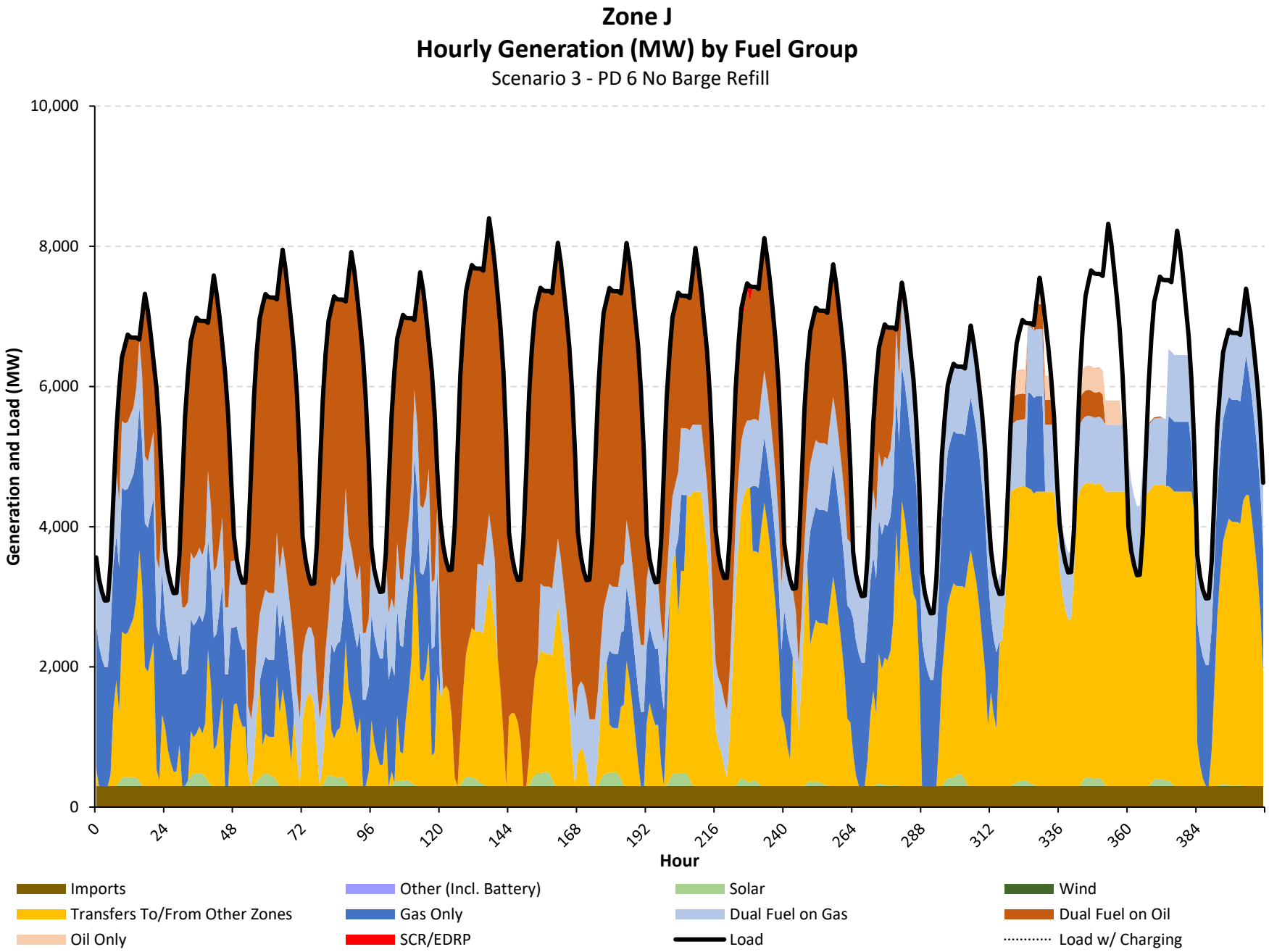




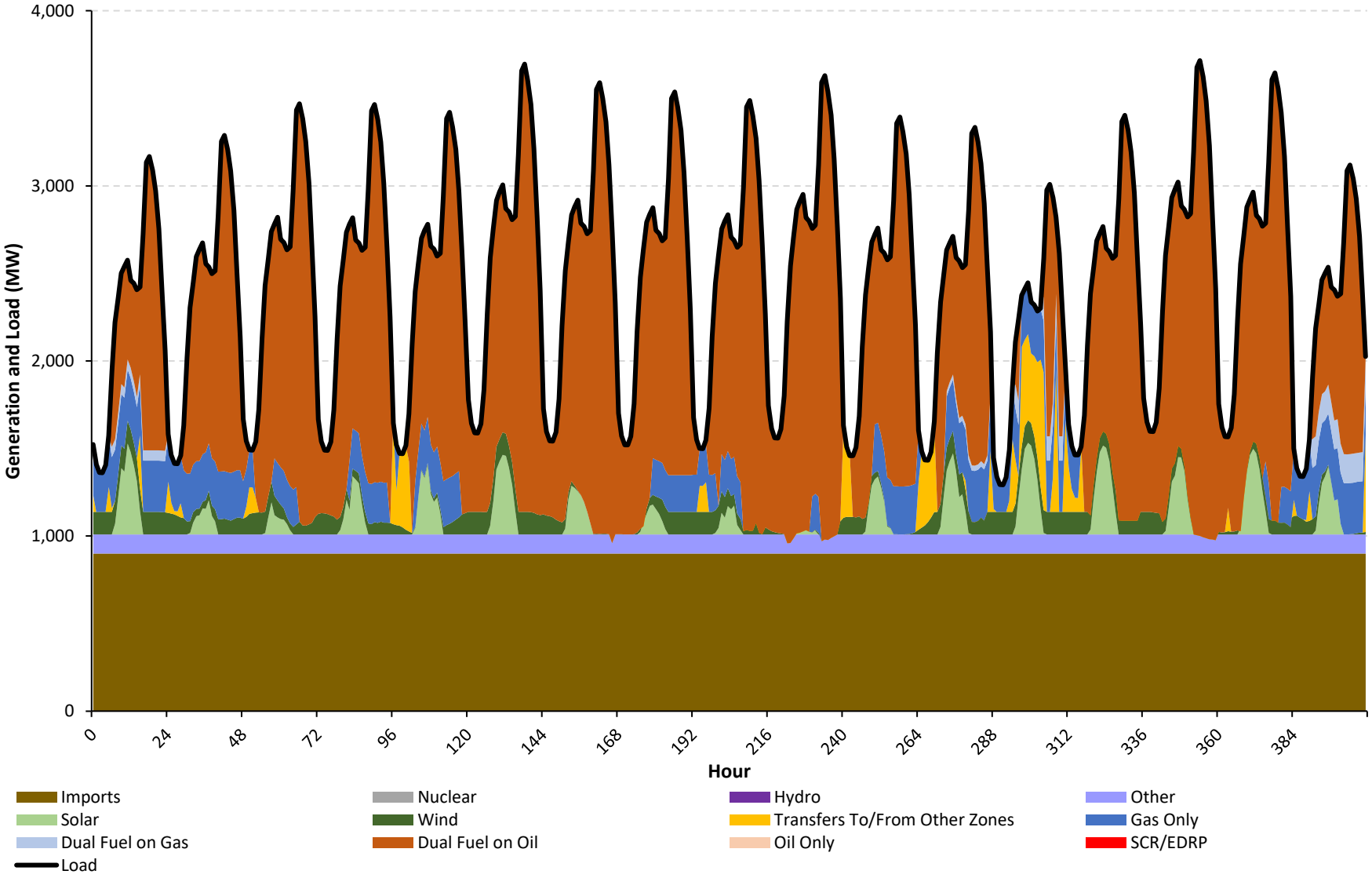





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 6 No Barge Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 6 No Barge Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

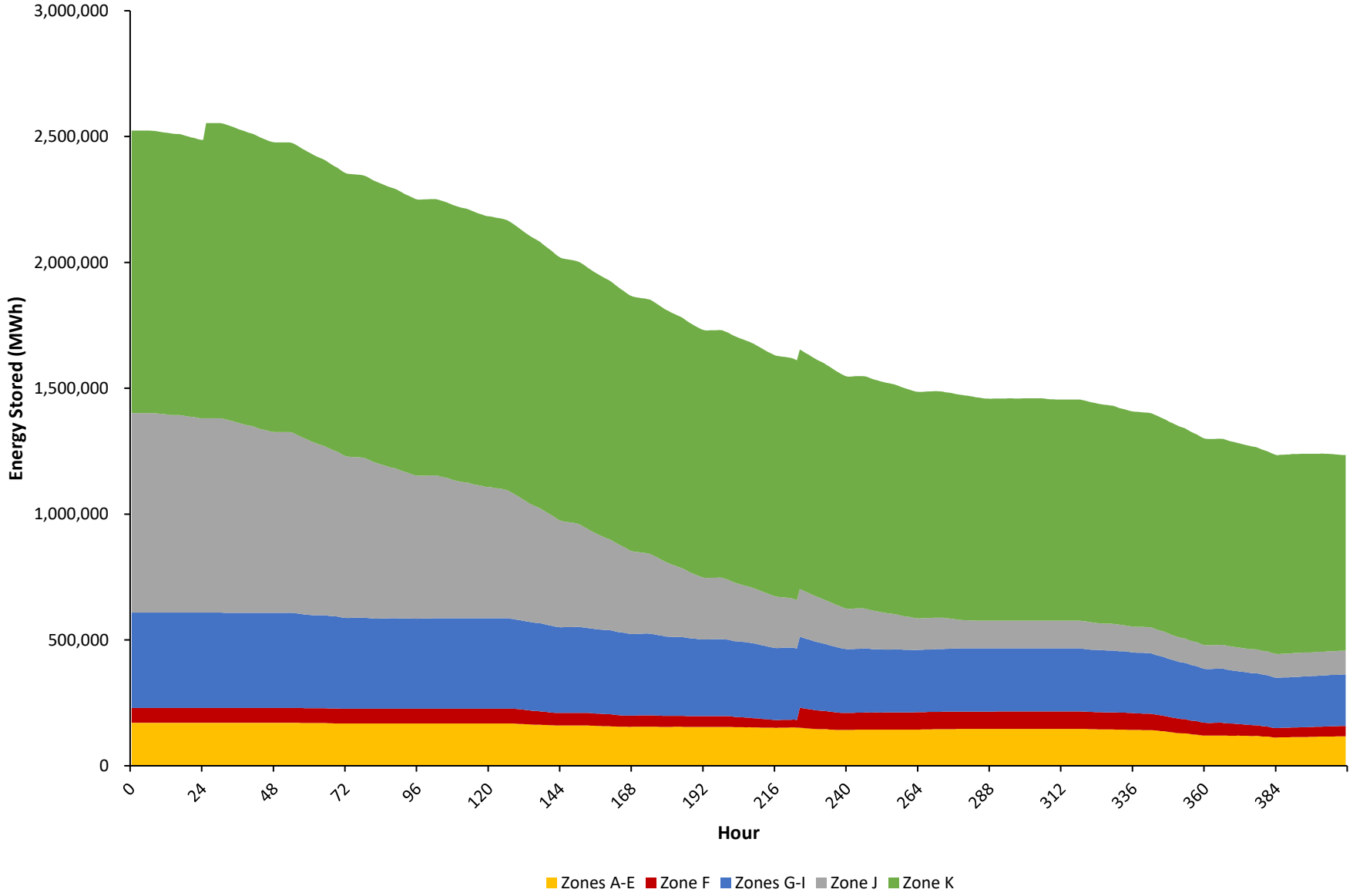
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 6 No Barge Refill

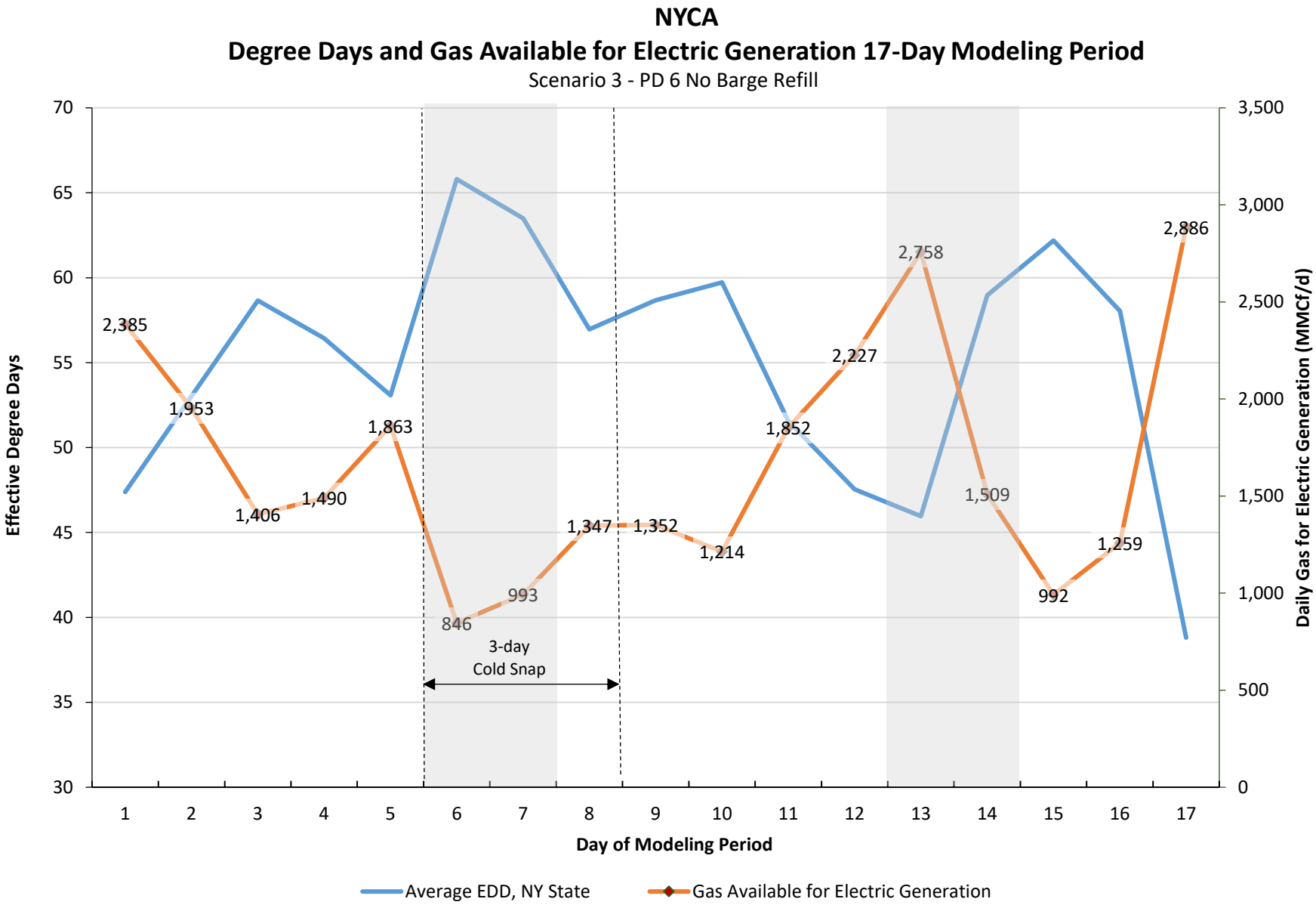


NYCA

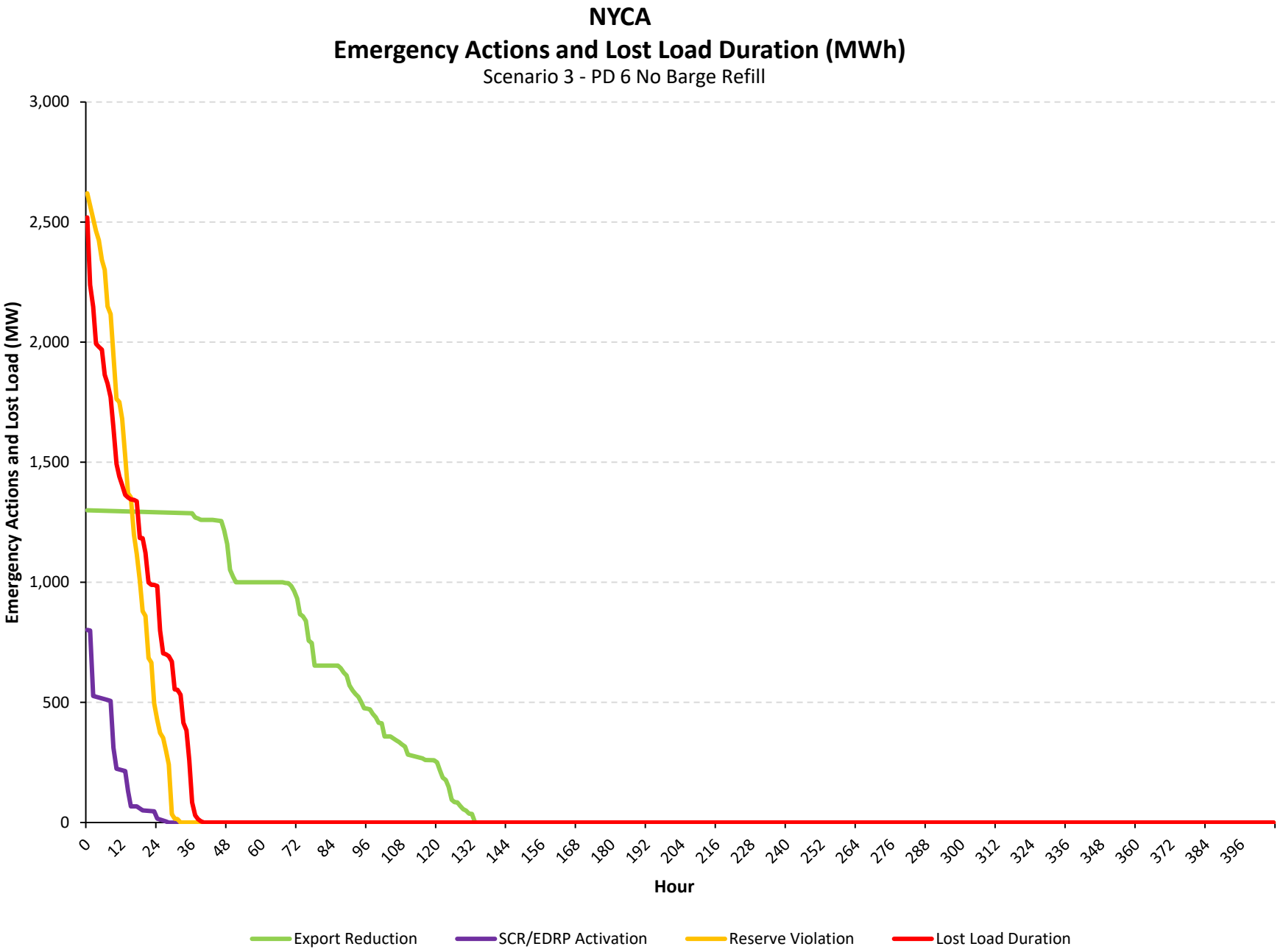
Quantity of Stored Fuel for Oil and Dual Fuel Units

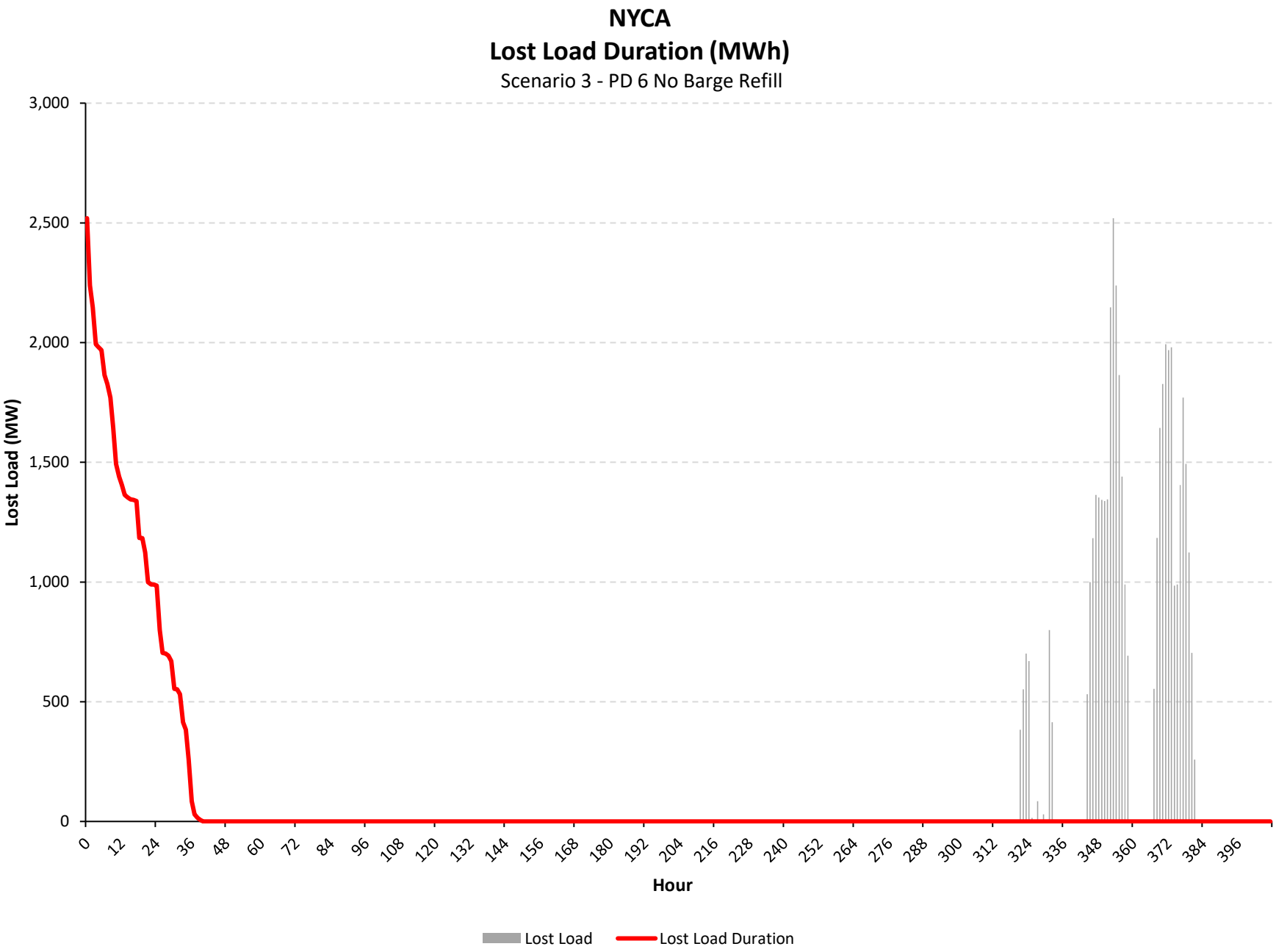
Scenario 3 - PD 6 No Barge Refill





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 6 No Barge Refill
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 6 No Barge Refill
Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

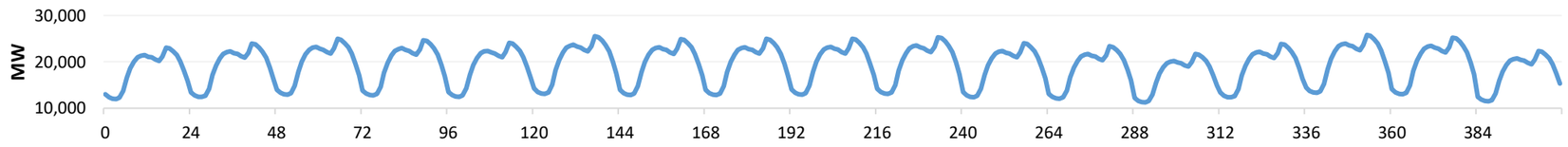
Case: Scenario 3 - PD 7 No Refill (Winter 2023/2024)

Hourly Results Summary

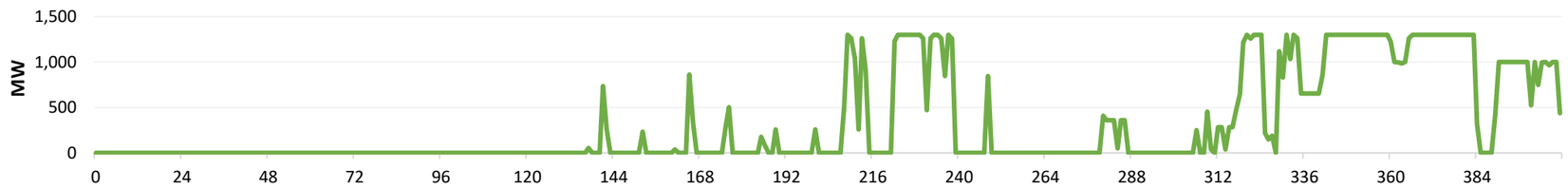
Case Name: Scenario 3 - PD 7 No Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

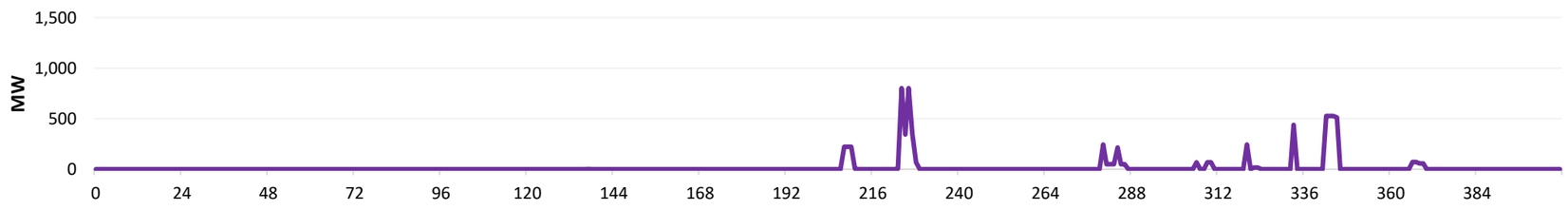


Export to ISO-NE Reduction During Modeling Period



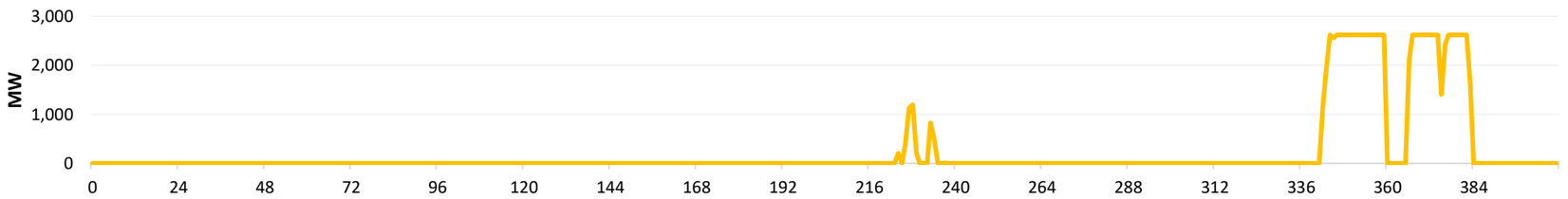
Export Reductions	
Total Hrs.	139
Total MWh	127,812
Avg. MW	313.3

SCR/EDRP Deployed During Modeling Period



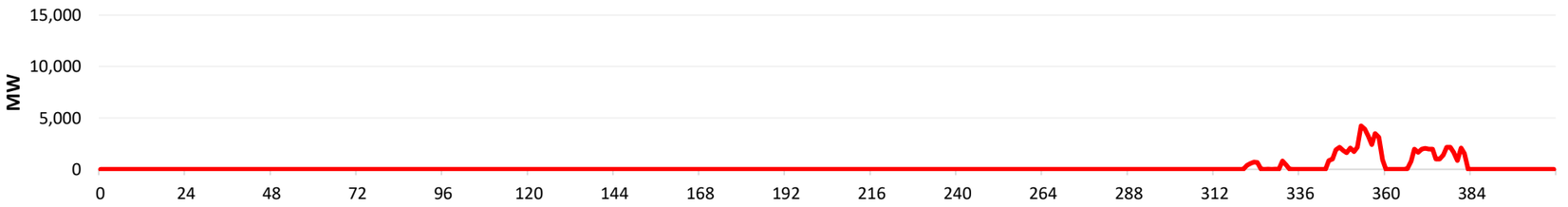
SCR Deployment	
Total Hrs.	32
Total MWh	7,018
Avg. MW	17.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	44
Total MWh	93,588
Avg. MW	229.4
First Hour with Viol.	208

Loss of Load During Modeling Period

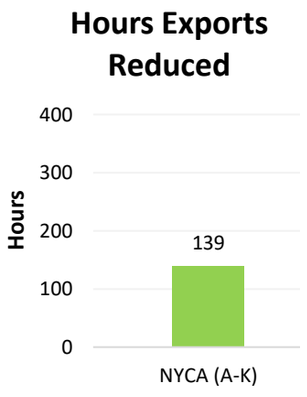


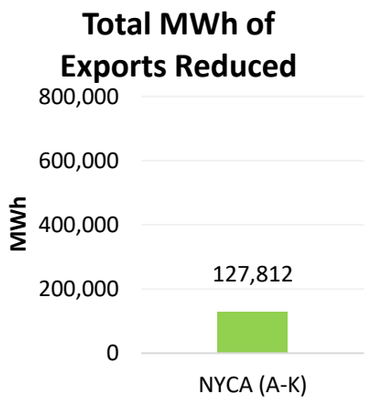
Loss of Load	
Total Hrs.	43
Total MWh	66,313
Avg. MW	162.5
First Hour with Losses	321

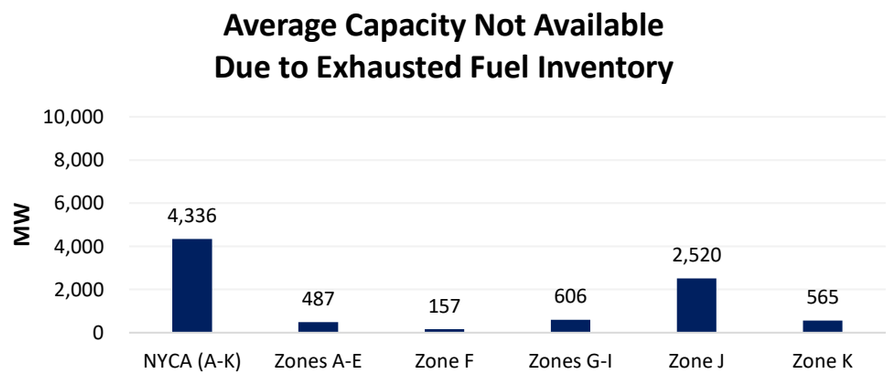
Full Period Results Summary

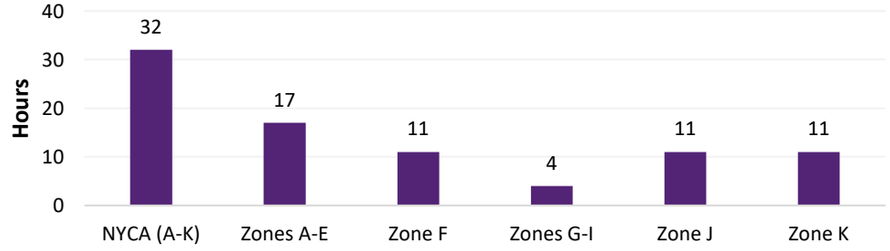
Case Name: Scenario 3 - PD 7 No Refill

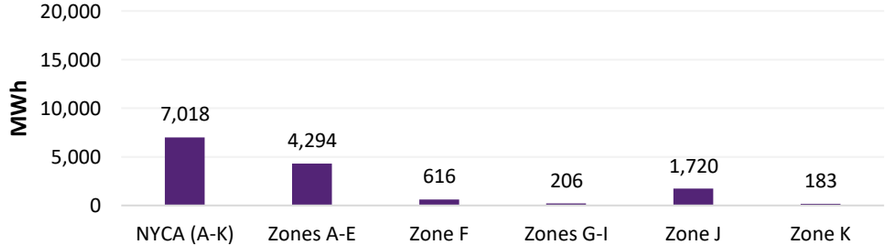
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

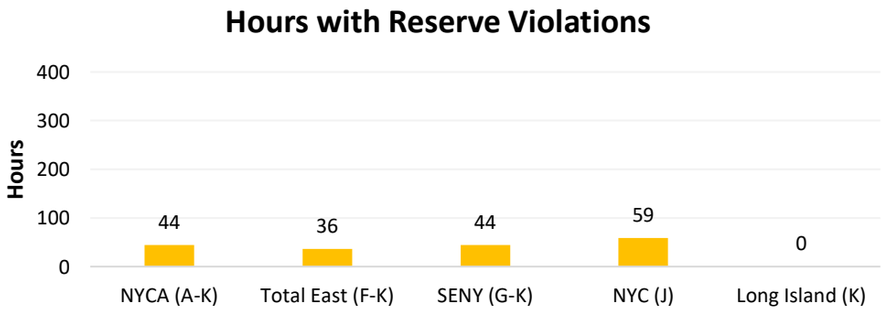


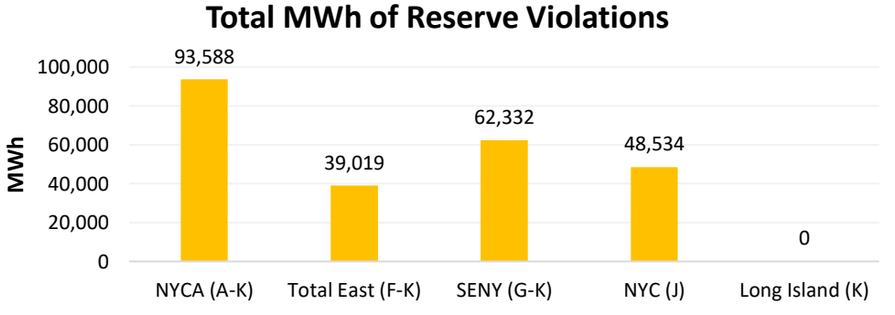


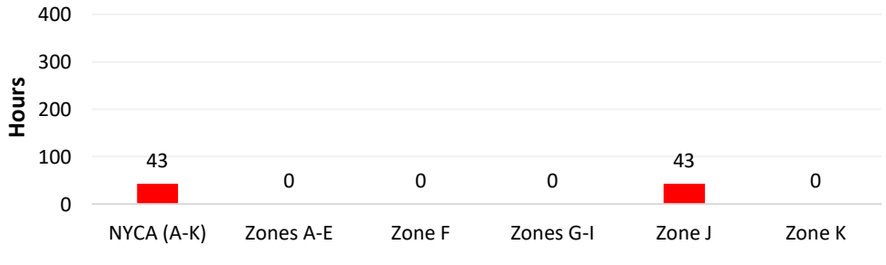


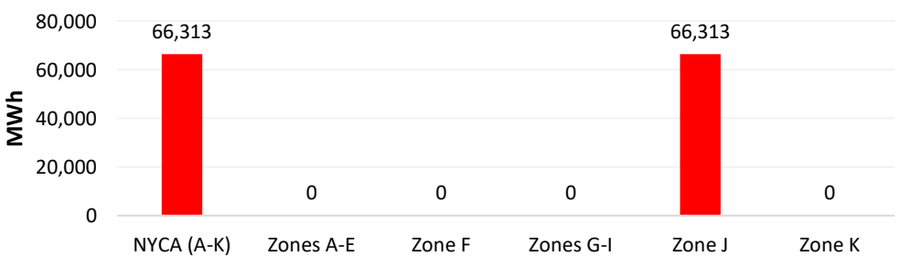


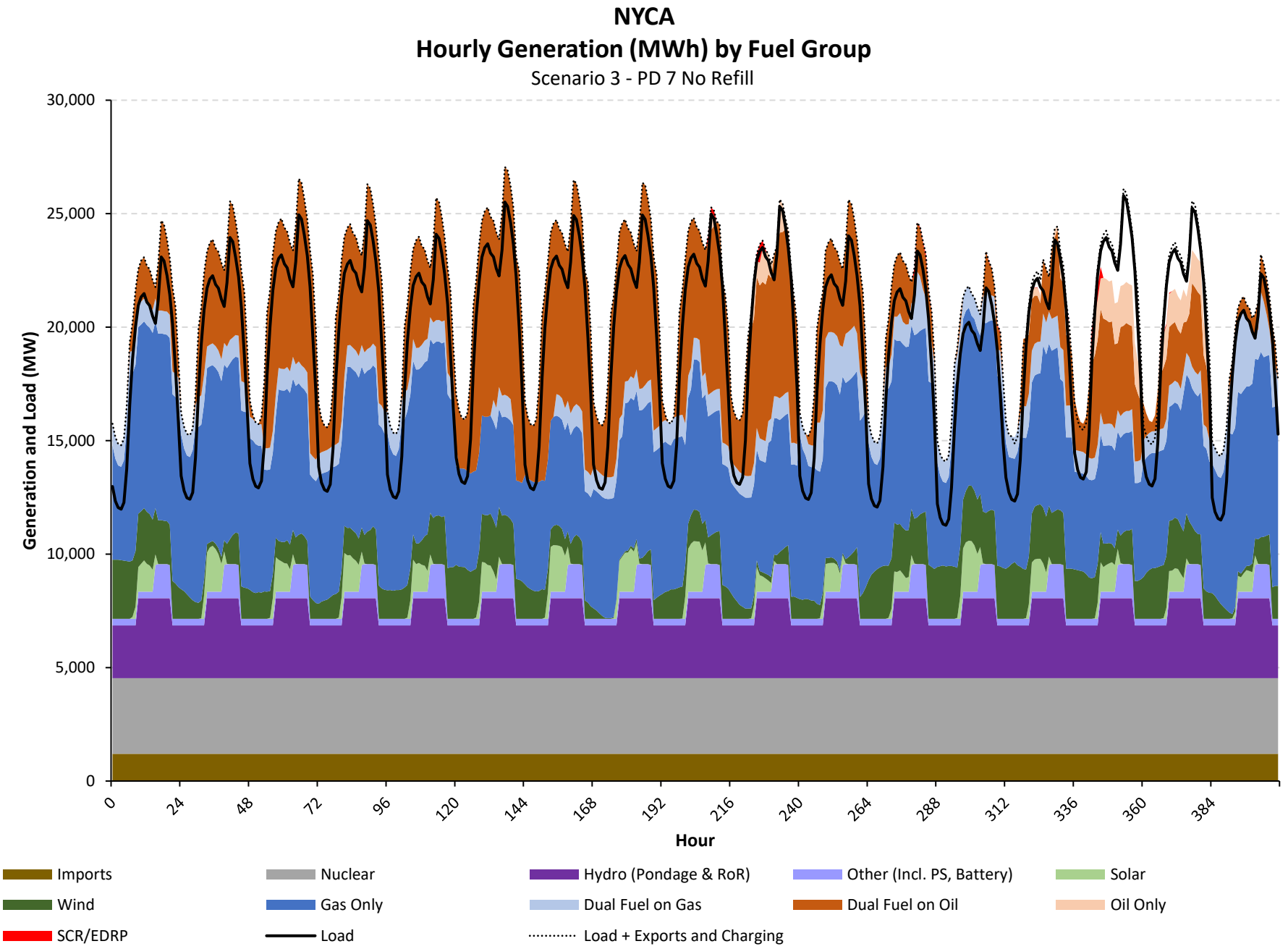


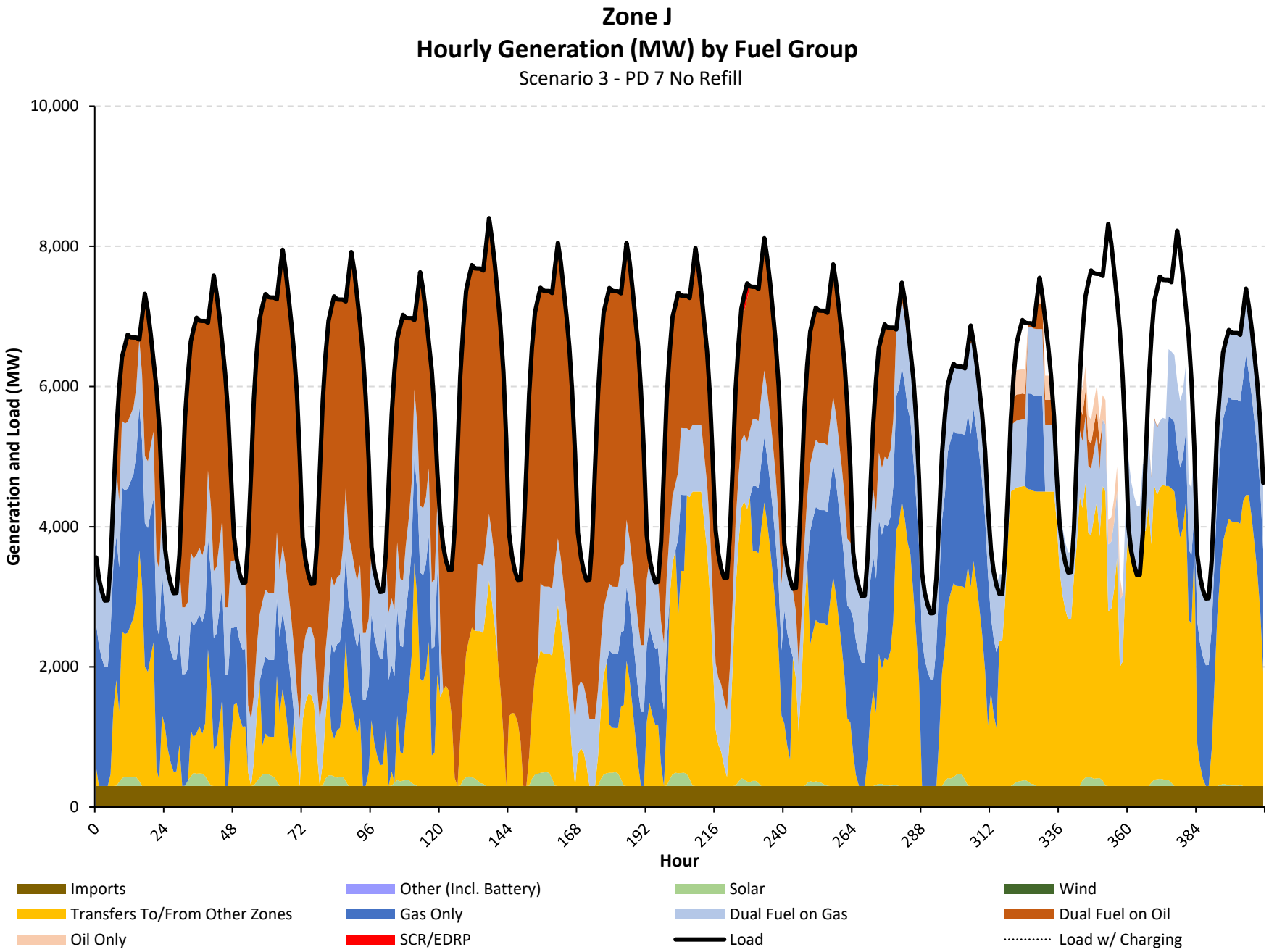




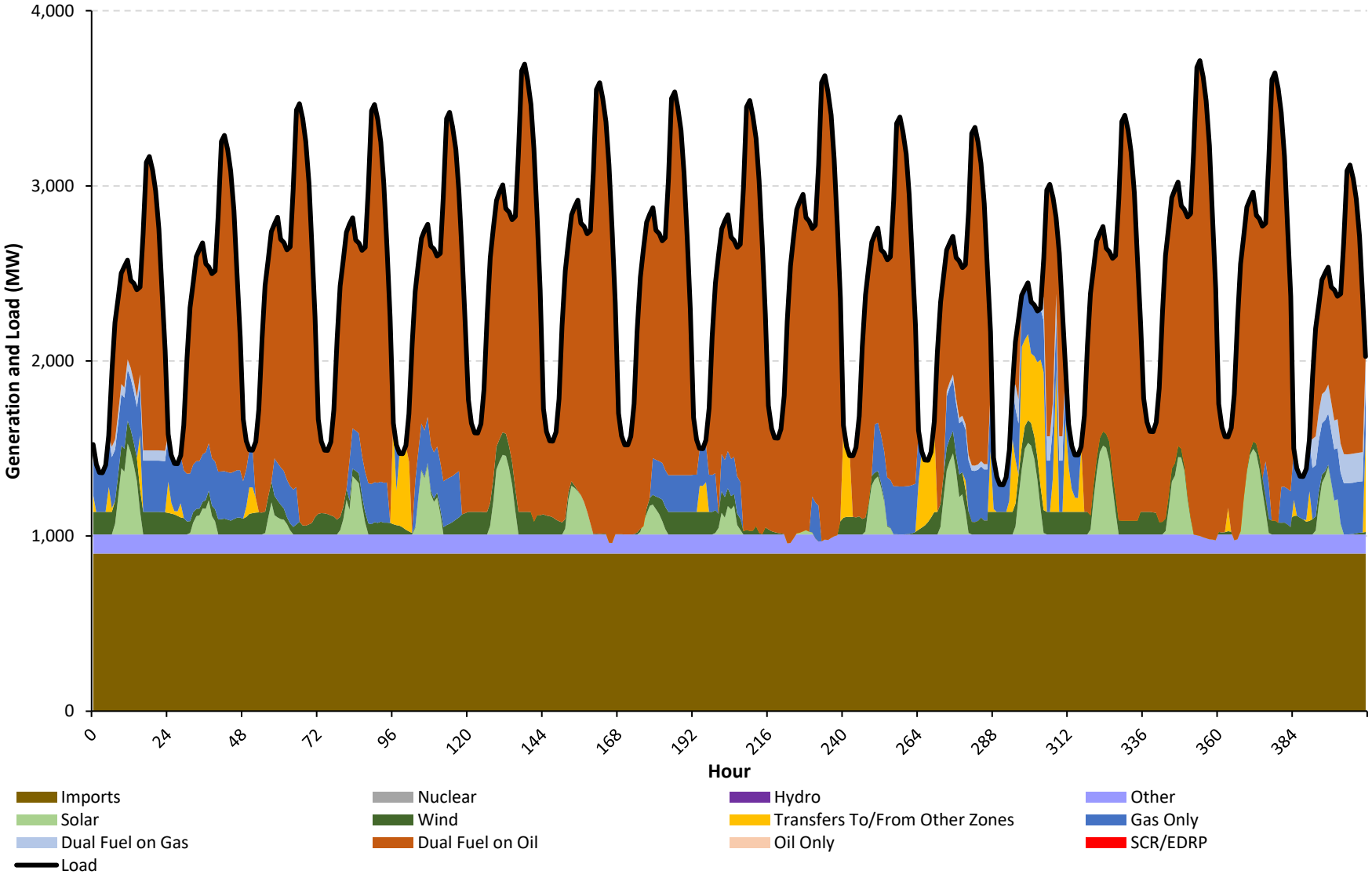





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 7 No Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 7 No Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

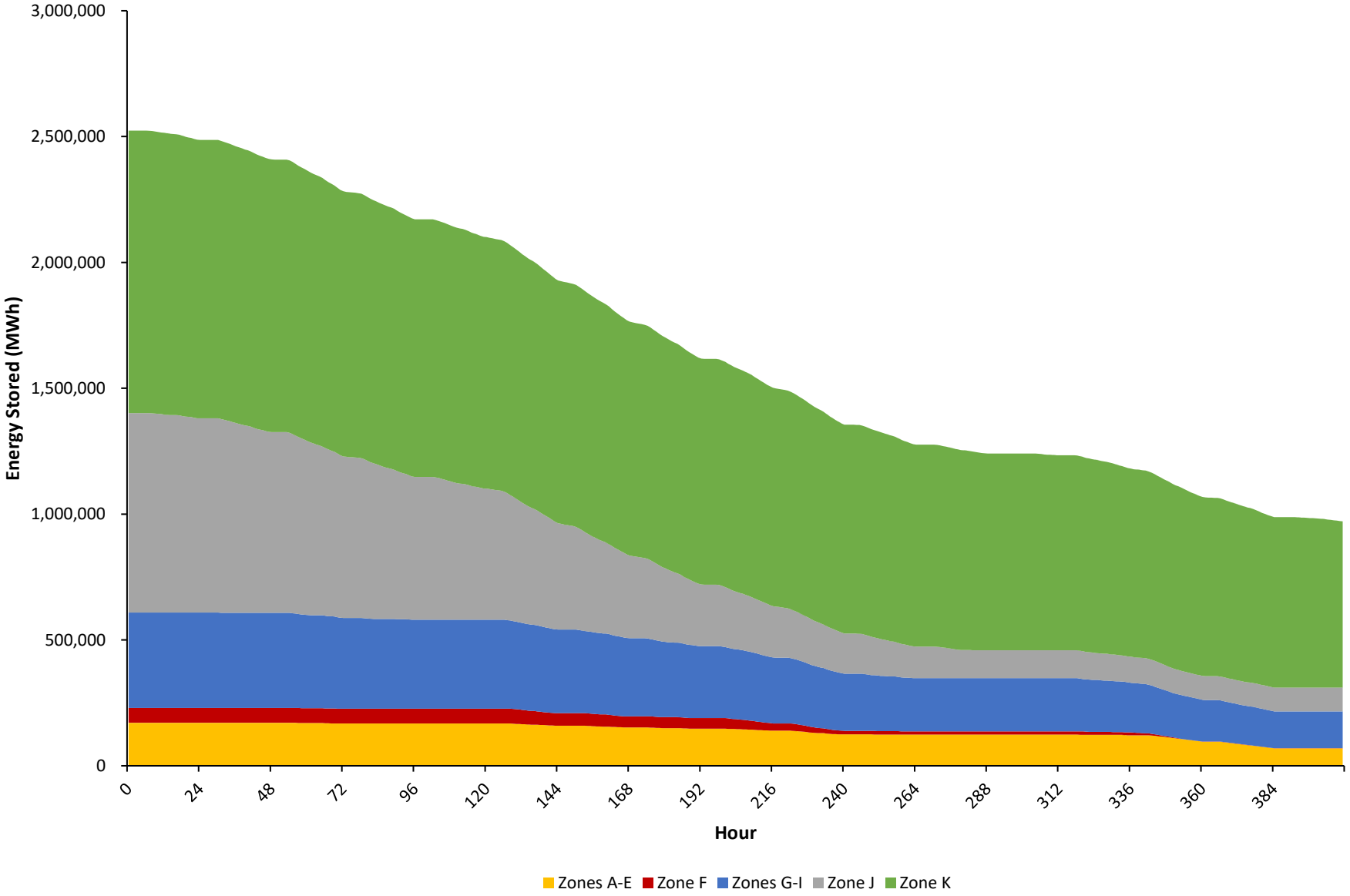
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 7 No Refill



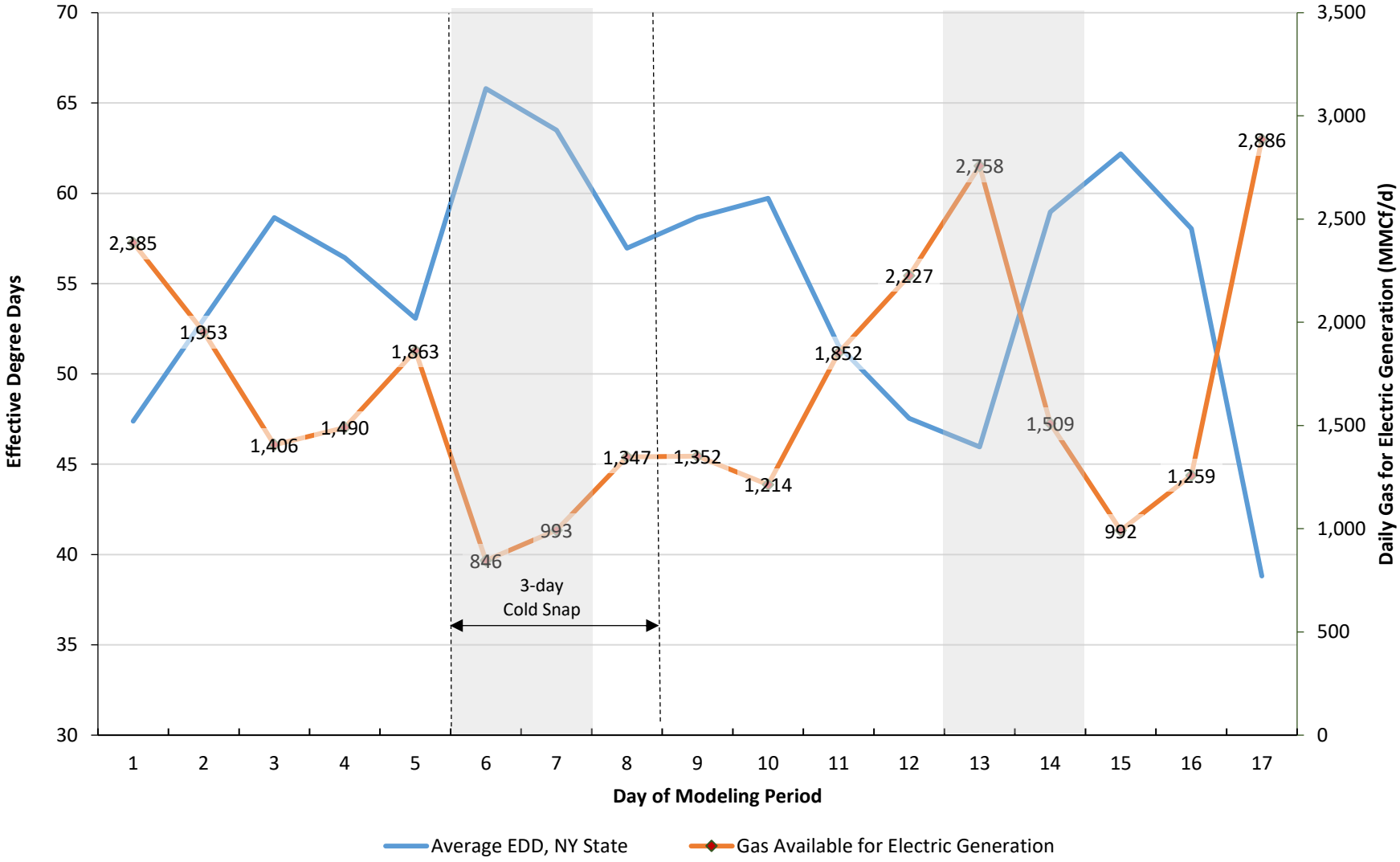
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

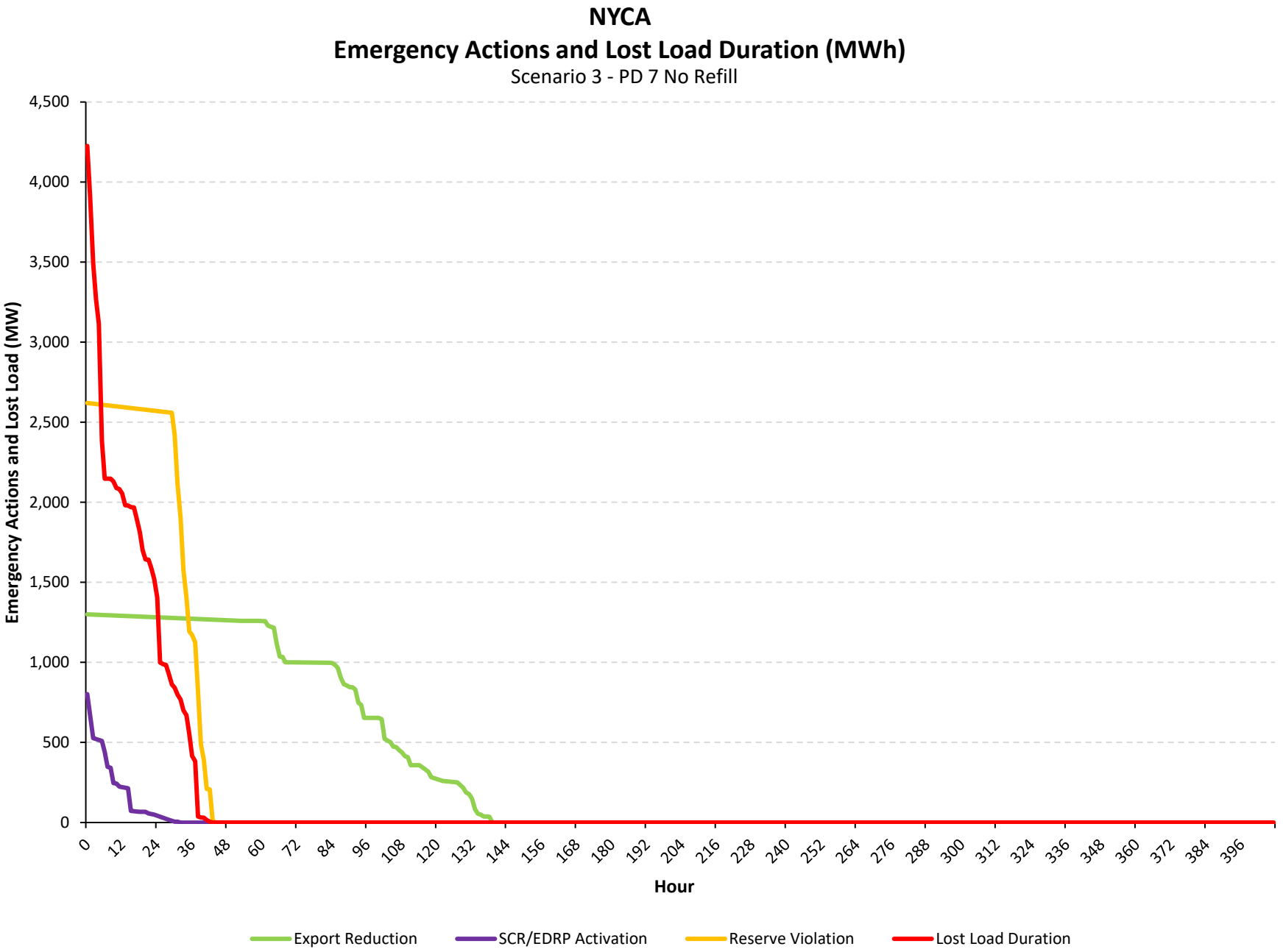
Scenario 3 - PD 7 No Refill

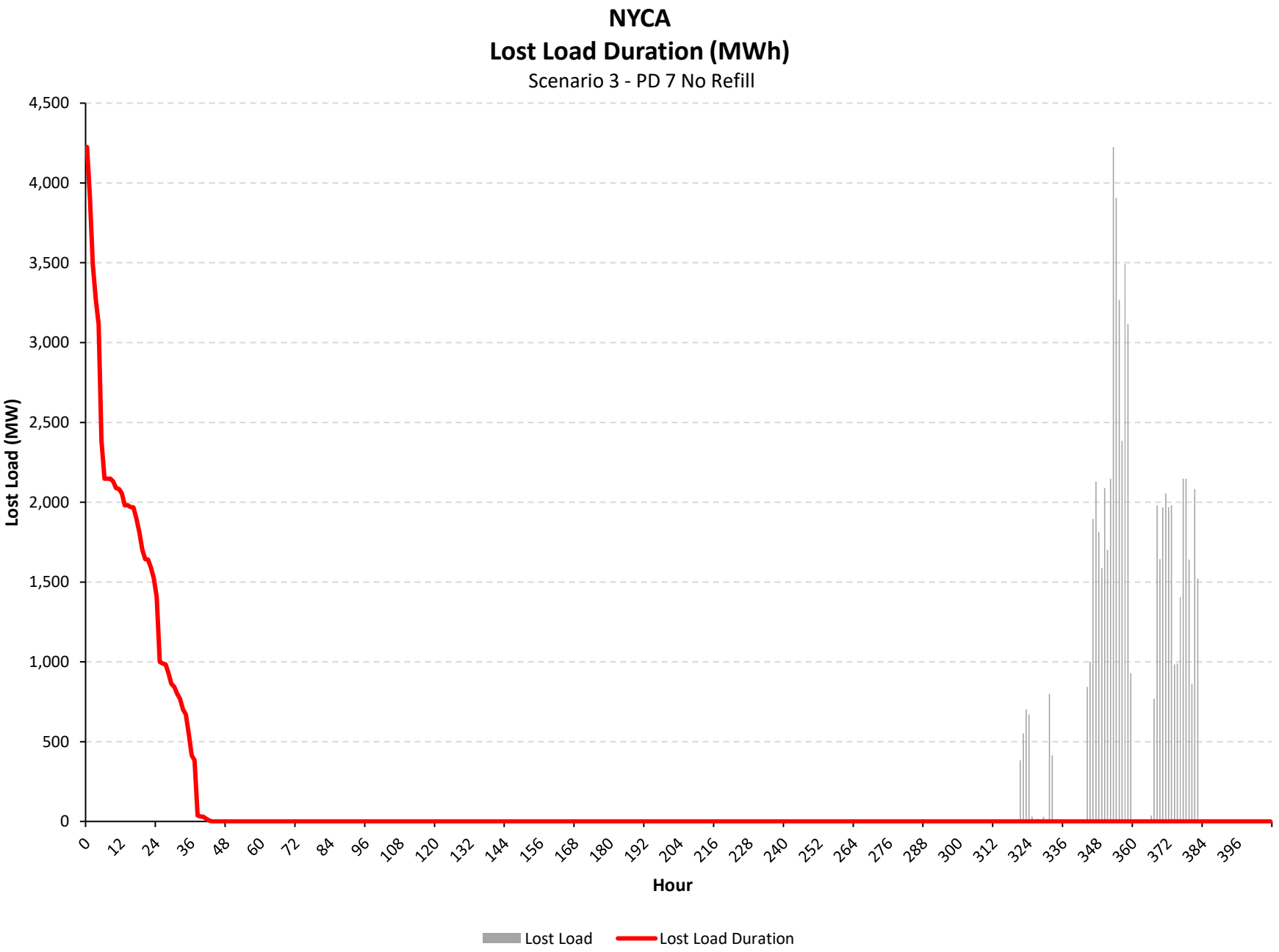


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 3 - PD 7 No Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 7 No Refill
Emergency Actions and Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 7 No Refill
Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

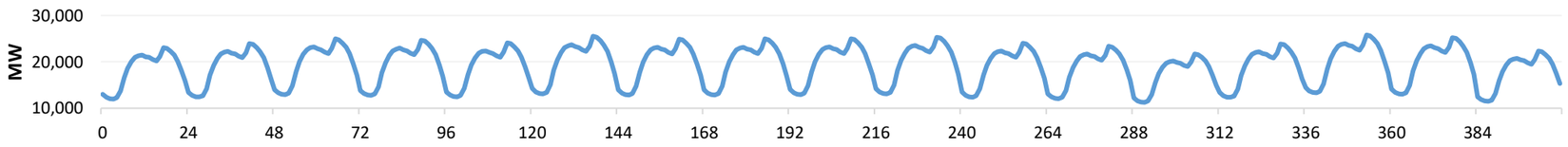
Case: Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K) (Winter 2023/2024)

Hourly Results Summary

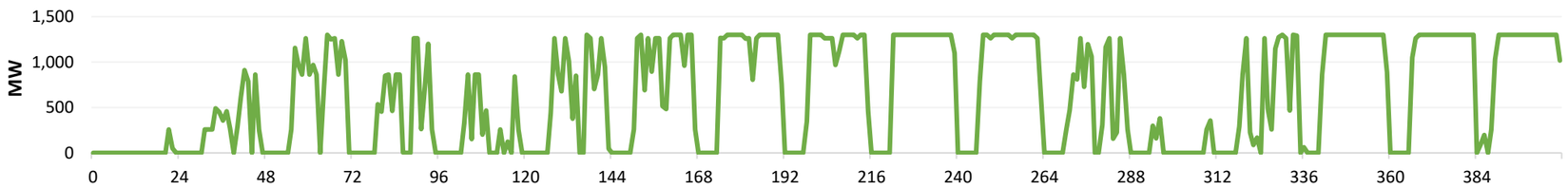
Case Name: Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

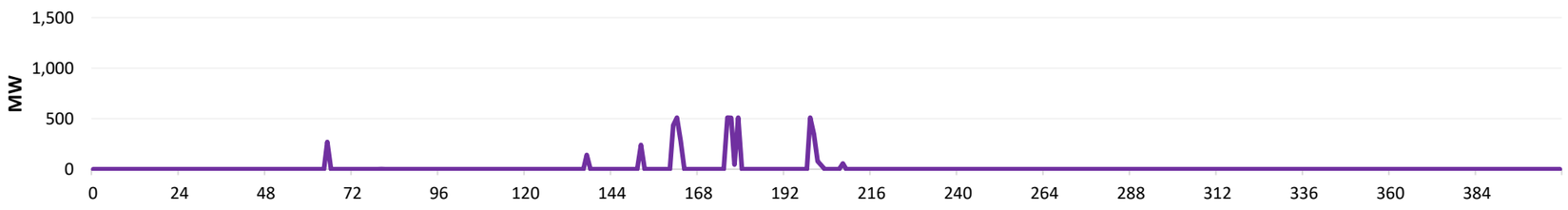


Export to ISO-NE Reduction During Modeling Period



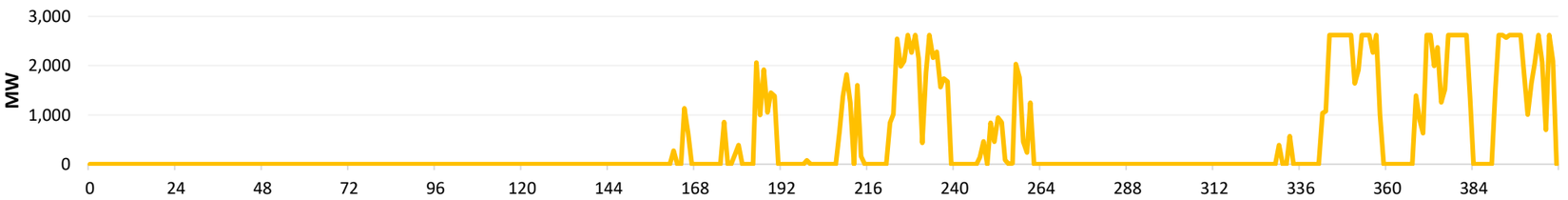
Export Reductions	
Total Hrs.	258
Total MWh	254,648
Avg. MW	624.1

SCR/EDRP Deployed During Modeling Period



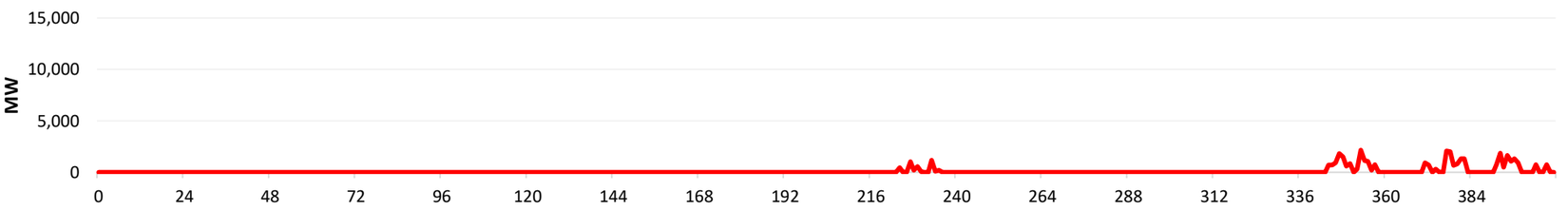
SCR Deployment	
Total Hrs.	15
Total MWh	4,488
Avg. MW	11.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	101
Total MWh	168,764
Avg. MW	413.6
First Hour with Viol.	162

Loss of Load During Modeling Period

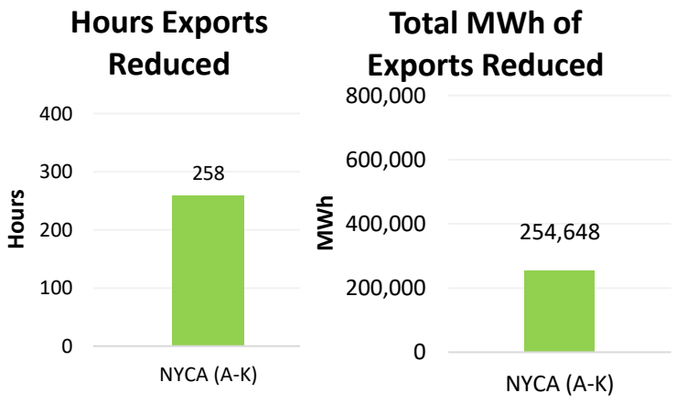


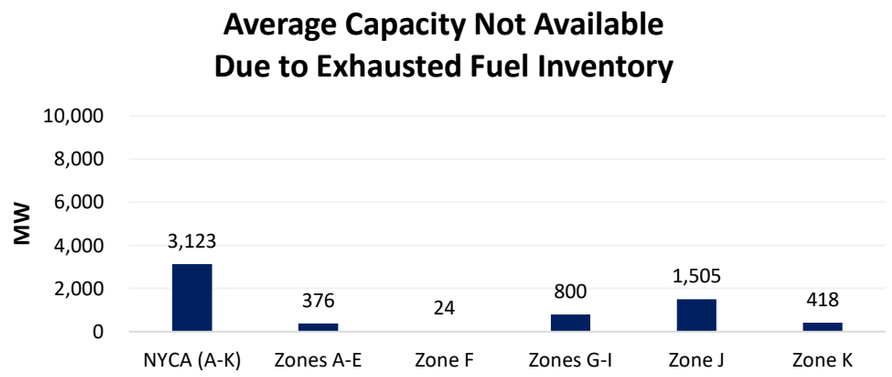
Loss of Load	
Total Hrs.	41
Total MWh	36,046
Avg. MW	88.3
First Hour with Losses	224

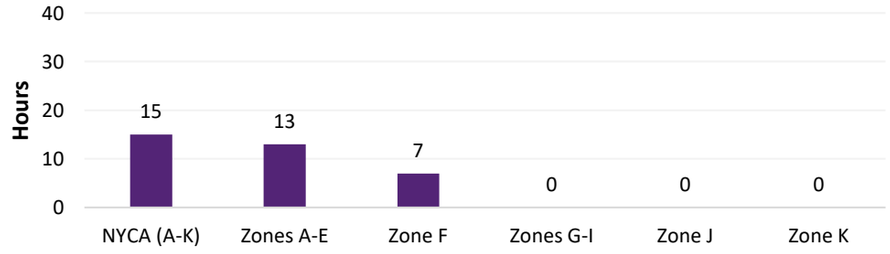
Full Period Results Summary

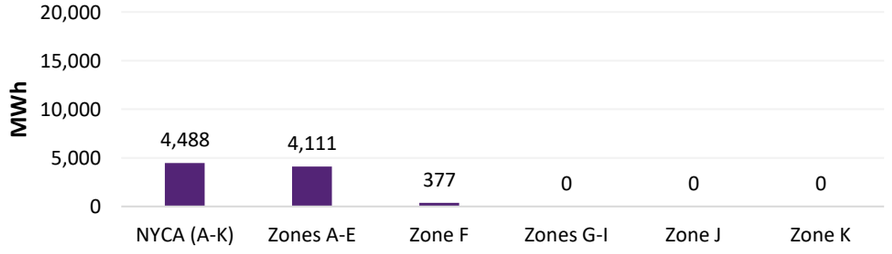
Case Name: Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)

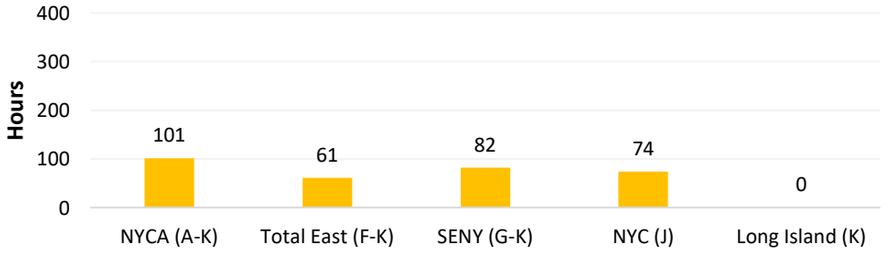
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

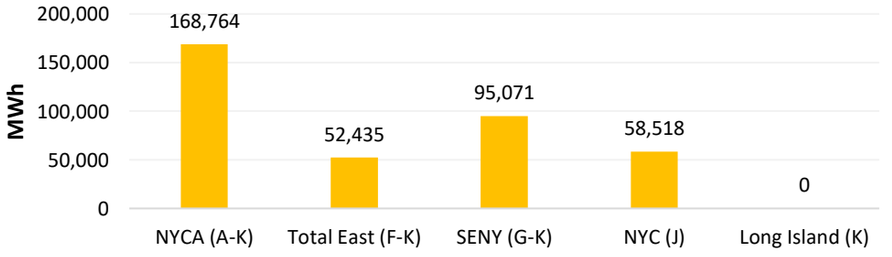


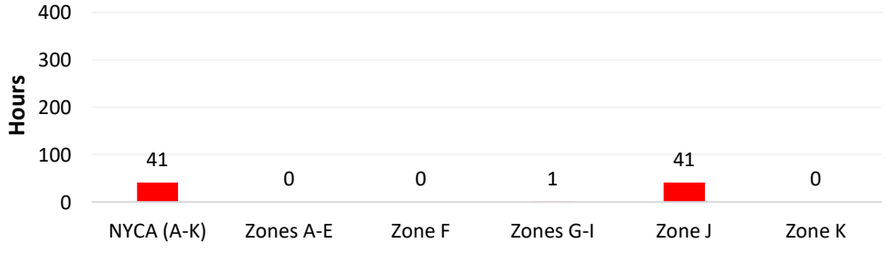


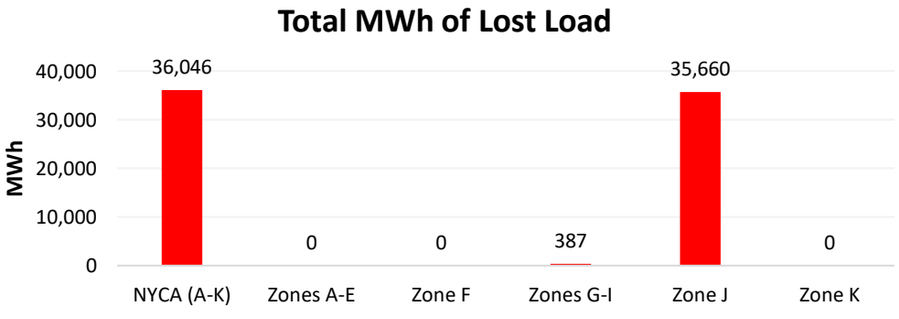


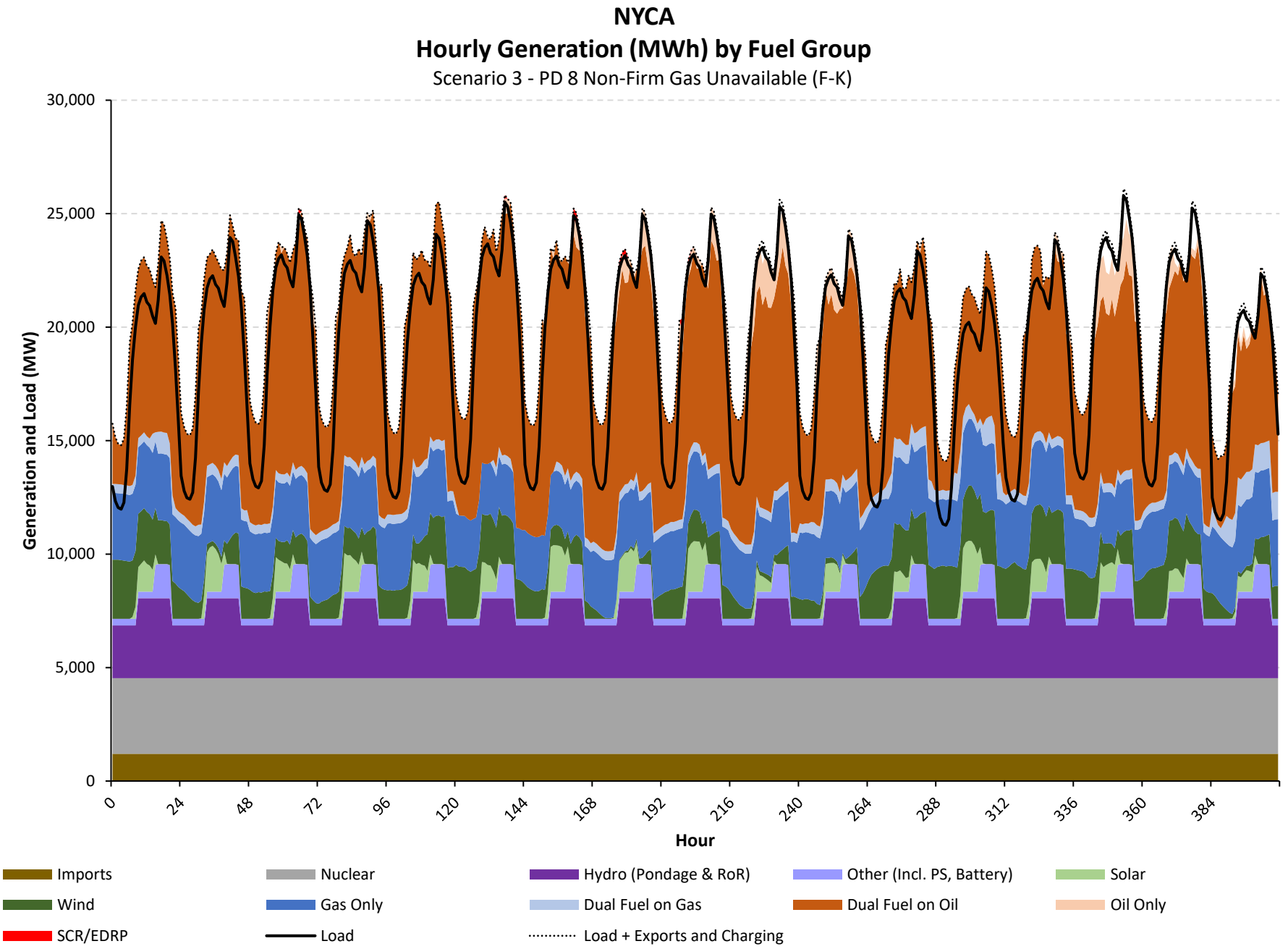


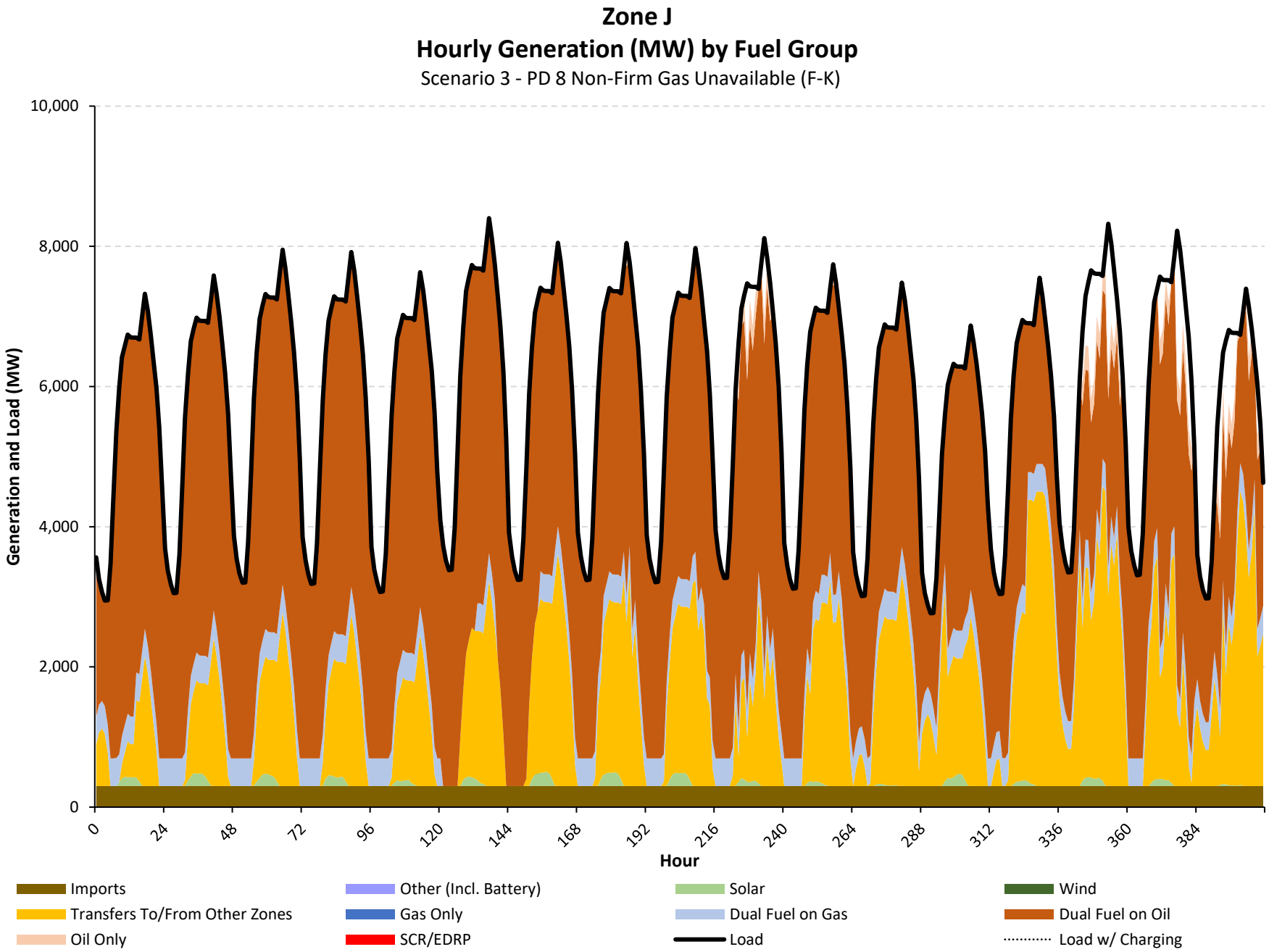




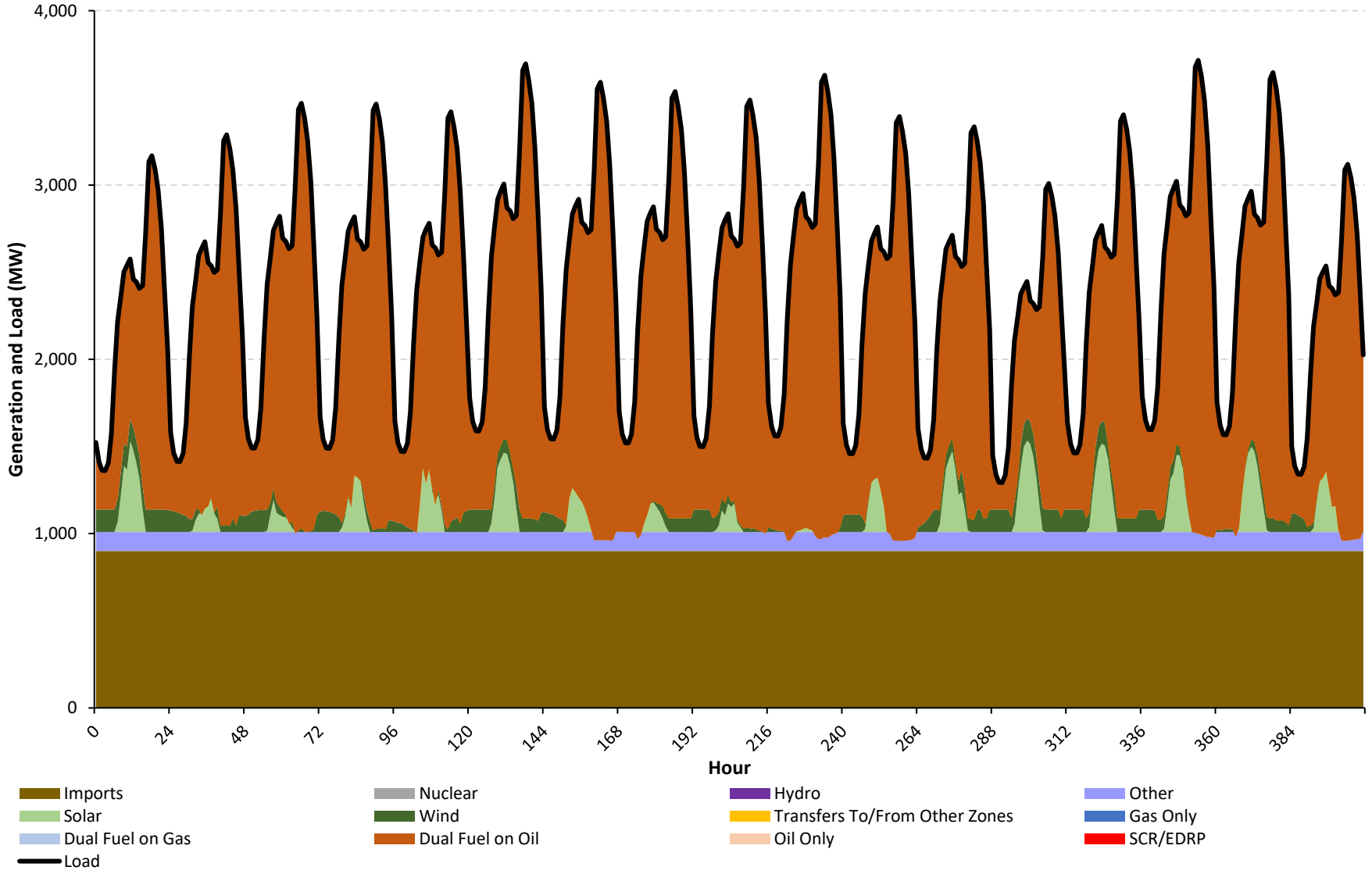





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

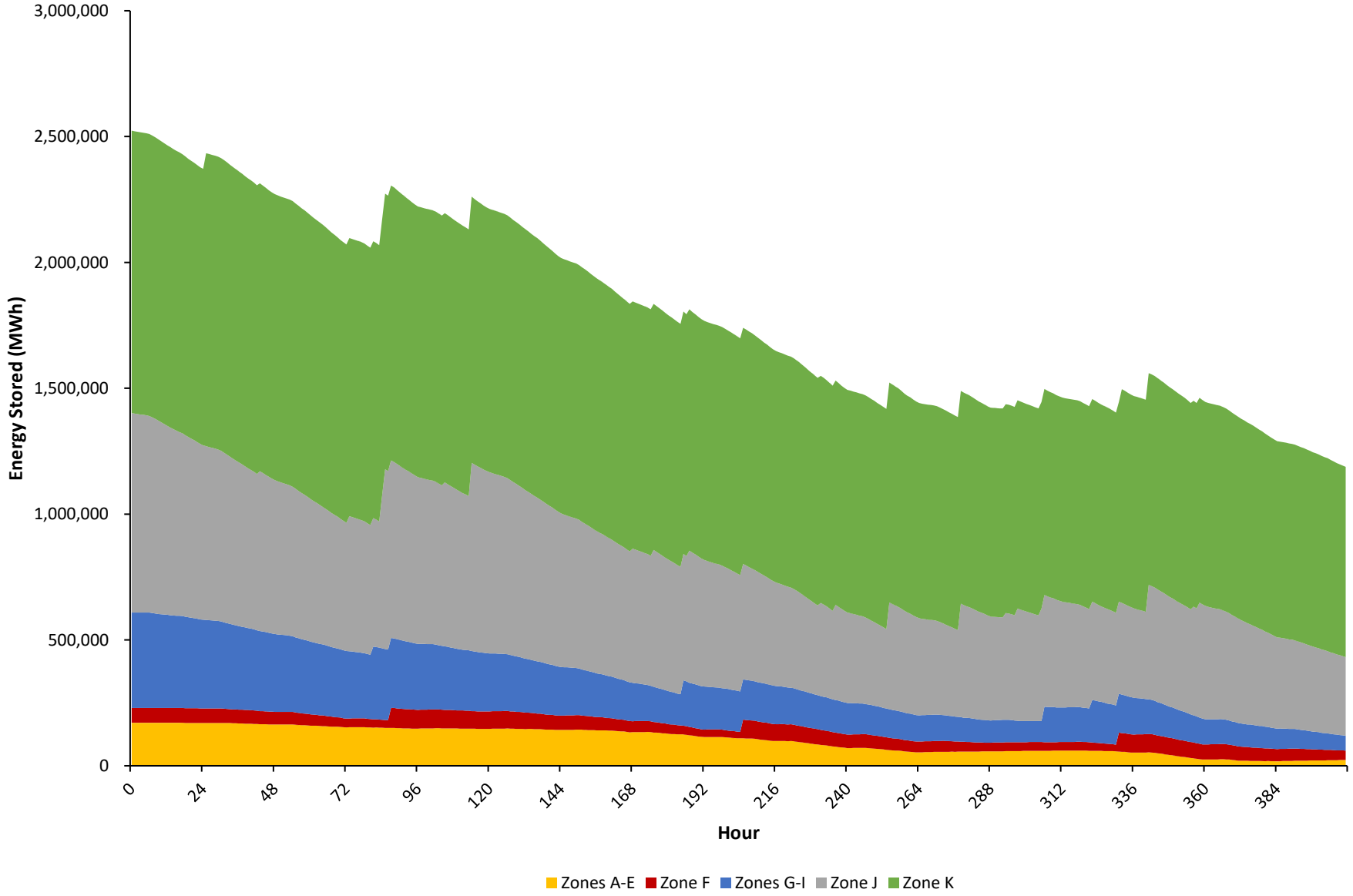
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)



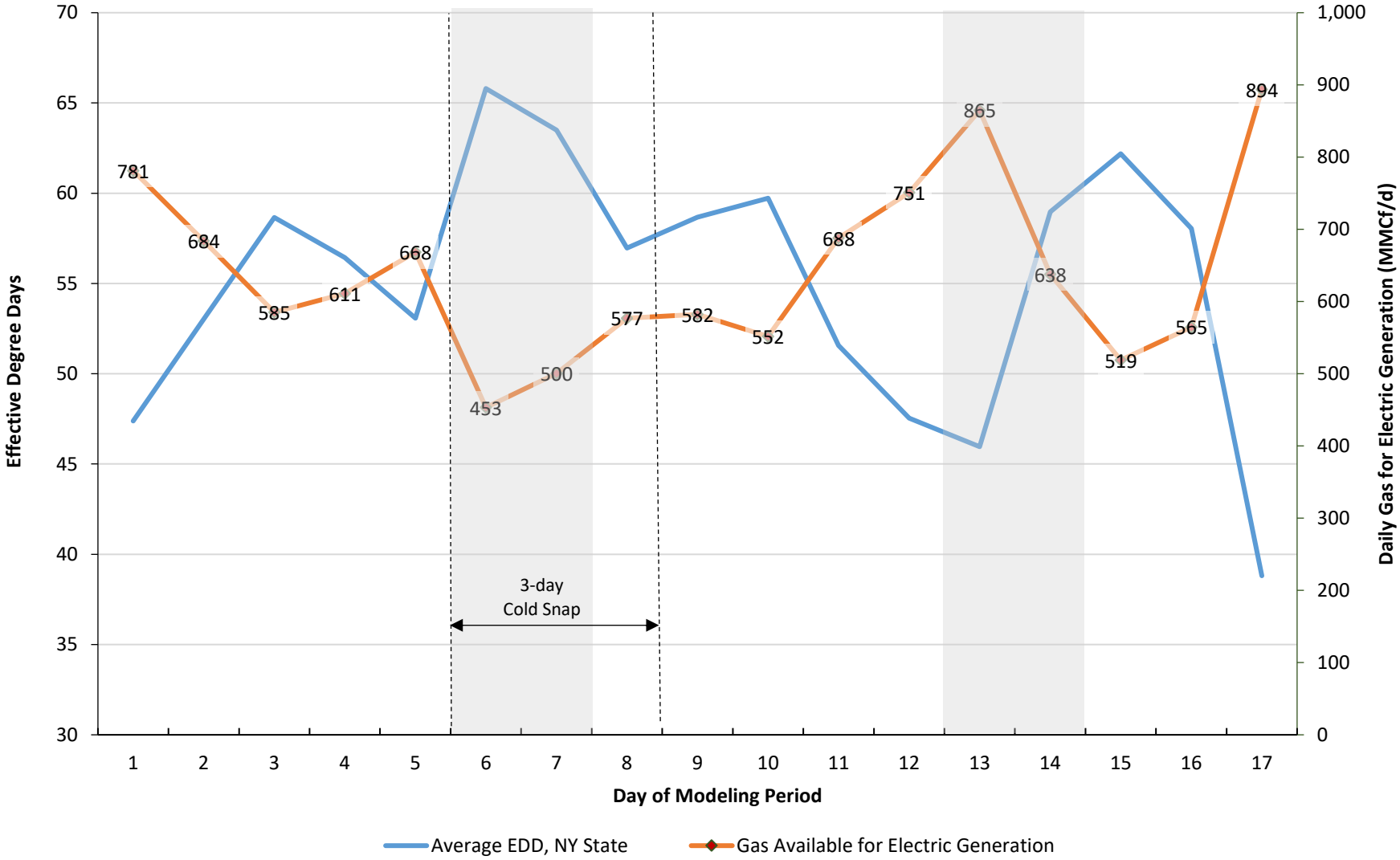
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

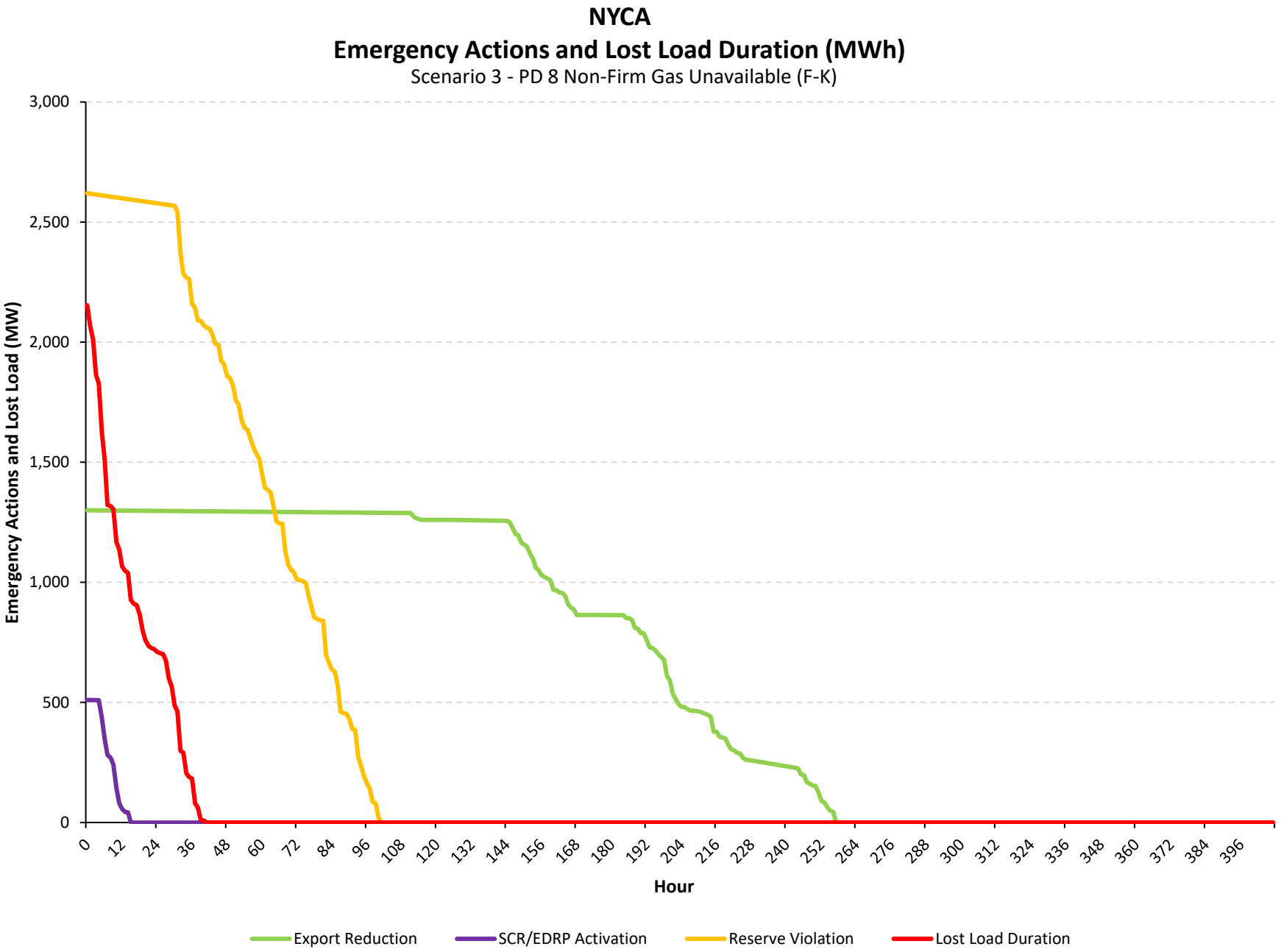
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)

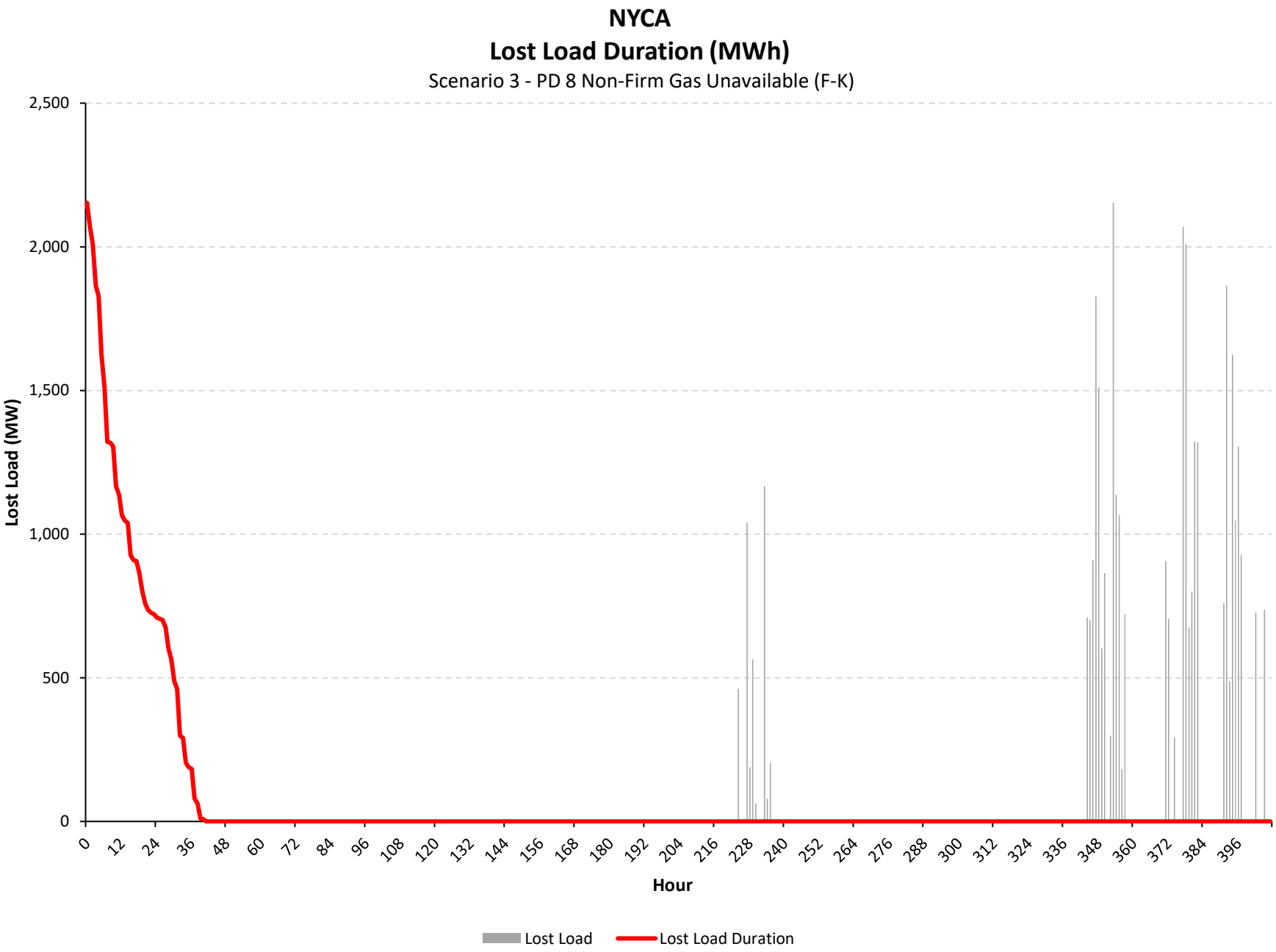


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 8 Non-Firm Gas Unavailable (F-K)
Lost Load (MW)
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

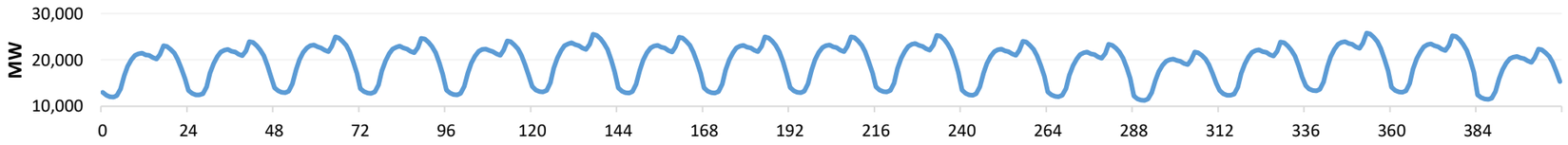
Case: Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA) (Winter 2023/2024)

Hourly Results Summary

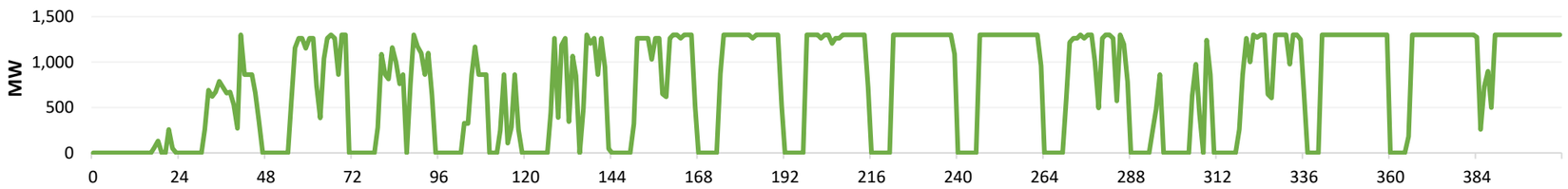
Case Name: Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

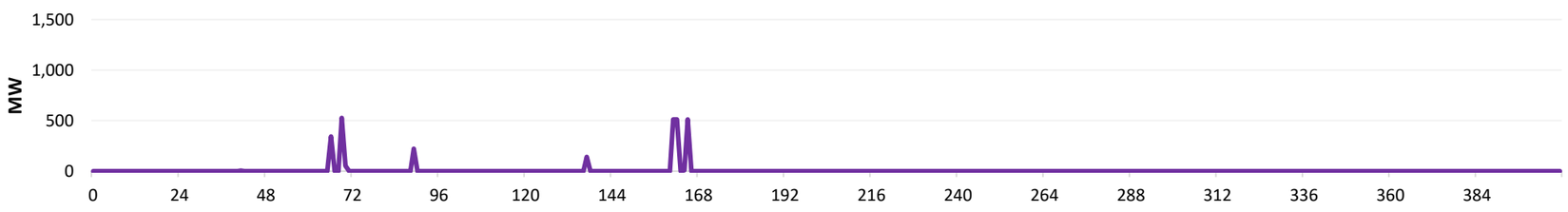


Export to ISO-NE Reduction During Modeling Period



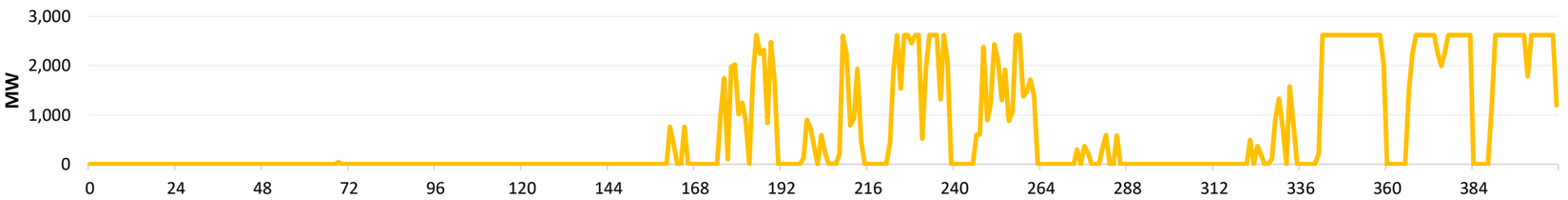
Export Reductions	
Total Hrs.	277
Total MWh	298,011
Avg. MW	730.4

SCR/EDRP Deployed During Modeling Period



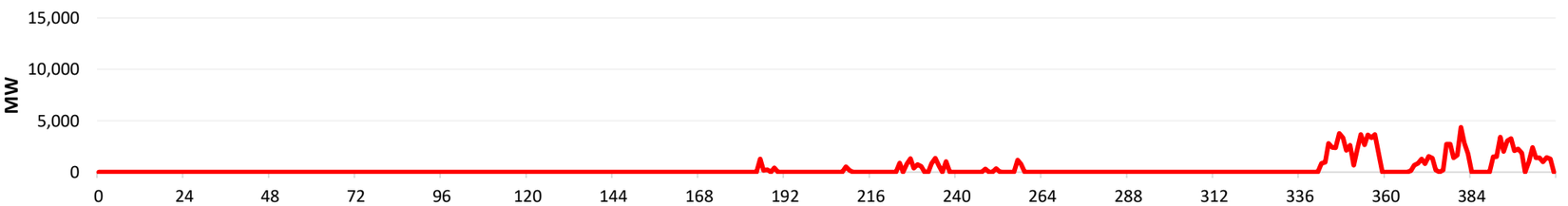
SCR Deployment	
Total Hrs.	10
Total MWh	2,832
Avg. MW	6.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	138
Total MWh	246,350
Avg. MW	603.8
First Hour with Viol.	69

Loss of Load During Modeling Period

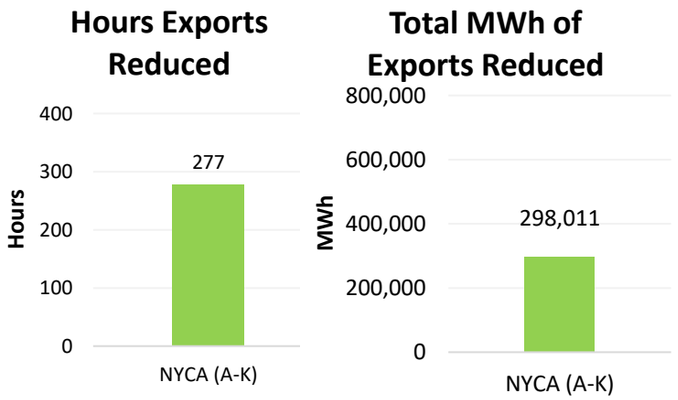


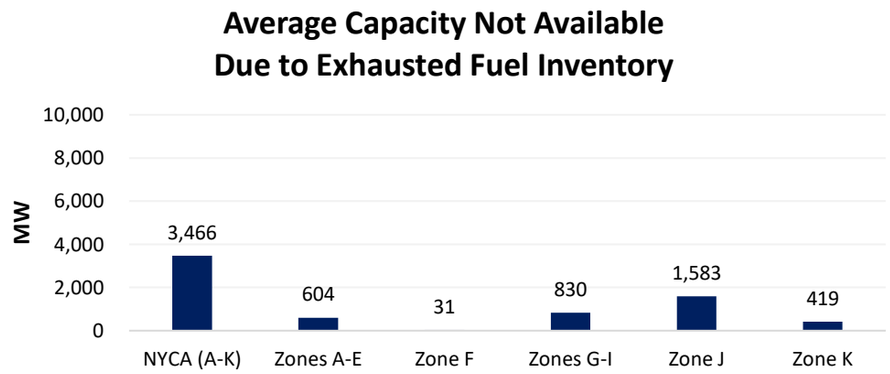
Loss of Load	
Total Hrs.	70
Total MWh	111,740
Avg. MW	273.9
First Hour with Losses	185

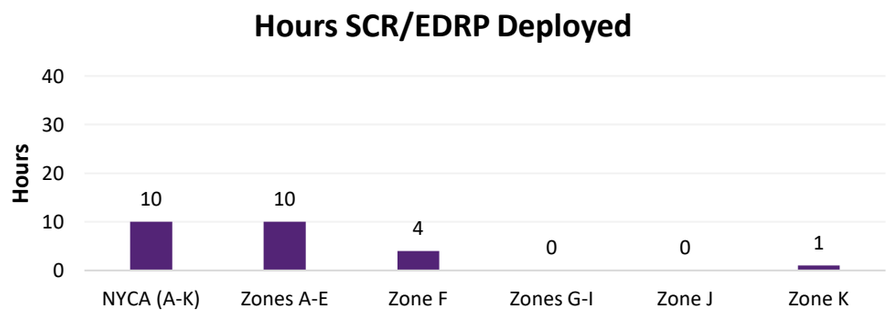
Full Period Results Summary

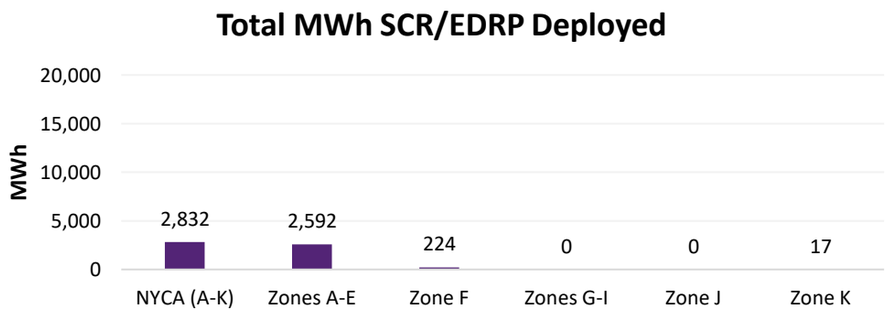
Case Name: Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)

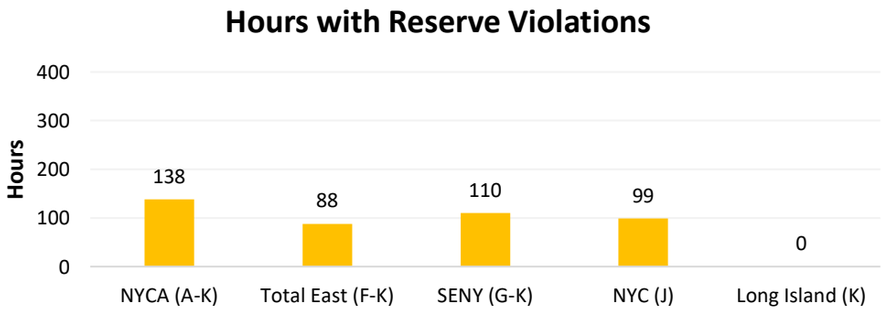
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

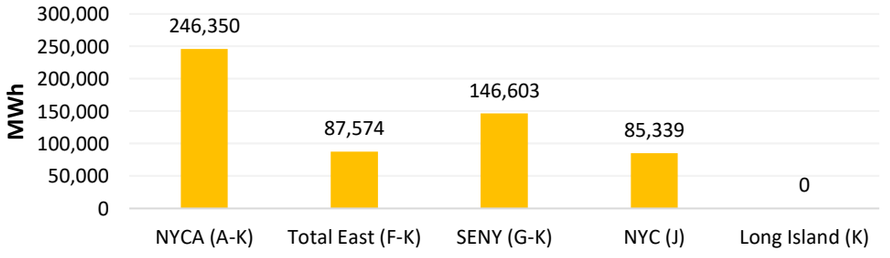


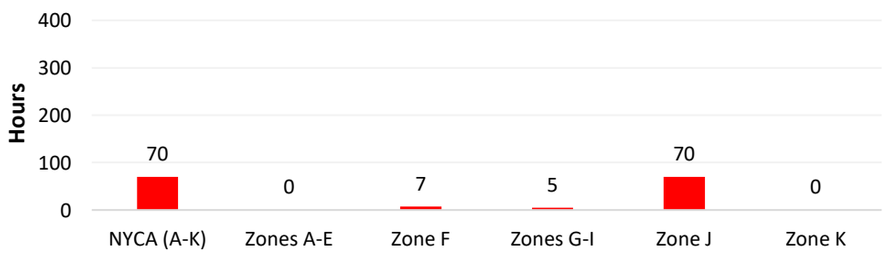


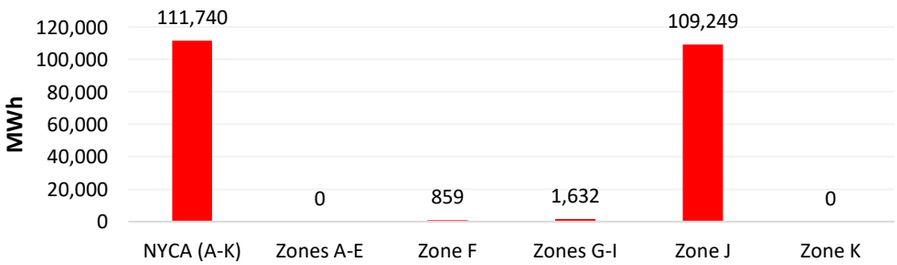




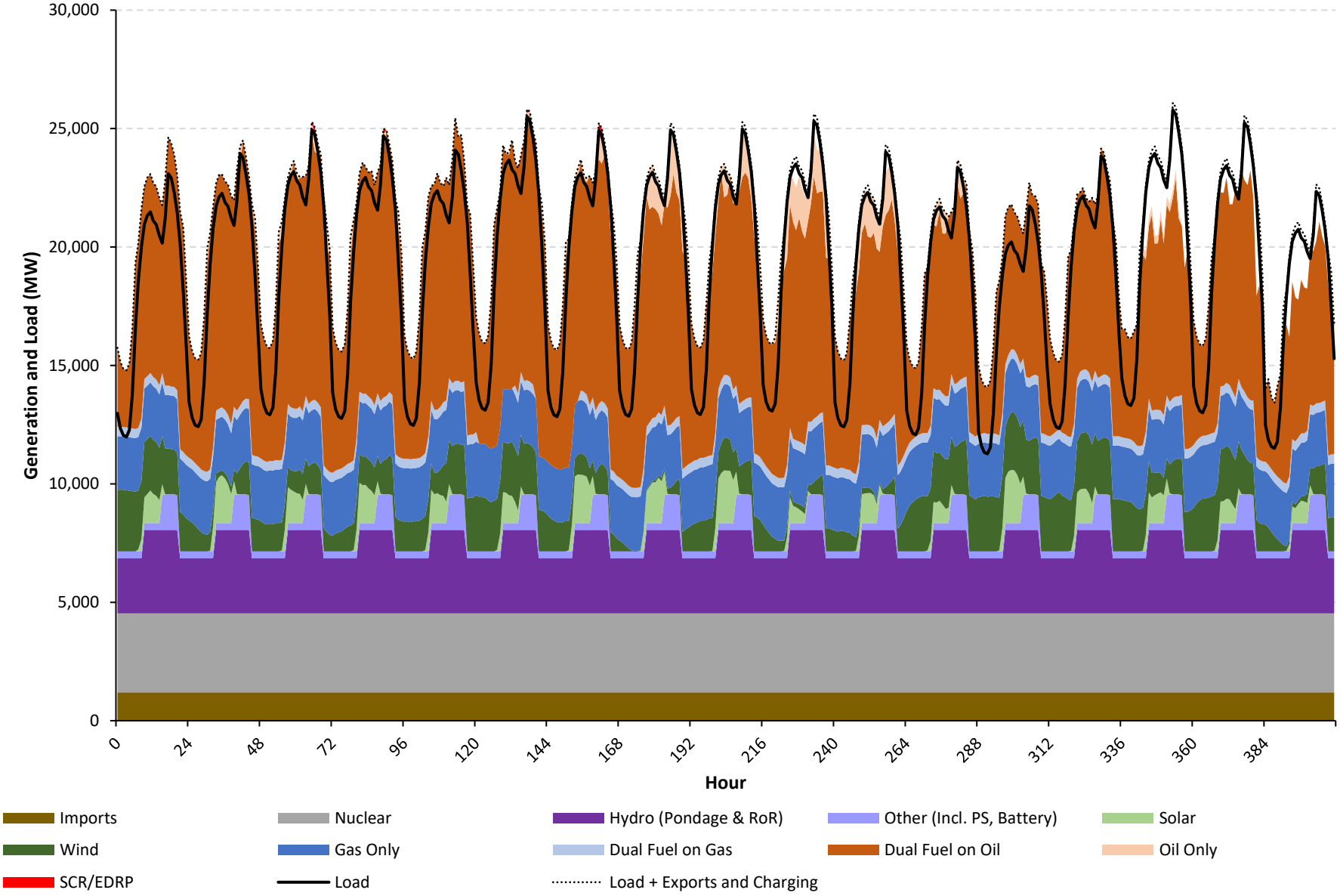




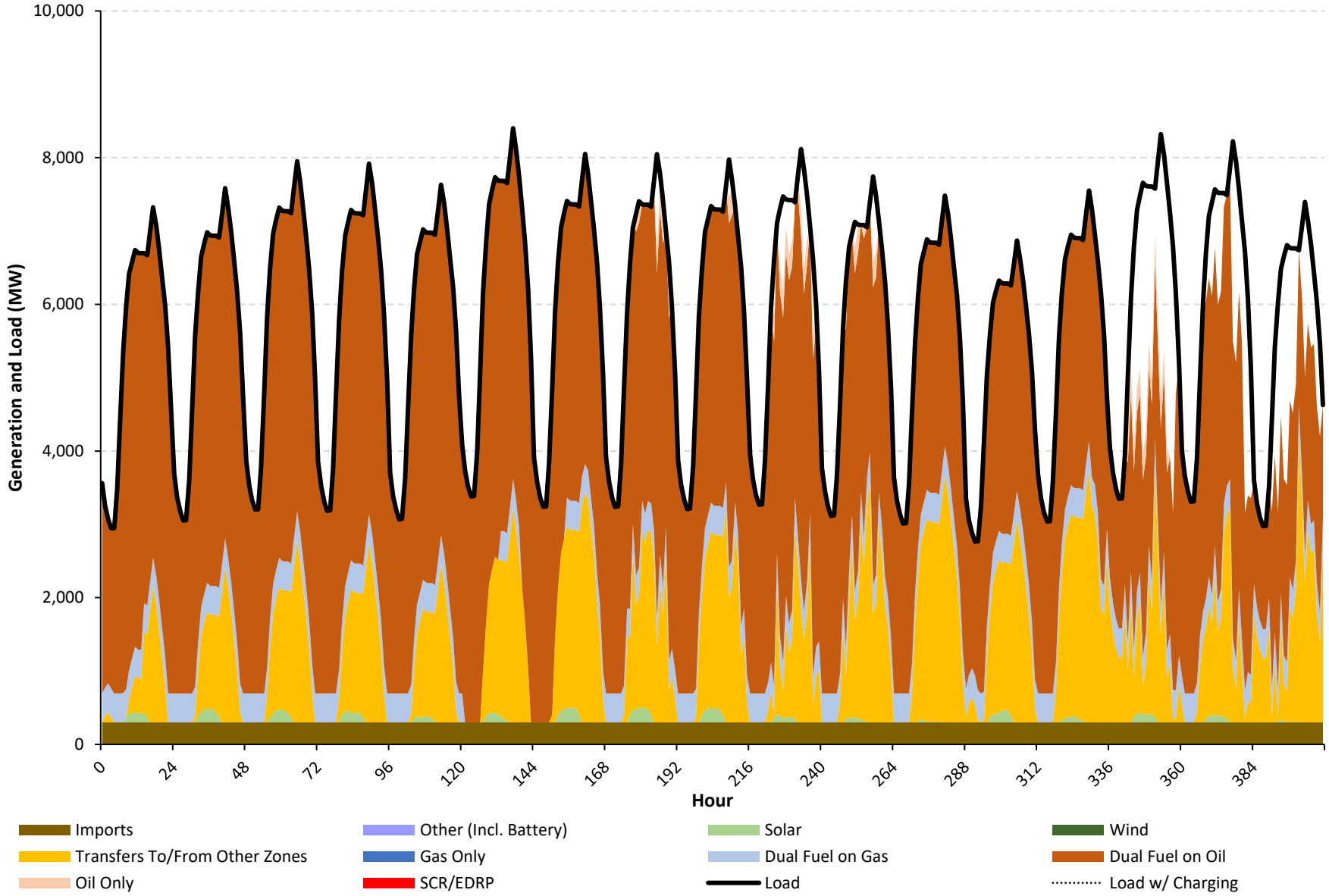




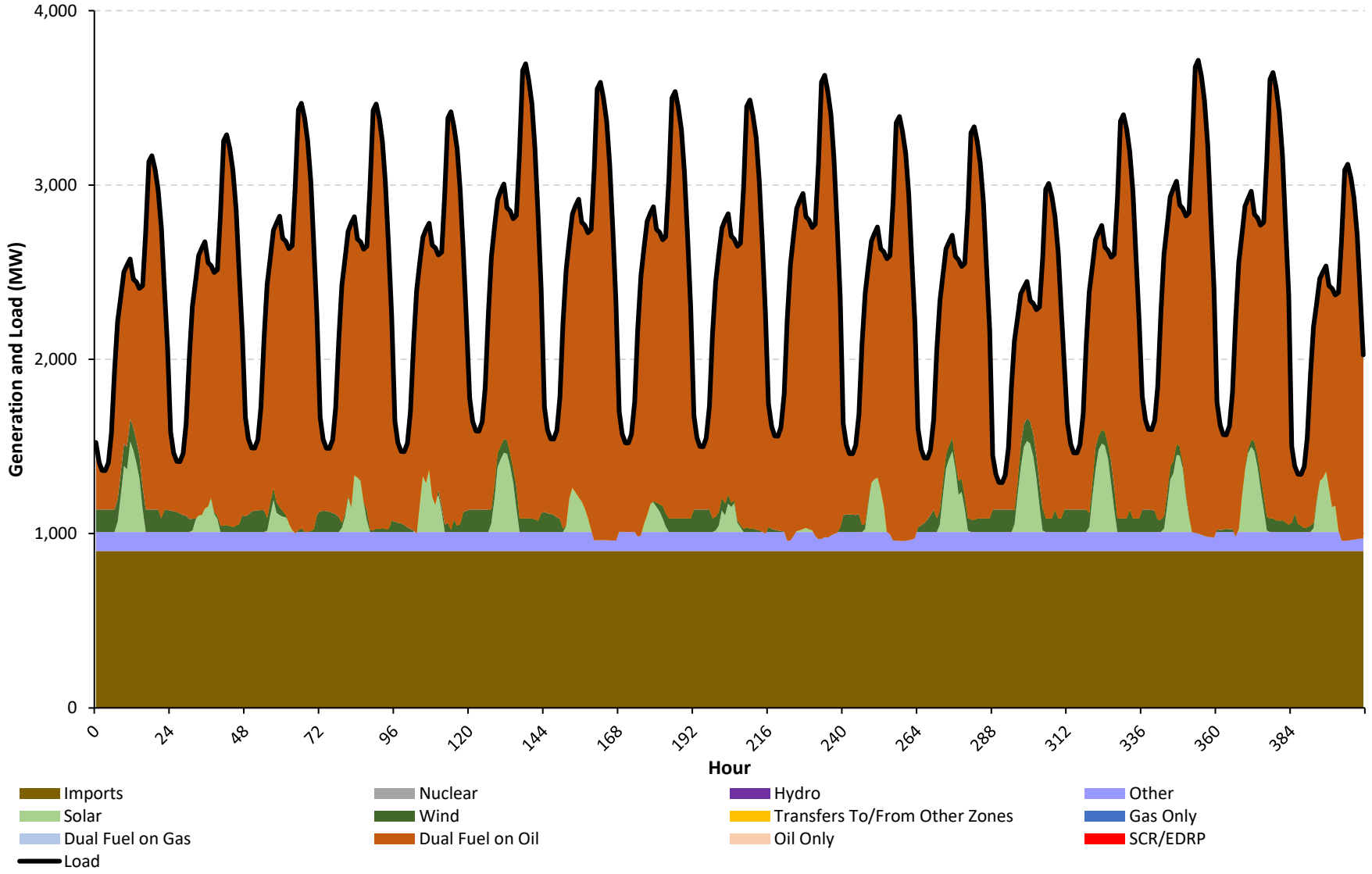
NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)



Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)



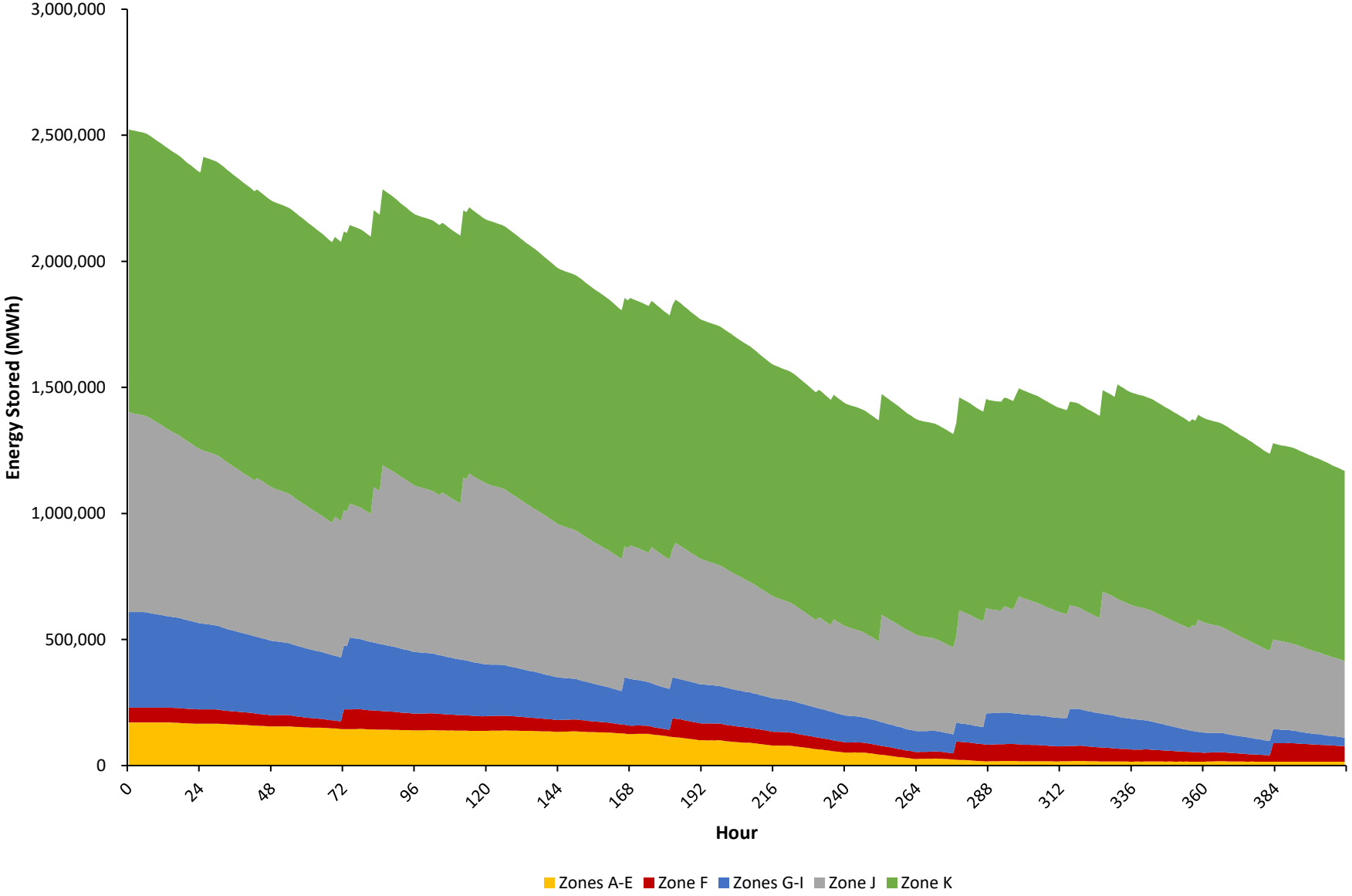
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)

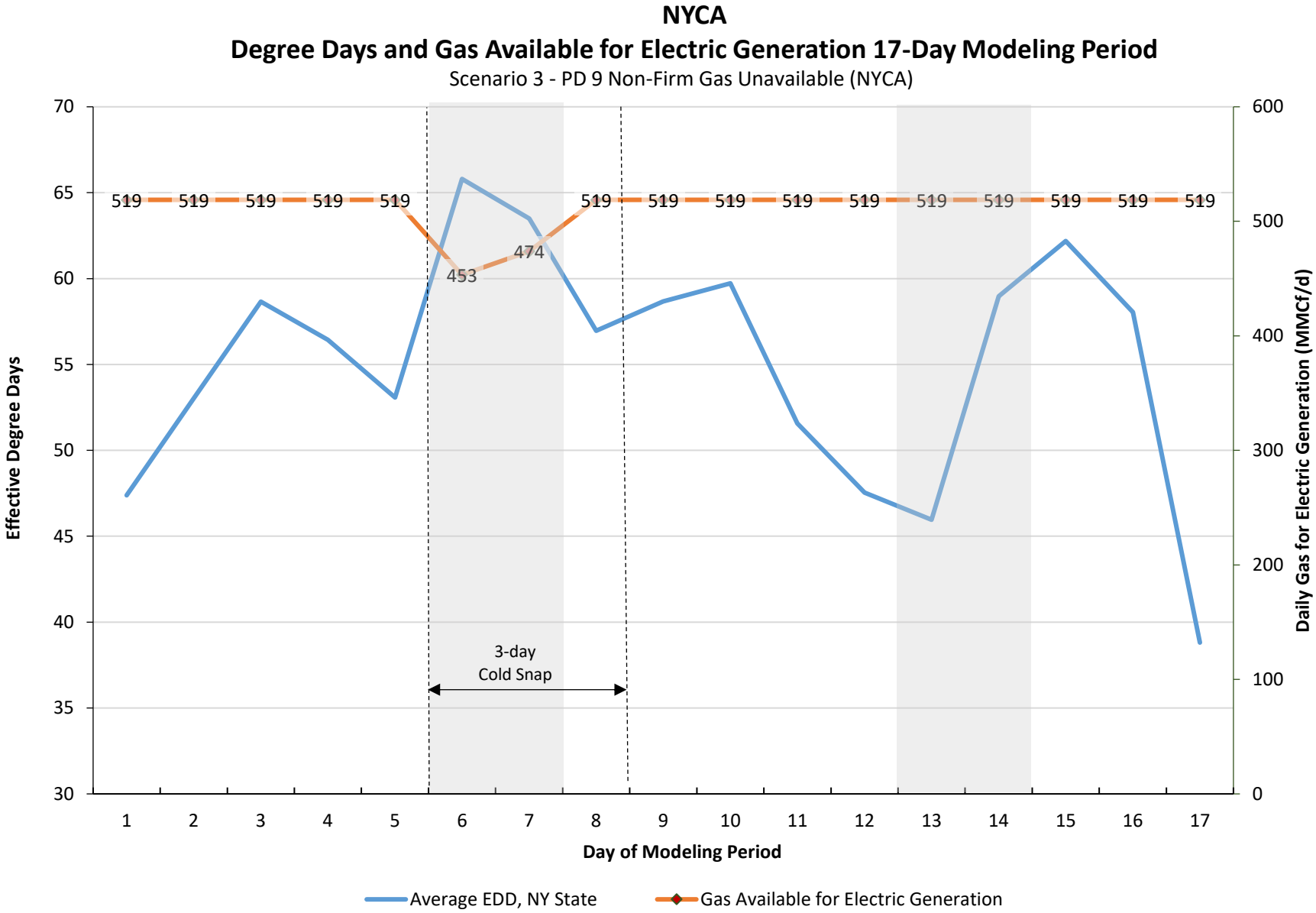


NYCA

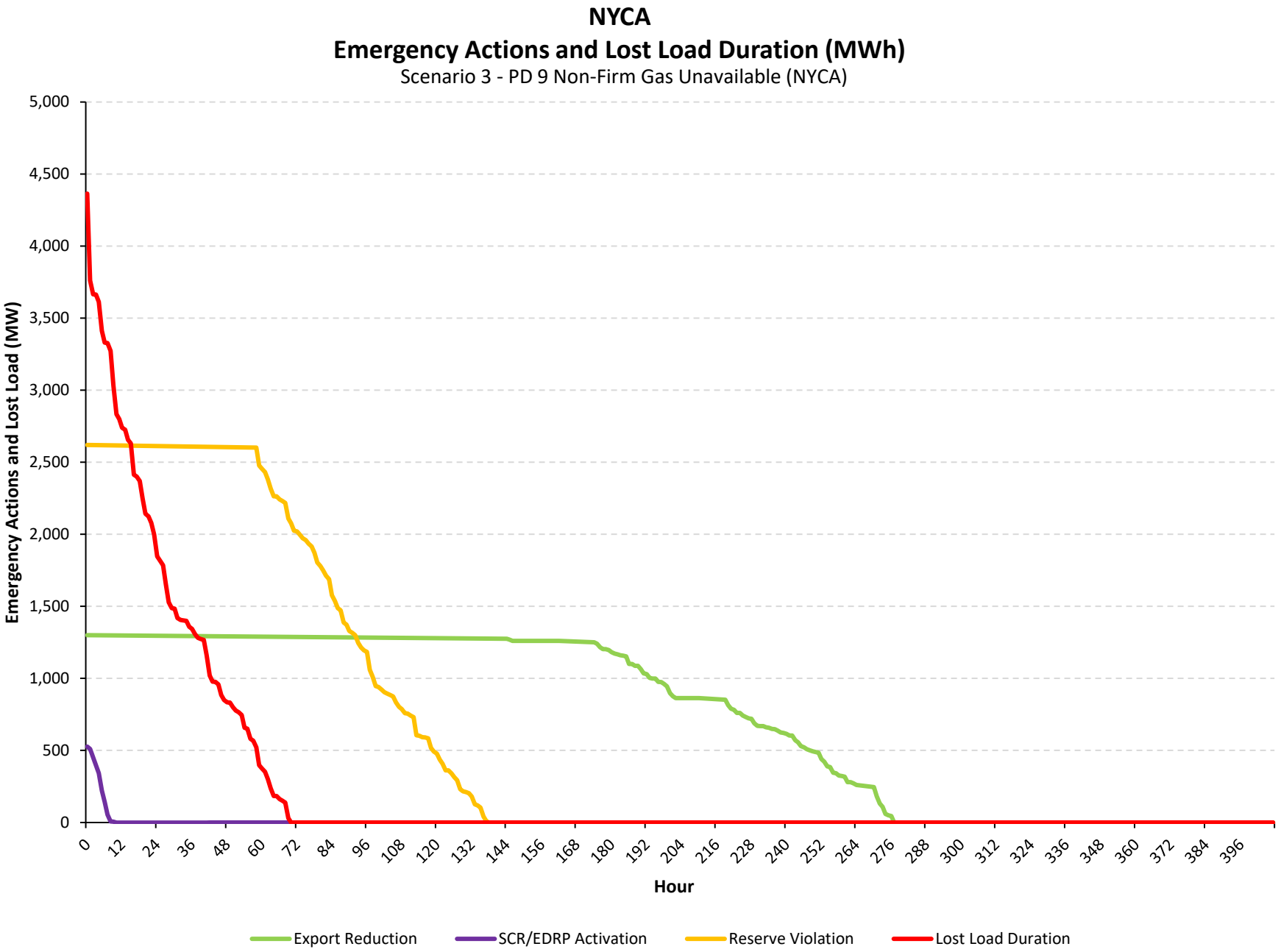
Quantity of Stored Fuel for Oil and Dual Fuel Units

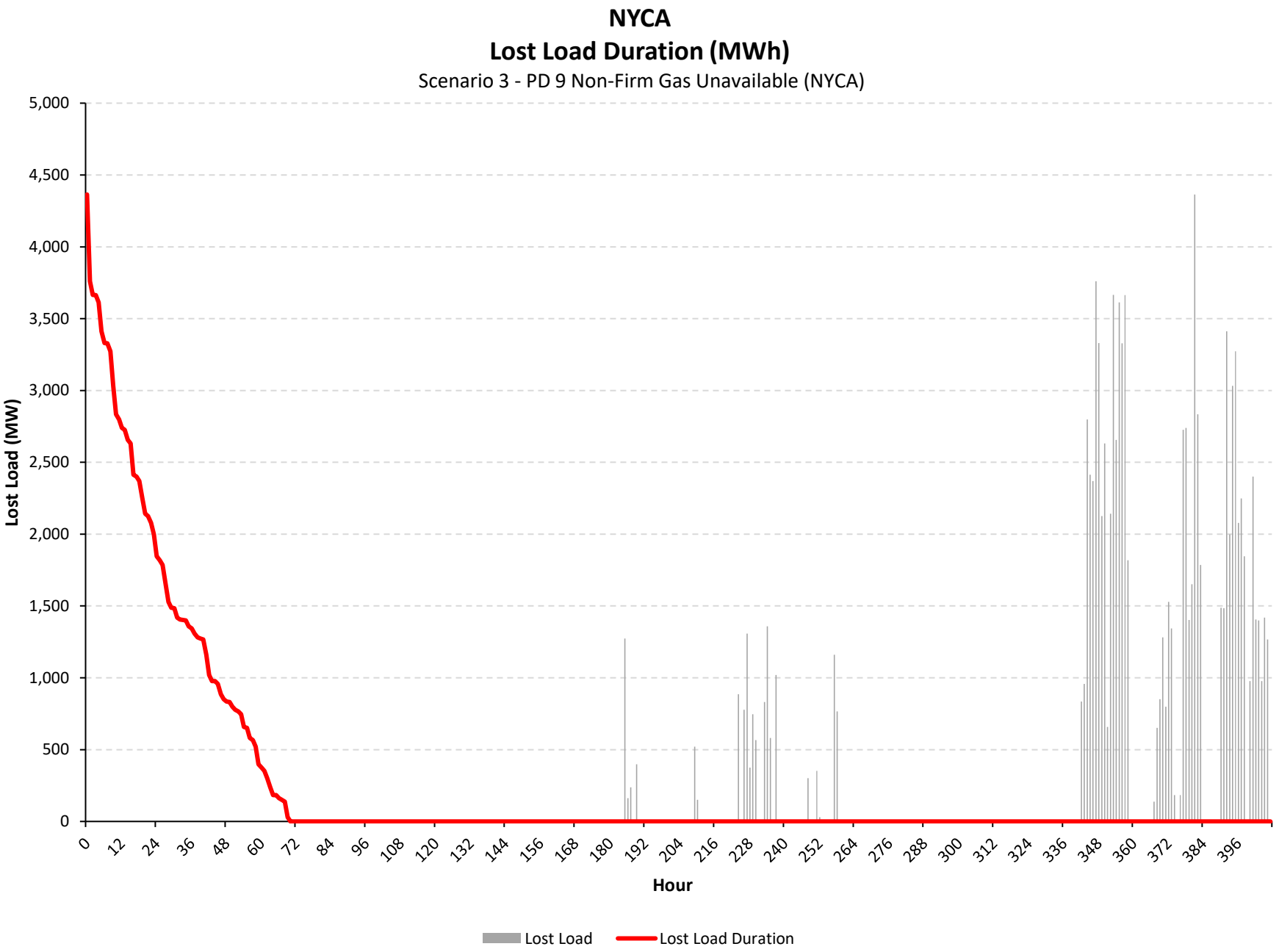
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 9 Non-Firm Gas Unavailable (NYCA)
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

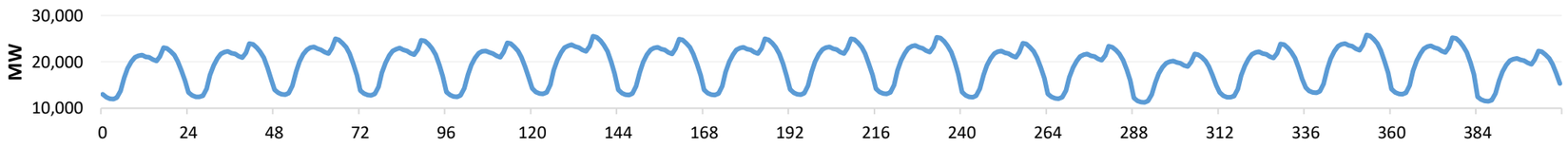
Case: Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days) (Winter 2023/2024)

Hourly Results Summary

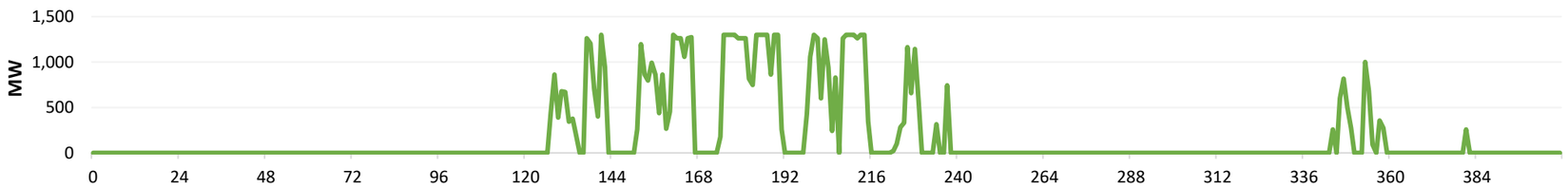
Case Name: Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Load During Modeling Period

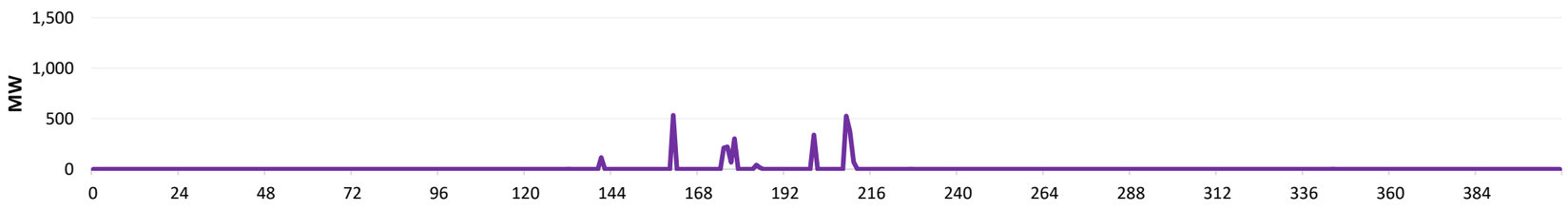


Export to ISO-NE Reduction During Modeling Period



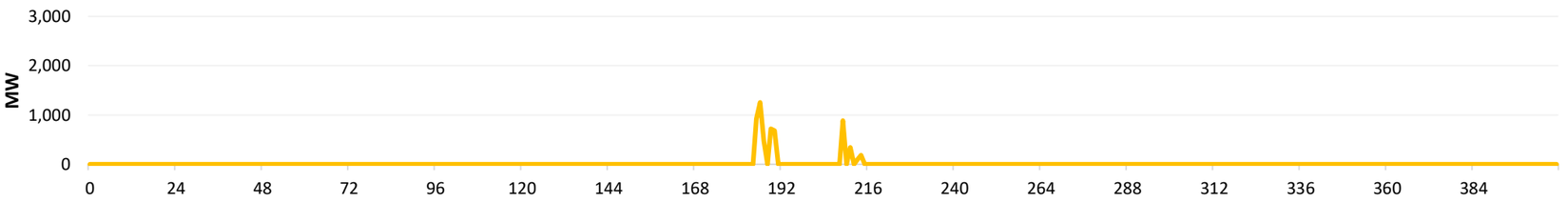
Export Reductions	
Total Hrs.	86
Total MWh	71,558
Avg. MW	175.4

SCR/EDRP Deployed During Modeling Period



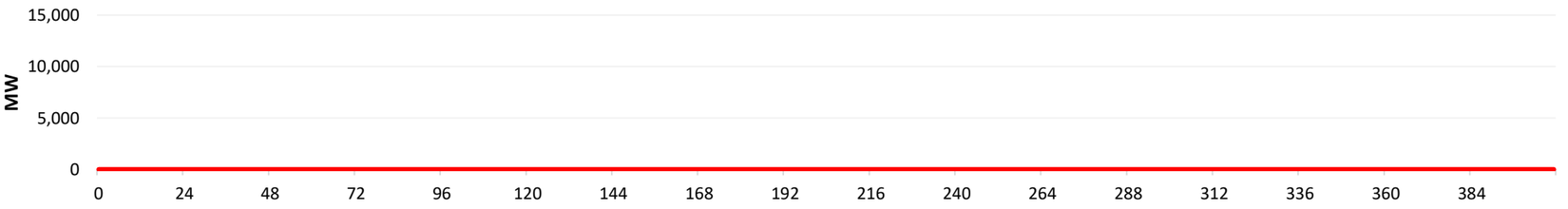
SCR Deployment	
Total Hrs.	12
Total MWh	2,822
Avg. MW	6.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	9
Total MWh	5,554
Avg. MW	13.6
First Hour with Viol.	185

Loss of Load During Modeling Period

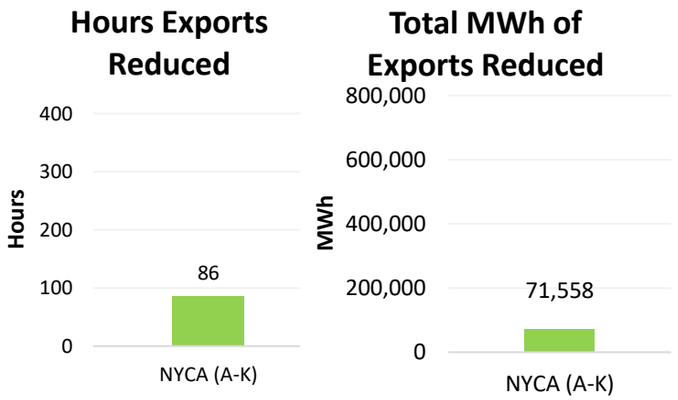


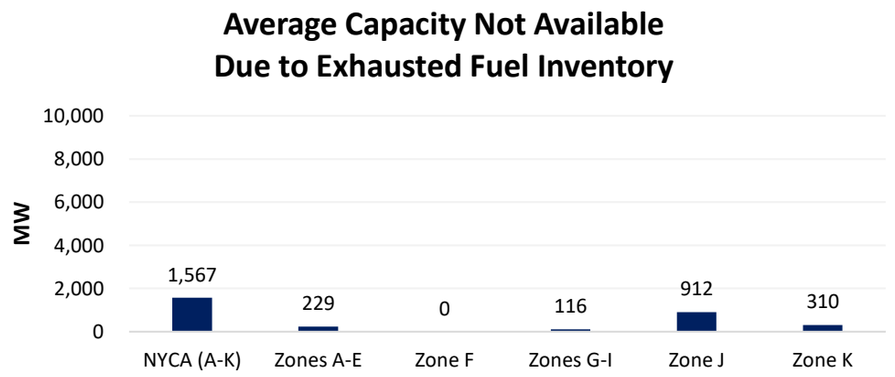
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

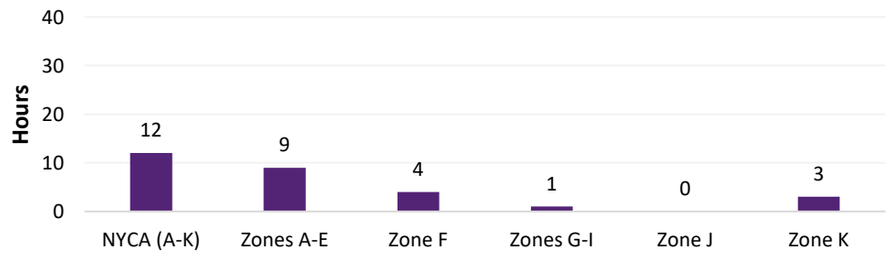
Full Period Results Summary

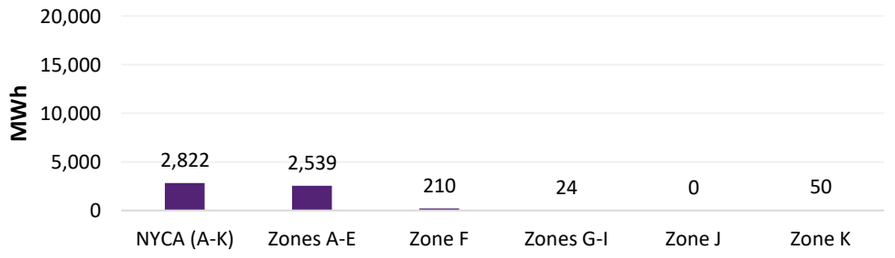
Case Name: Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)

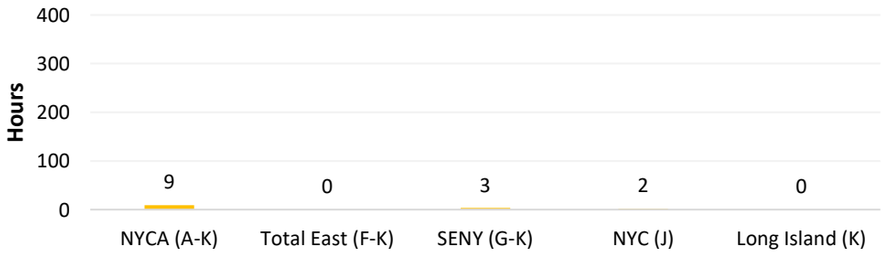
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

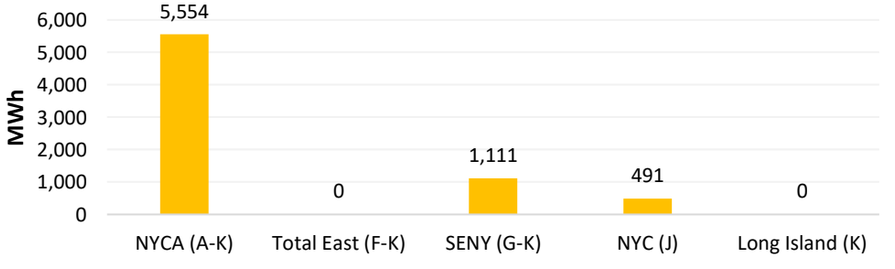


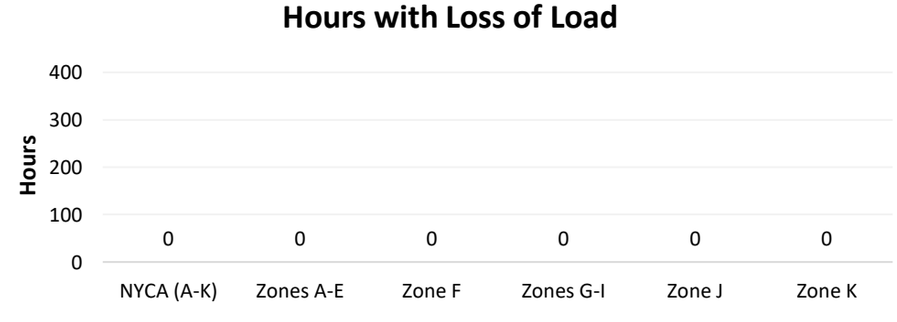


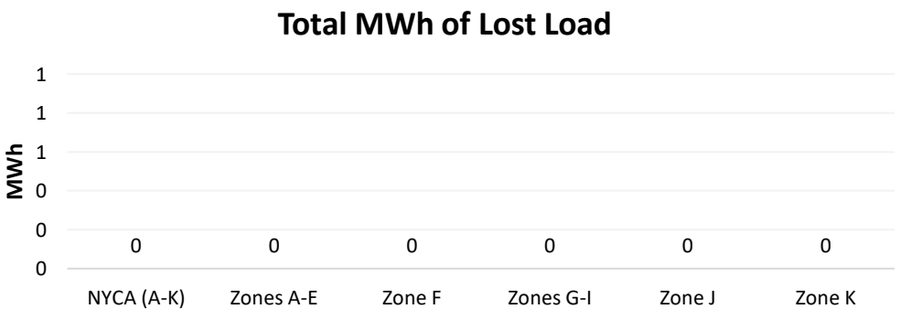


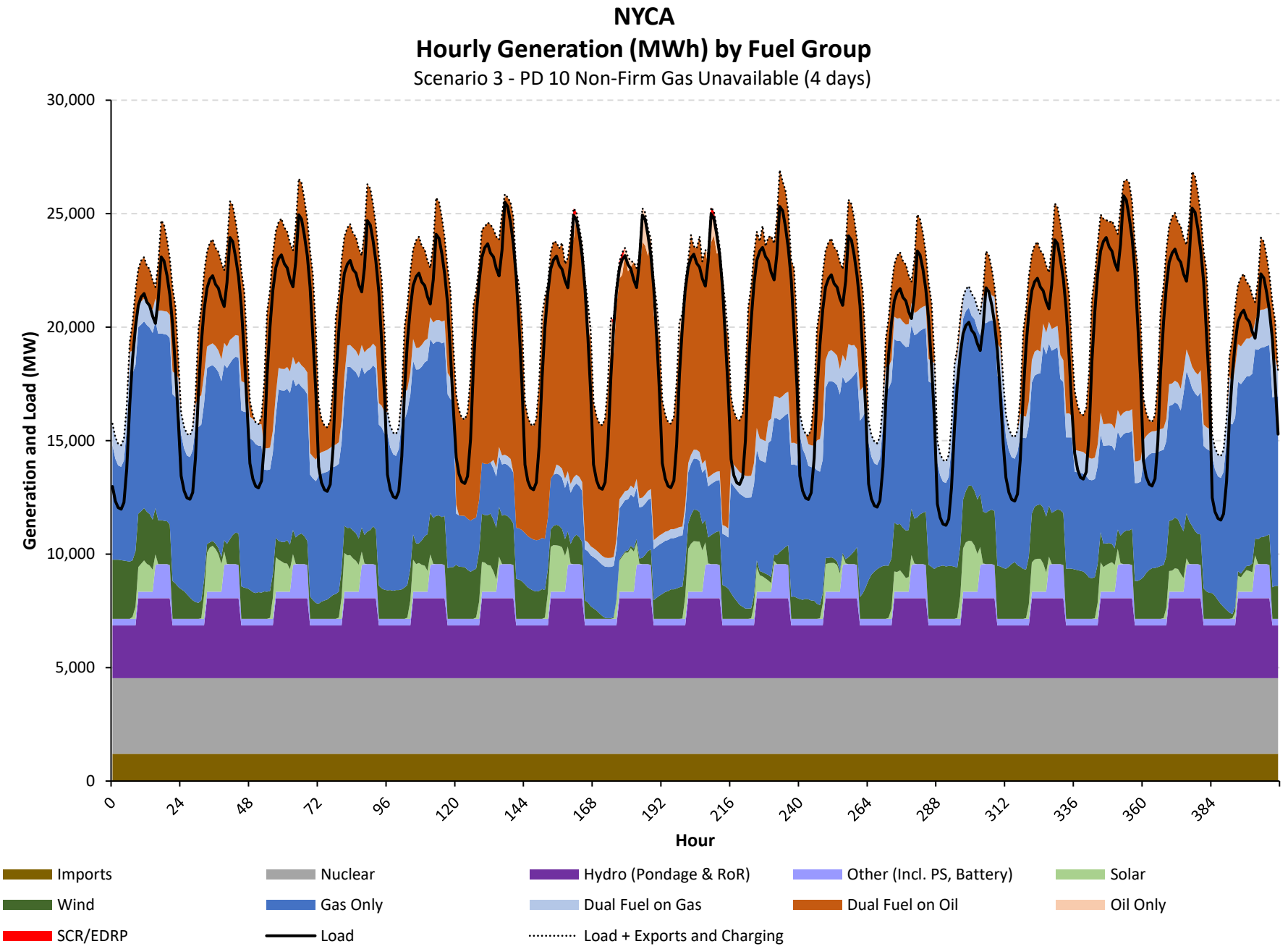




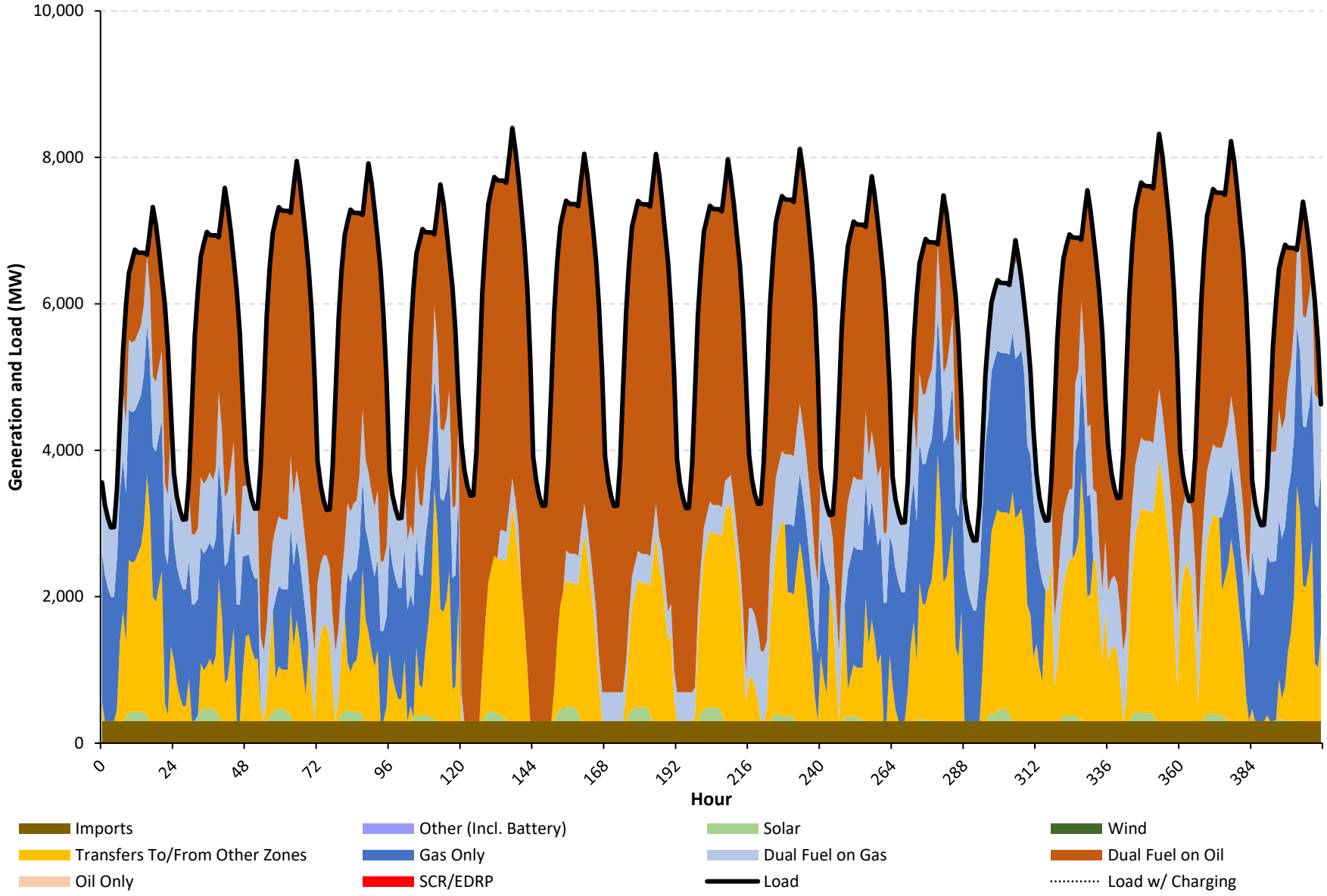




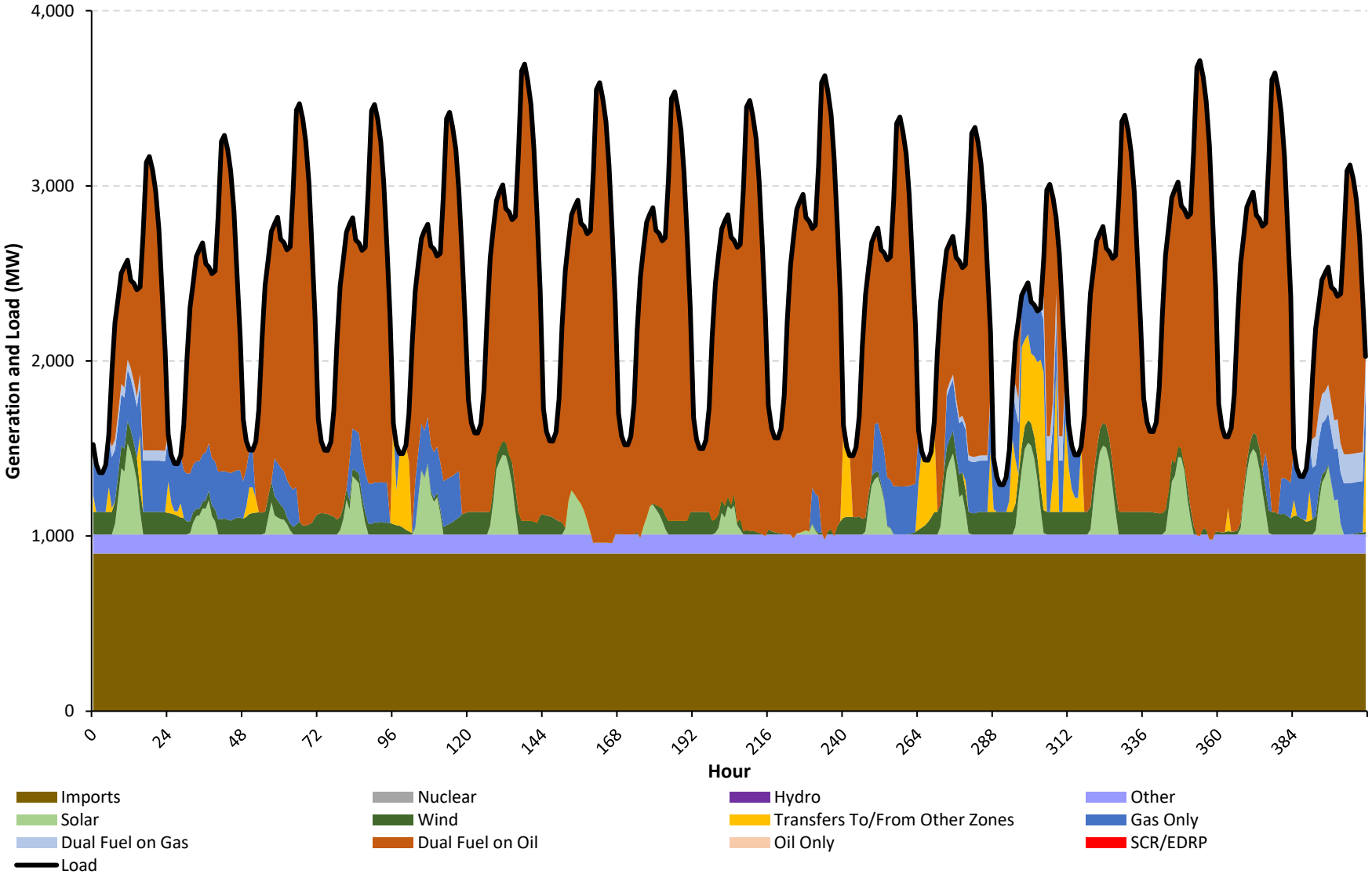



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)



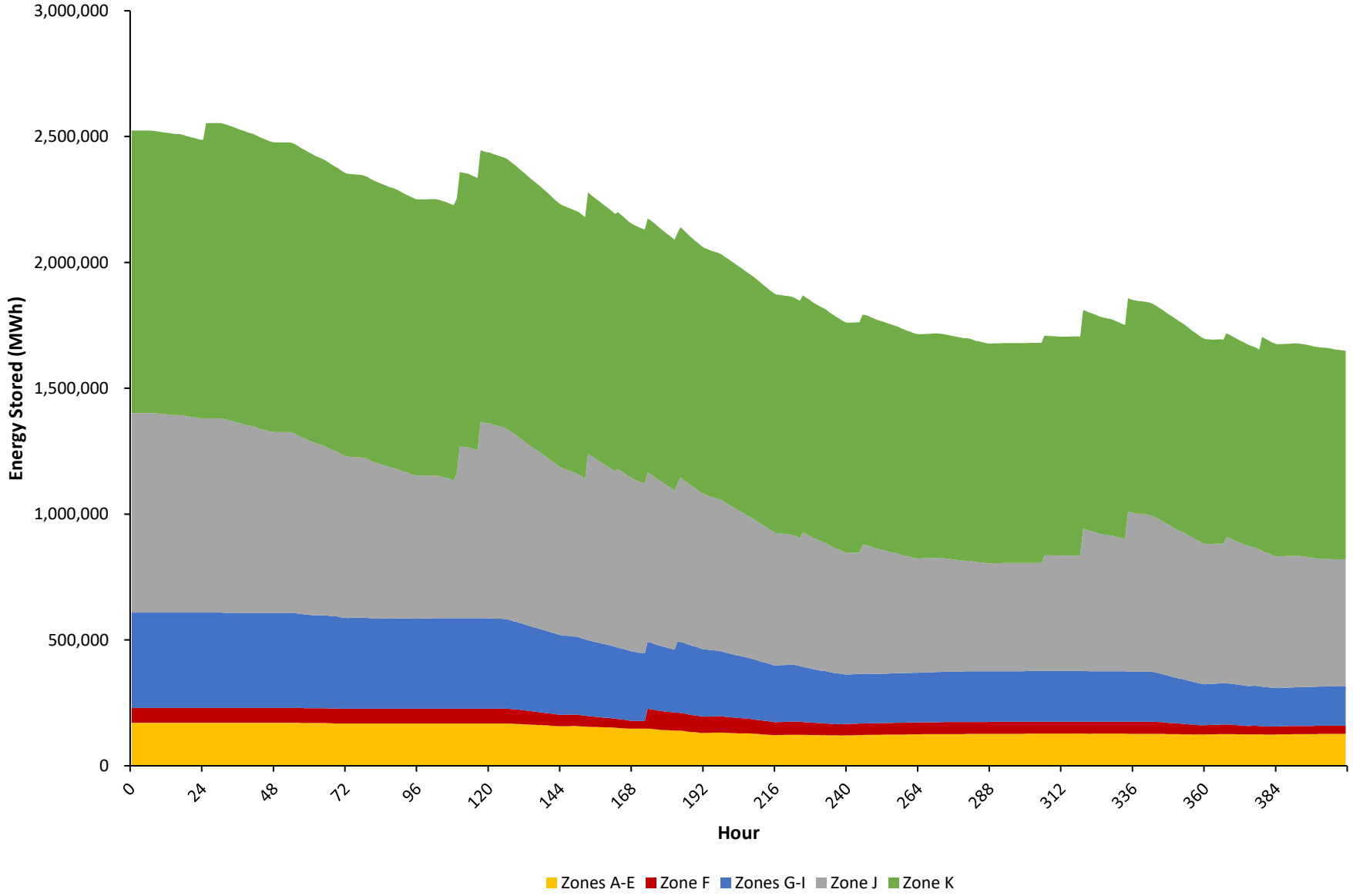
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)



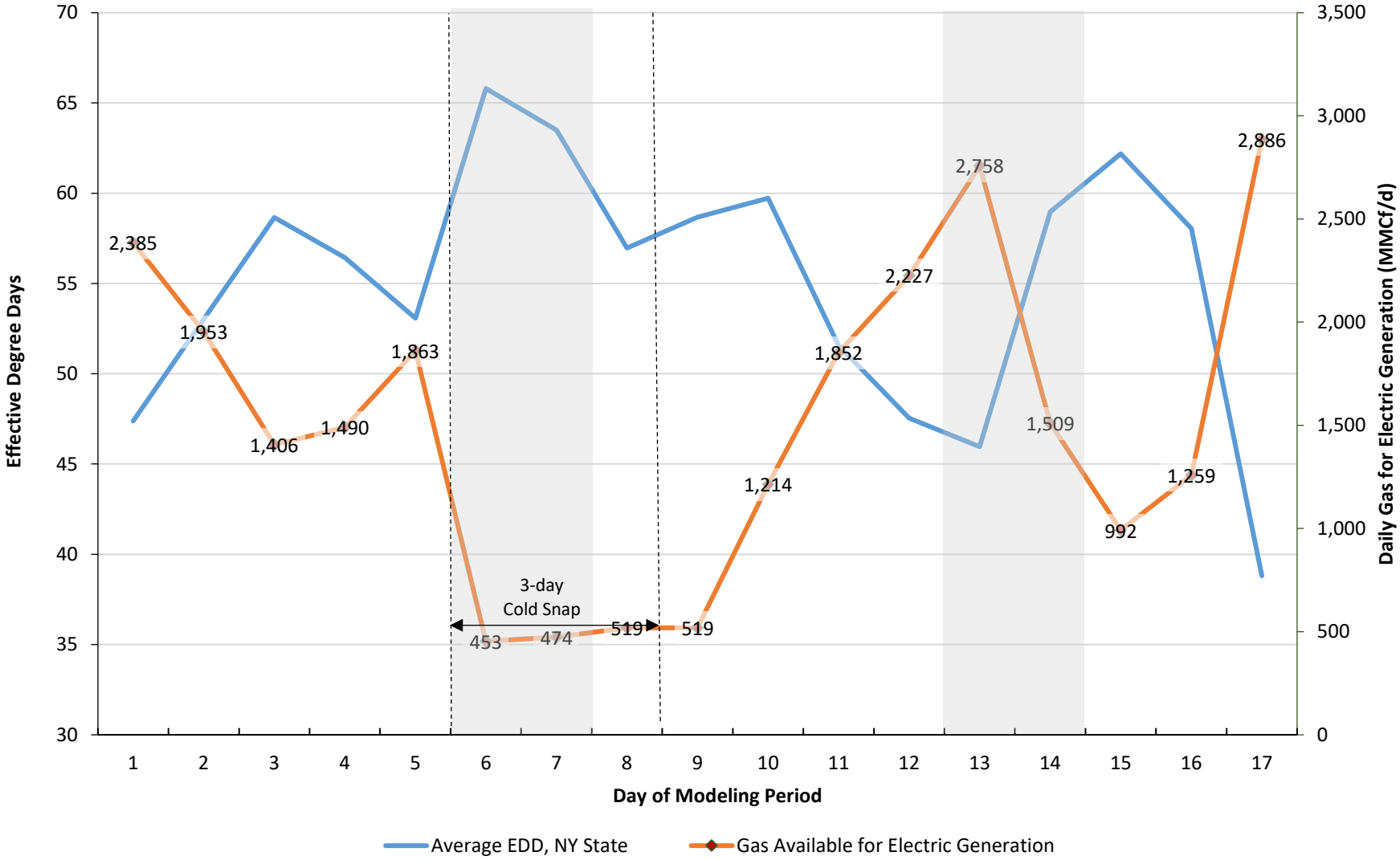
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

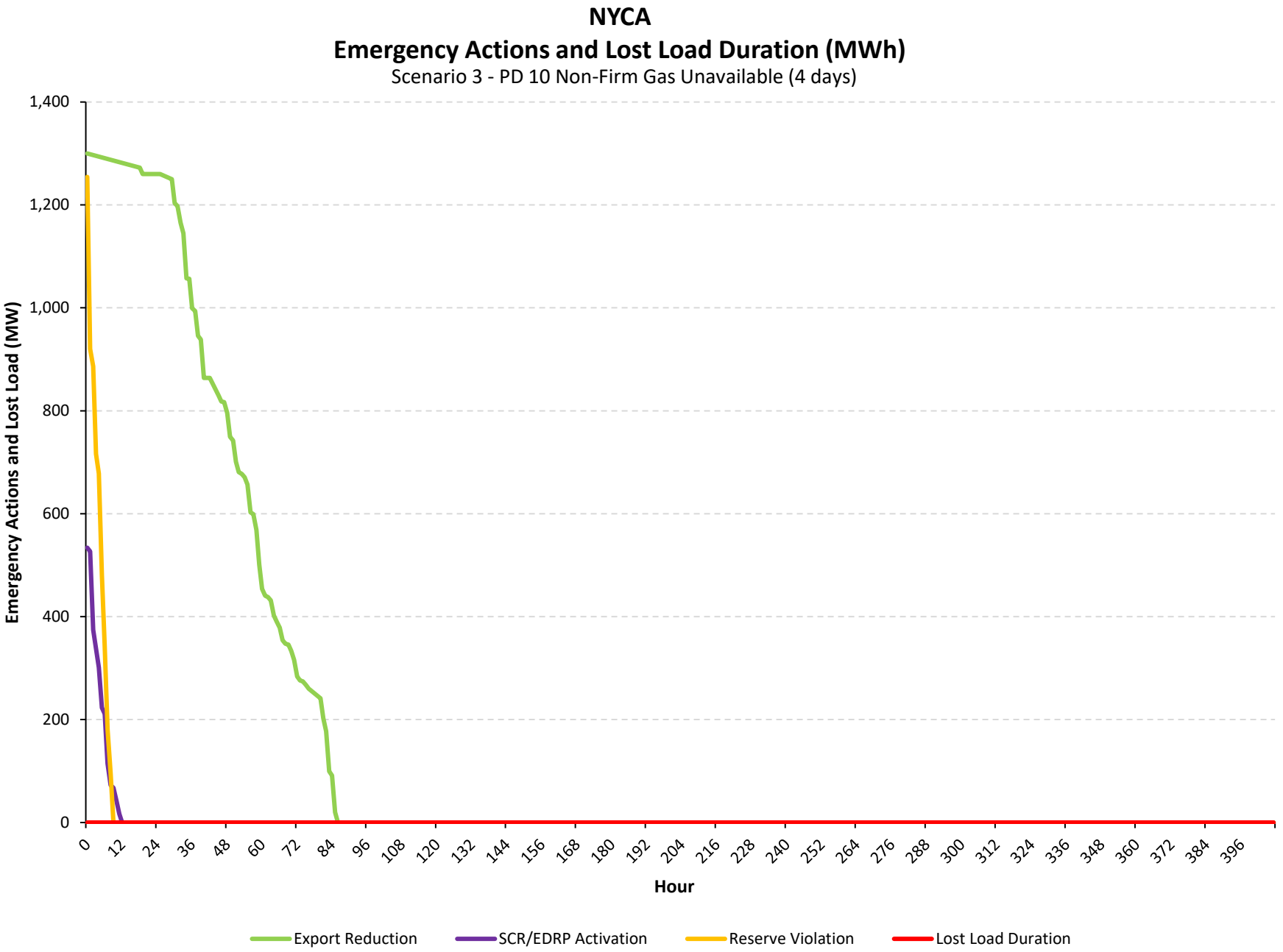
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)

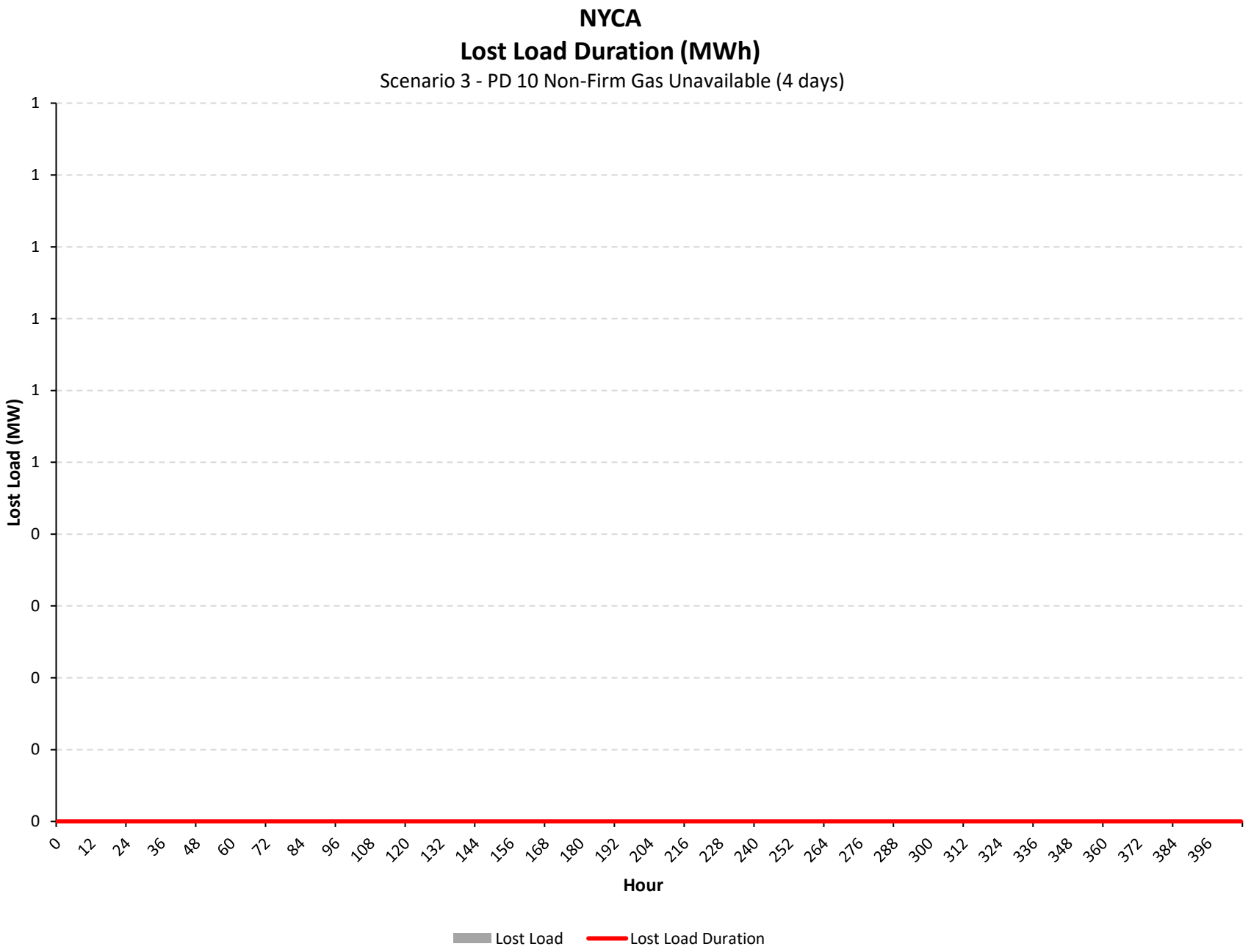


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 10 Non-Firm Gas Unavailable (4 days)
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

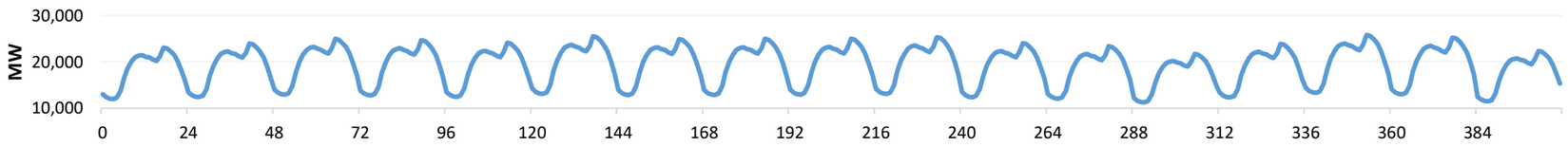
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 3 - PD 11 Combination Disruption (Winter 2023/2024)

Hourly Results Summary

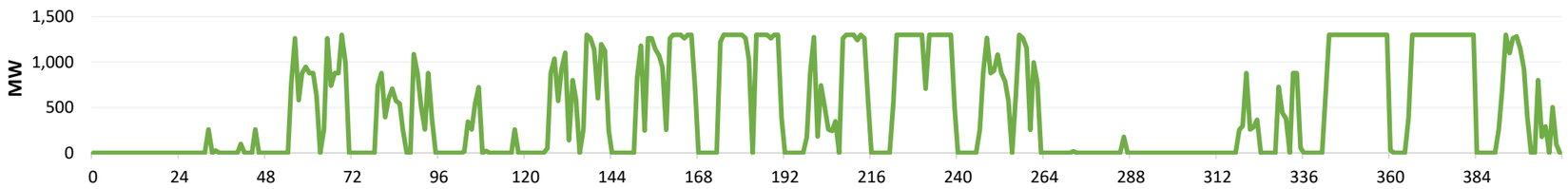
Case Name: Scenario 3 - PD 11 Combination Disruption

Load During Modeling Period



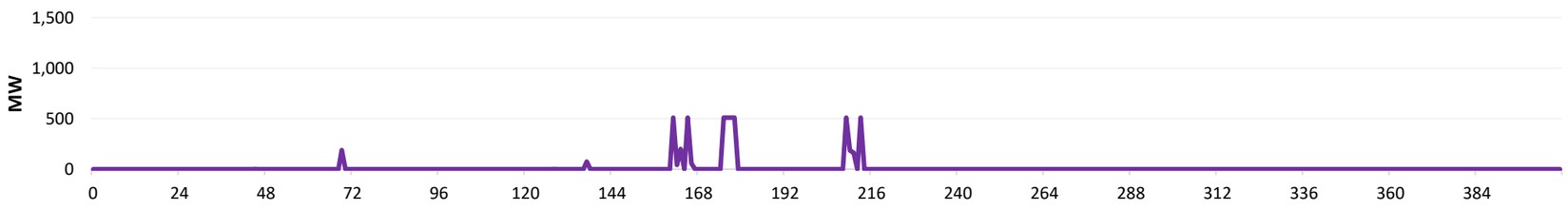
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

Export to ISO-NE Reduction During Modeling Period



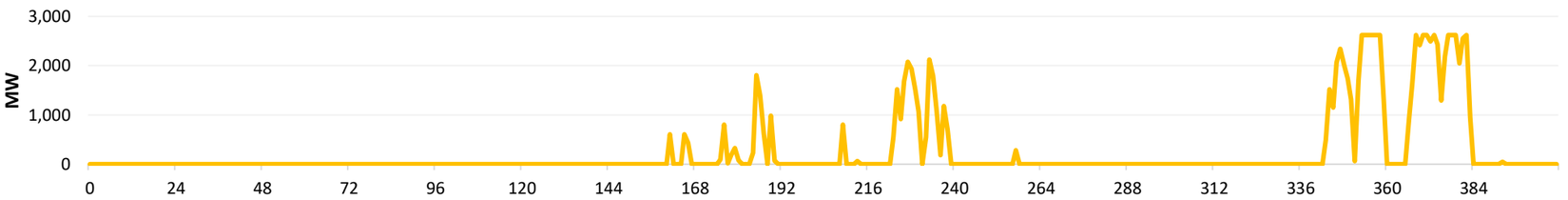
Export Reductions	
Total Hrs.	208
Total MWh	188,425
Avg. MW	461.8

SCR/EDRP Deployed During Modeling Period



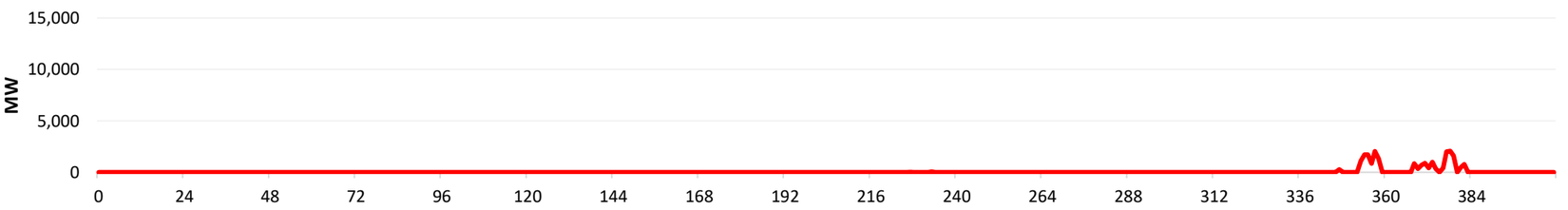
SCR Deployment	
Total Hrs.	15
Total MWh	4,992
Avg. MW	12.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	69
Total MWh	99,588
Avg. MW	244.1
First Hour with Viol.	161

Loss of Load During Modeling Period

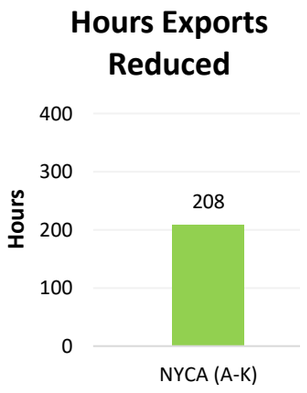


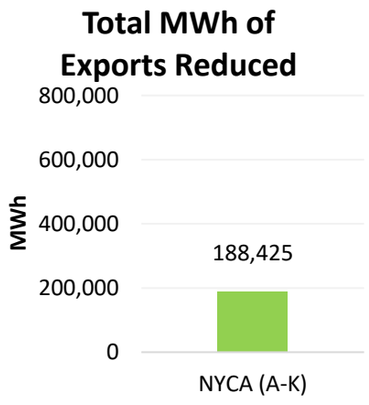
Loss of Load	
Total Hrs.	22
Total MWh	20,889
Avg. MW	51.2
First Hour with Losses	227

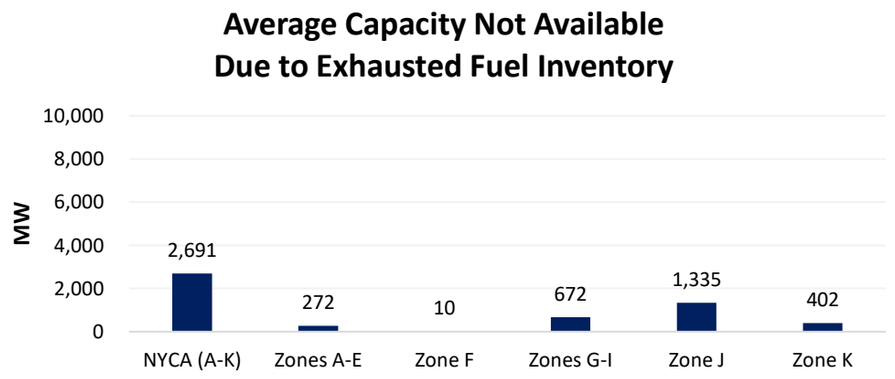
Full Period Results Summary

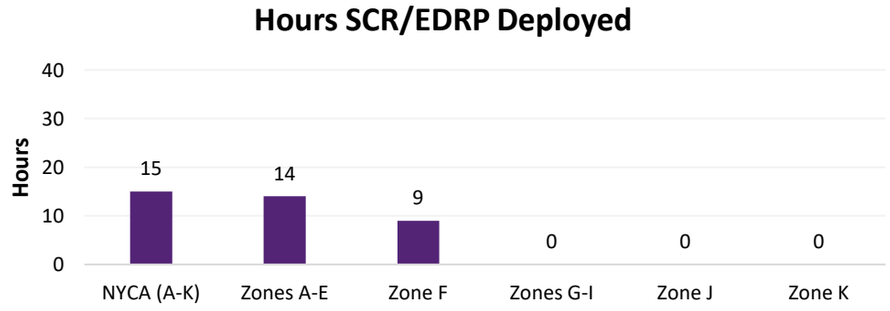
Case Name: Scenario 3 - PD 11 Combination Disruption

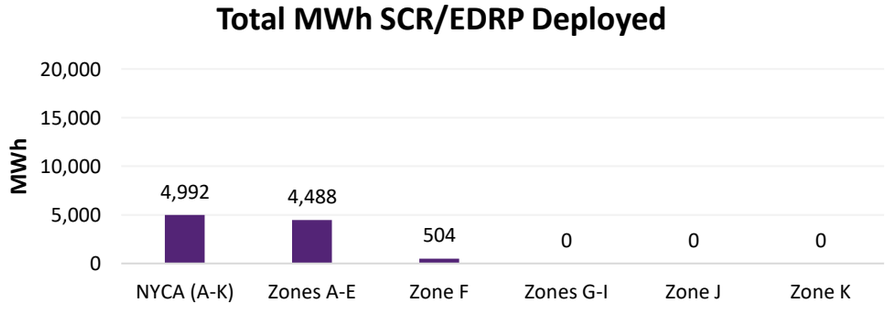
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	All

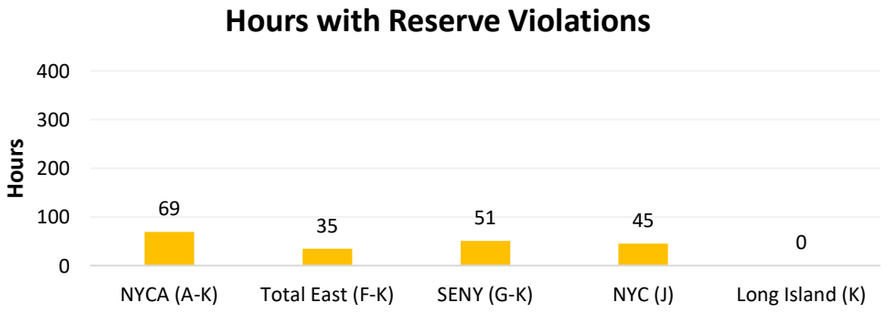


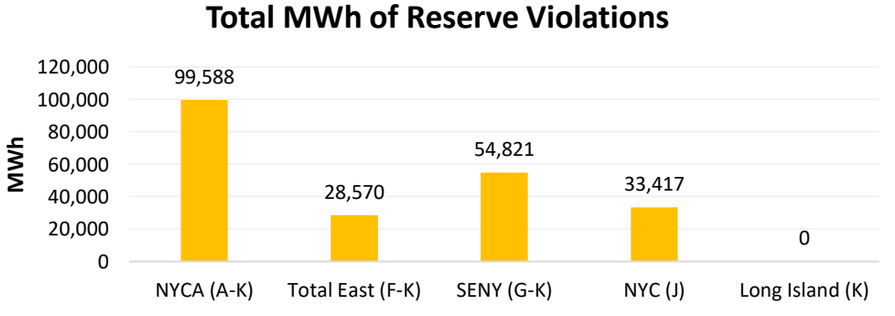


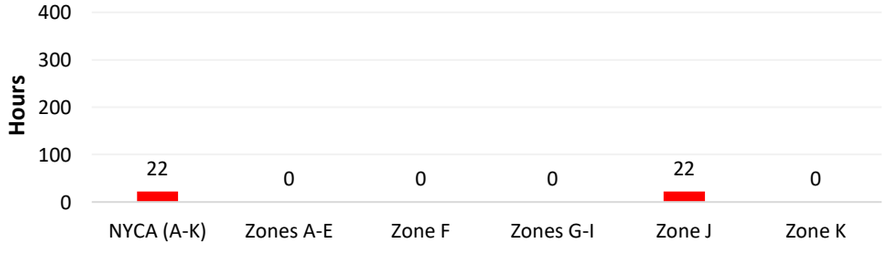


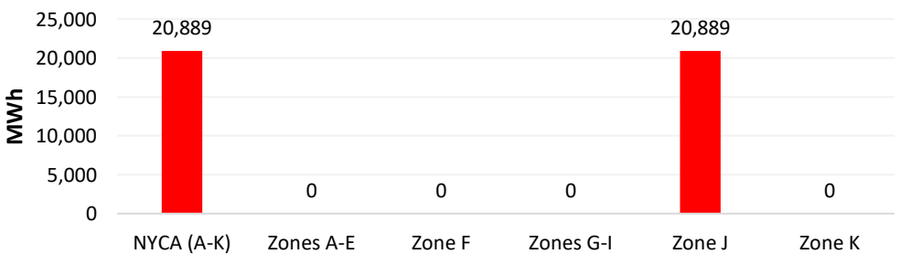


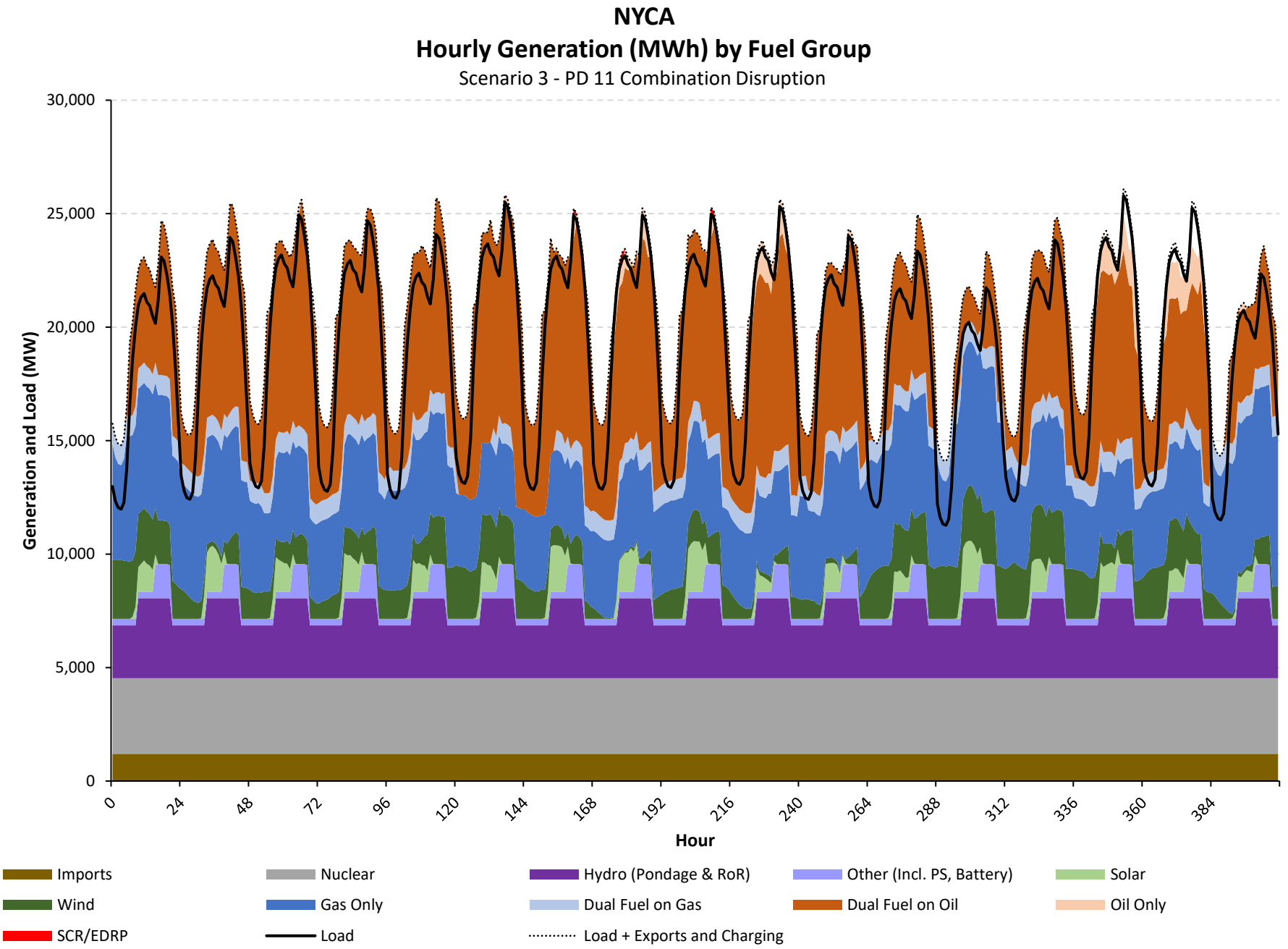




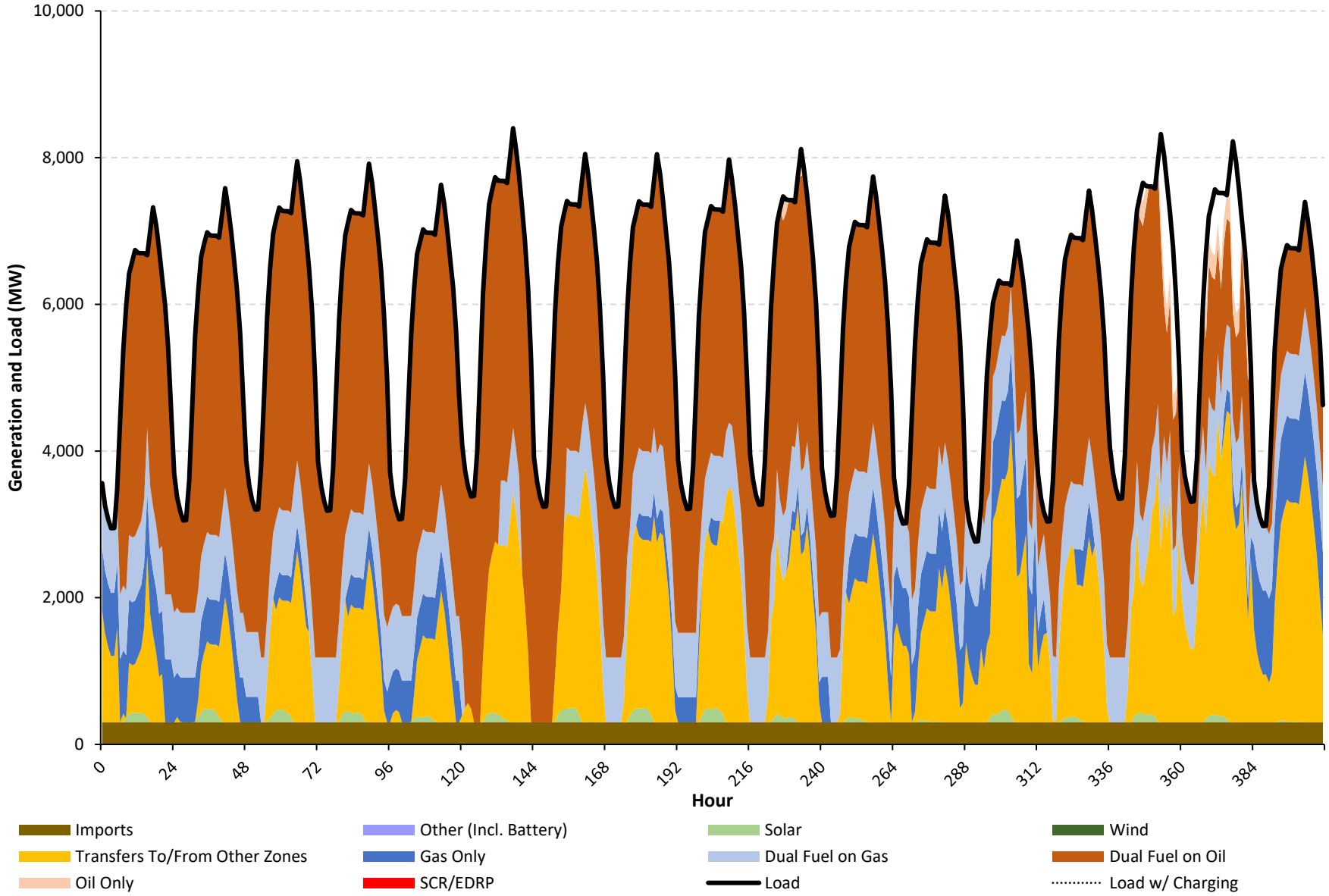




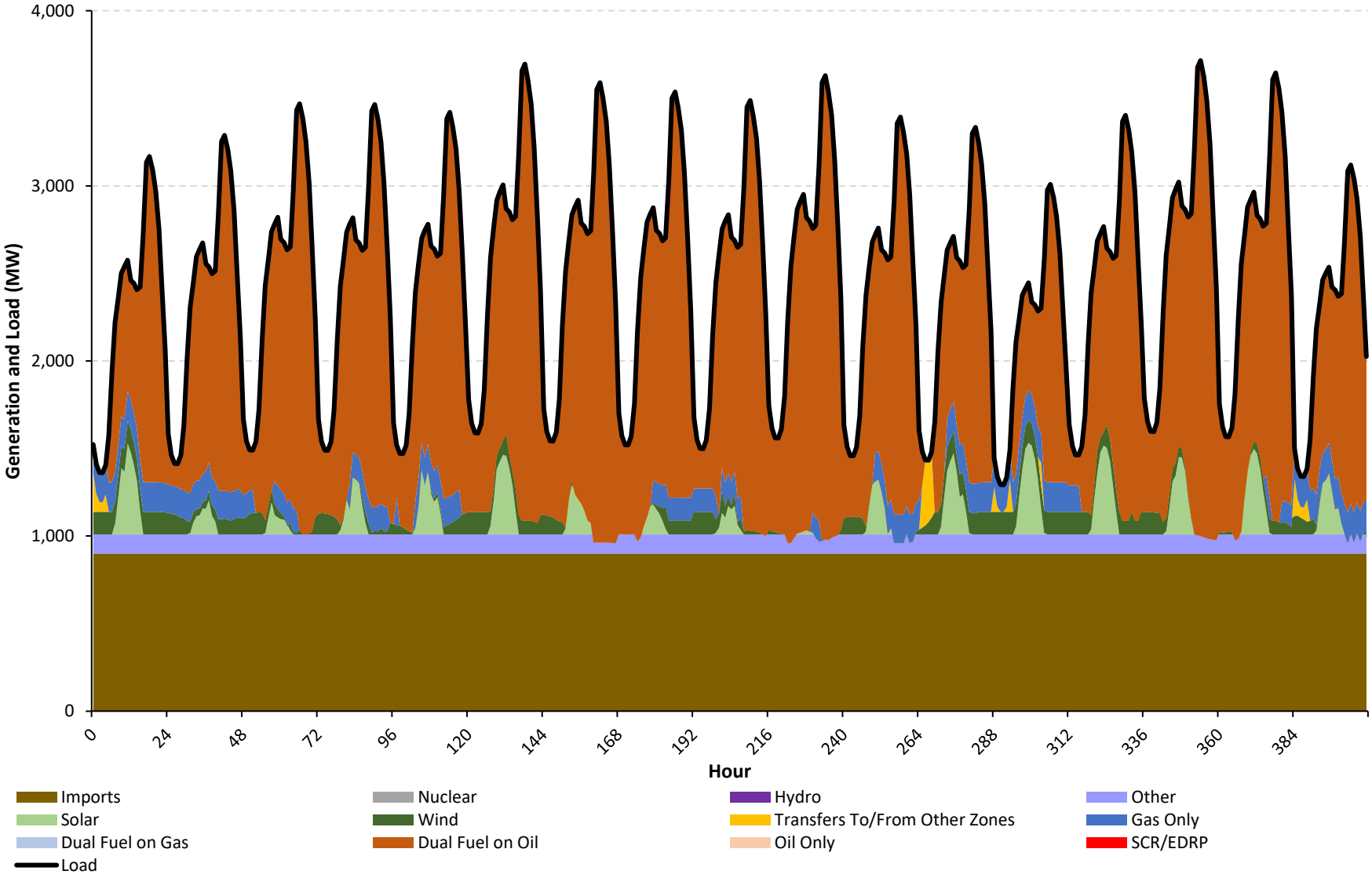



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 3 - PD 11 Combination Disruption
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 11 Combination Disruption



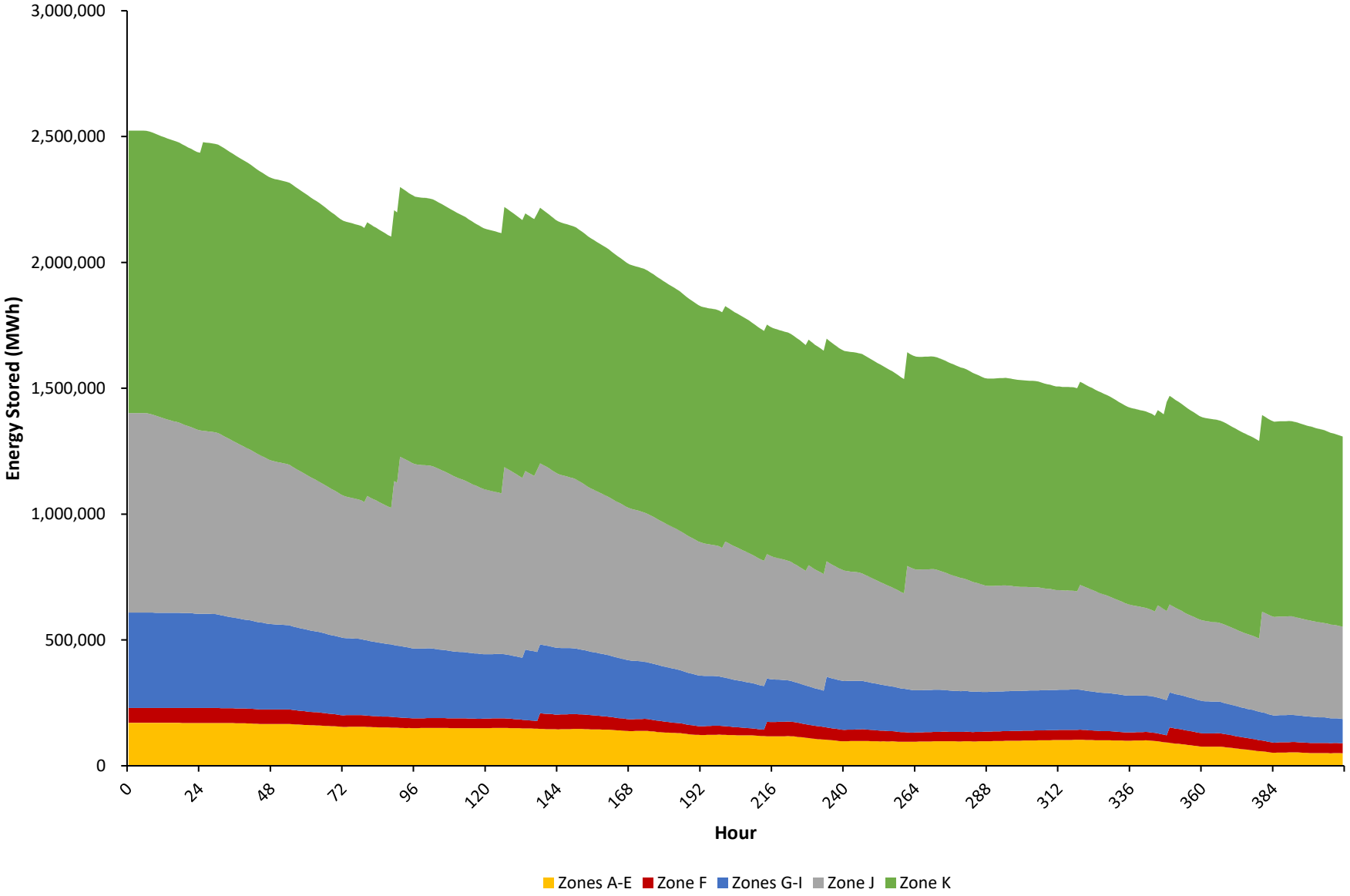
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 3 - PD 11 Combination Disruption

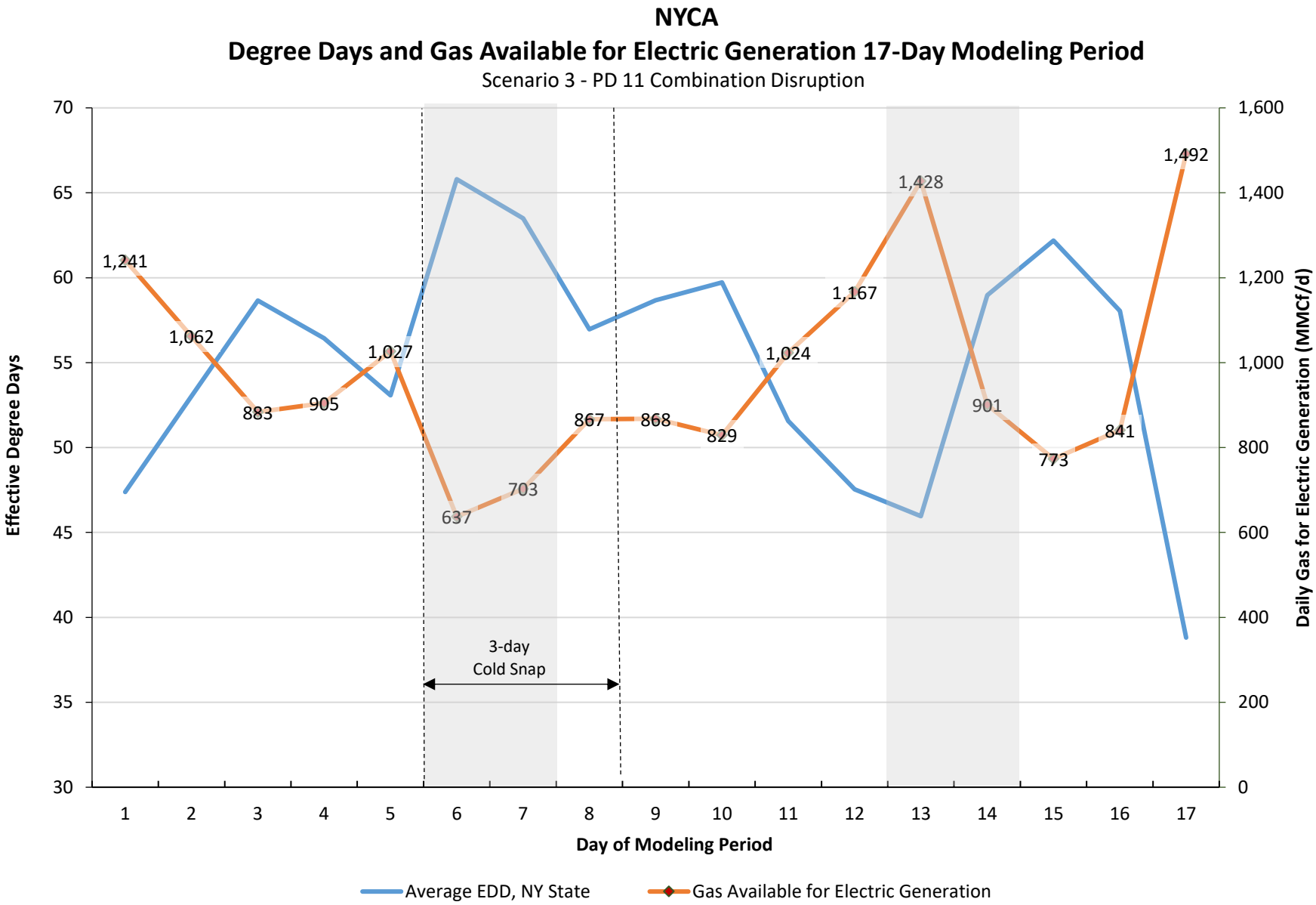


NYCA

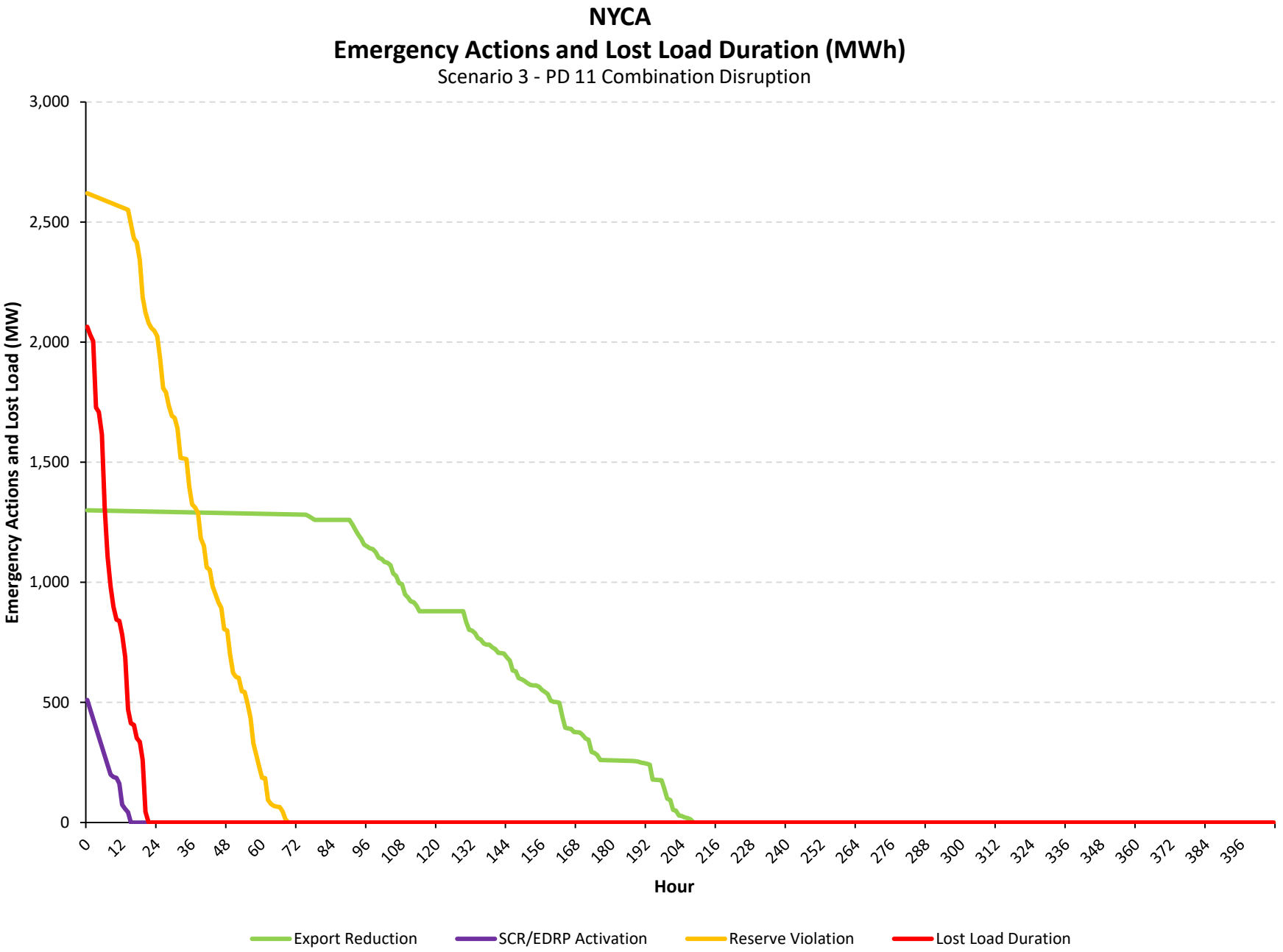
Quantity of Stored Fuel for Oil and Dual Fuel Units

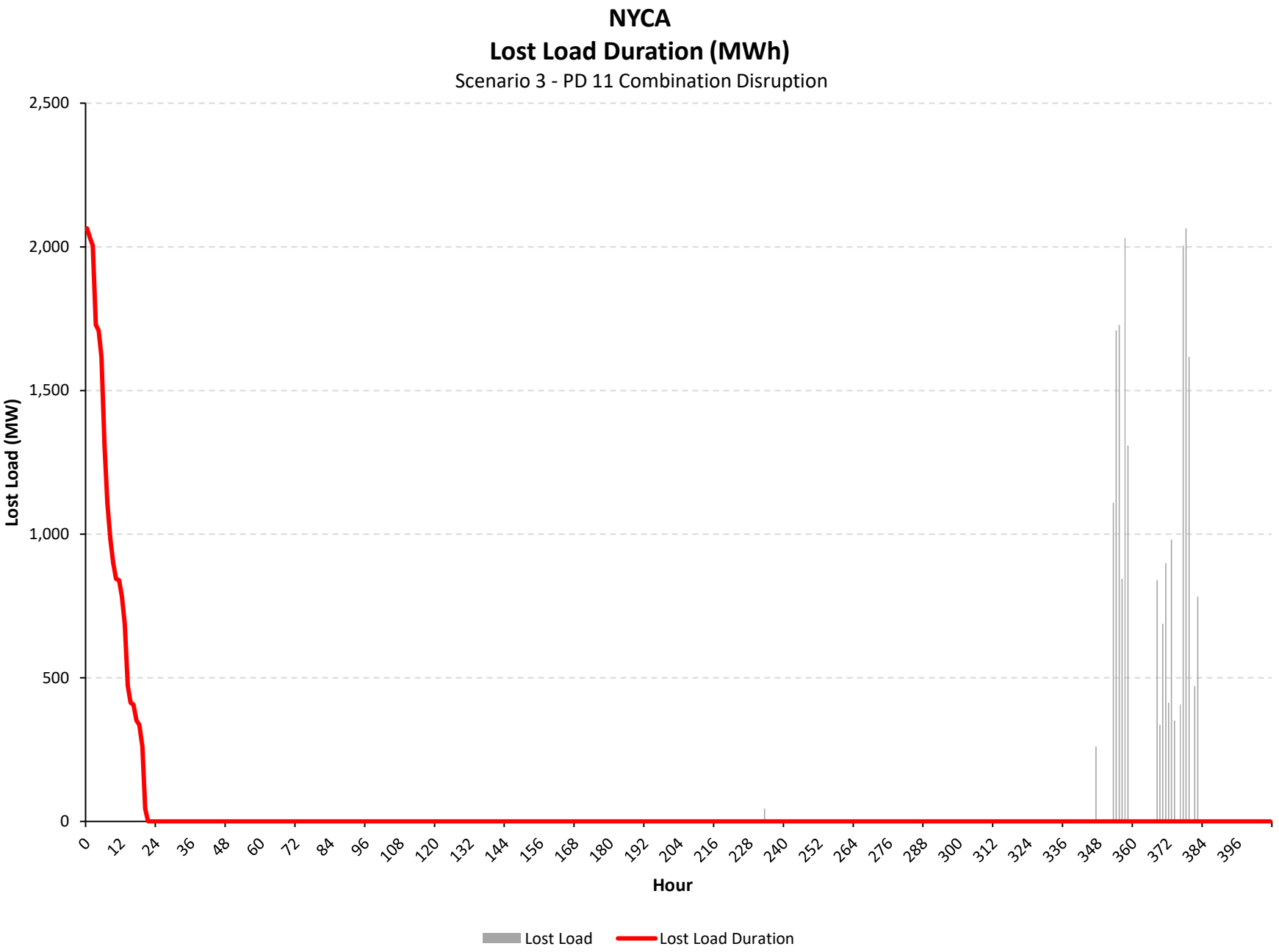
Scenario 3 - PD 11 Combination Disruption





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 3 - PD 11 Combination Disruption
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 3 - PD 11 Combination Disruption
2,500
2,000
1,500
1,000
500
0
Lost Load (MW)
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

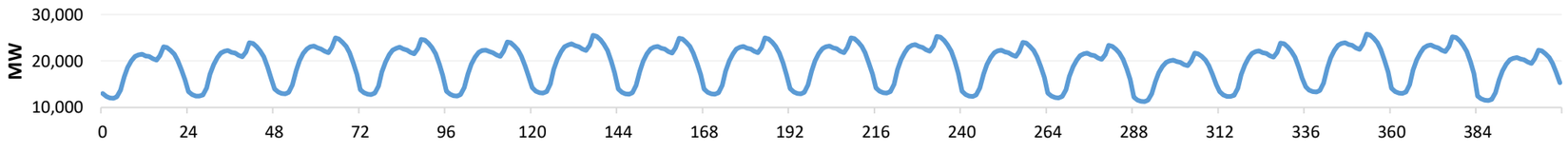
Case: Scenario 4 - PD 1 No Disruptions (Winter 2023/2024)

Hourly Results Summary

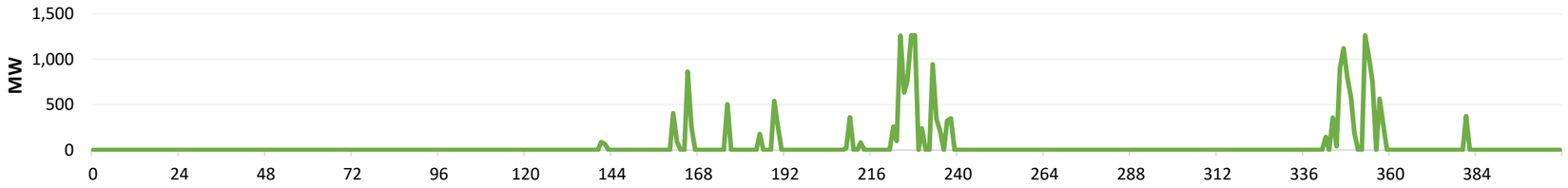
Case Name: Scenario 4 - PD 1 No Disruptions

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

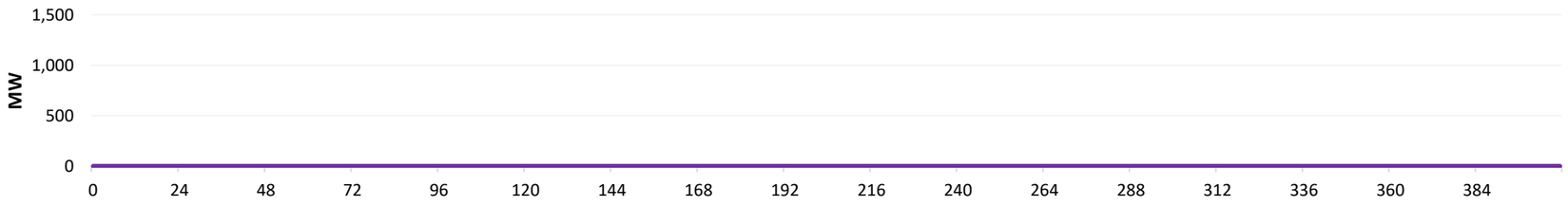


Export to ISO-NE Reduction During Modeling Period



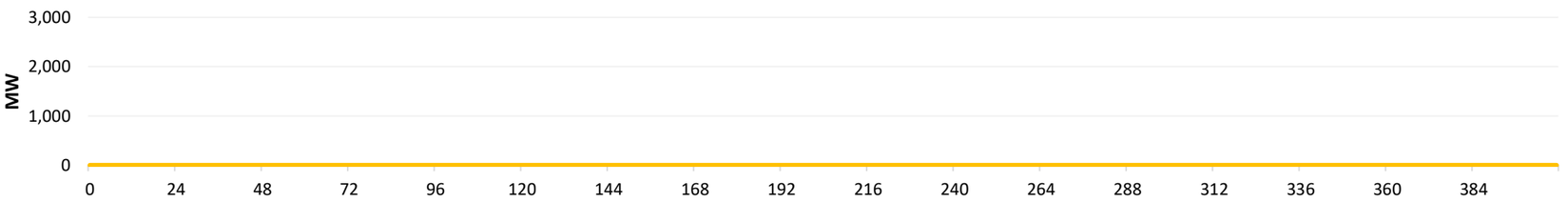
Export Reductions	
Total Hrs.	40
Total MWh	20,020
Avg. MW	49.1

SCR/EDRP Deployed During Modeling Period



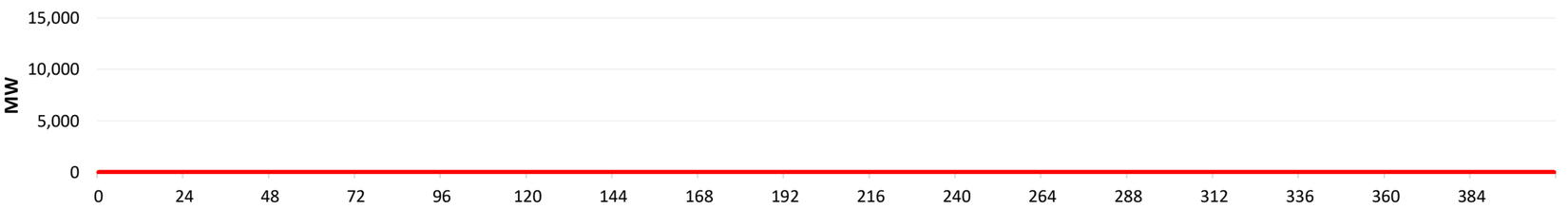
SCR Deployment	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period



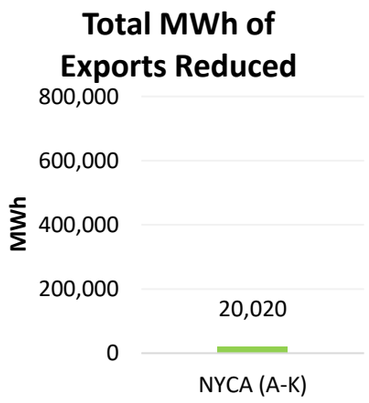
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

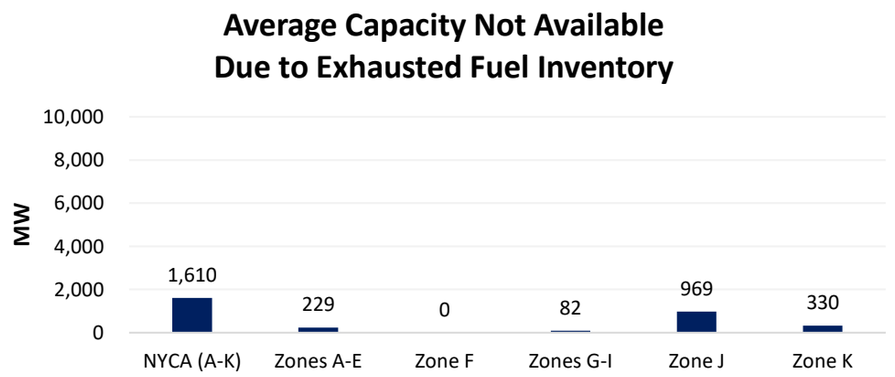
Full Period Results Summary

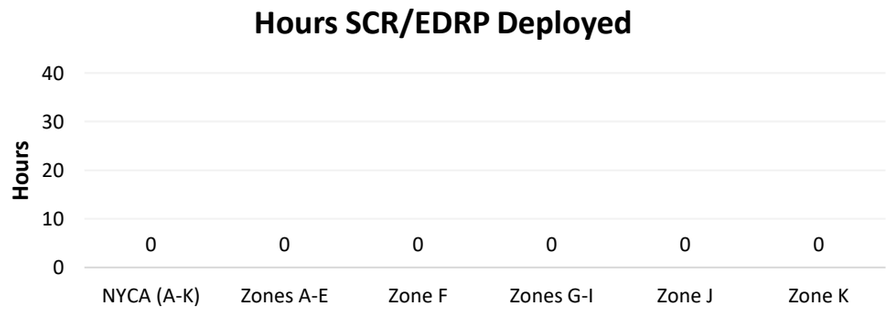
Case Name: Scenario 4 - PD 1 No Disruptions

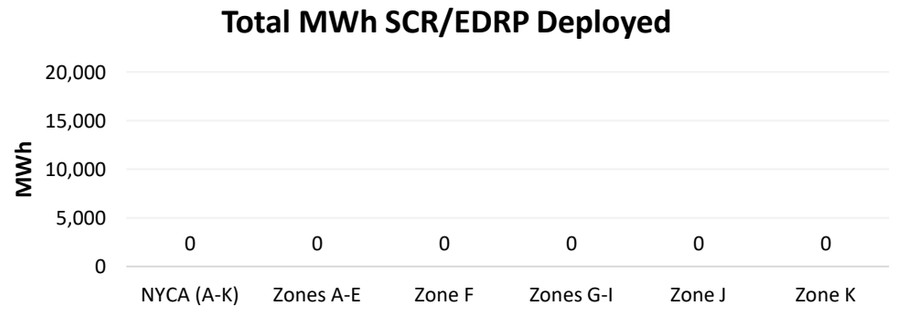
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

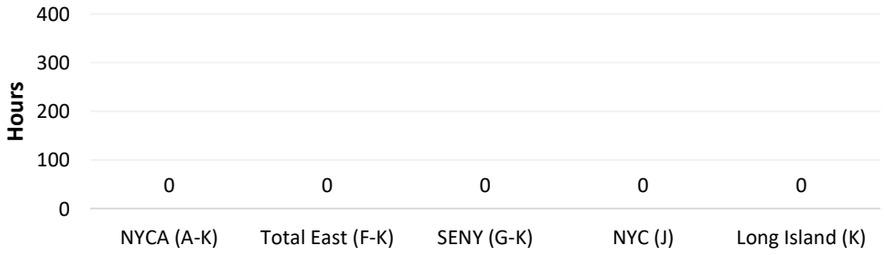


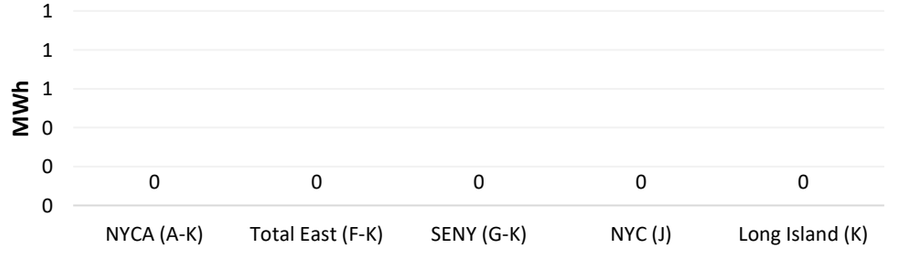


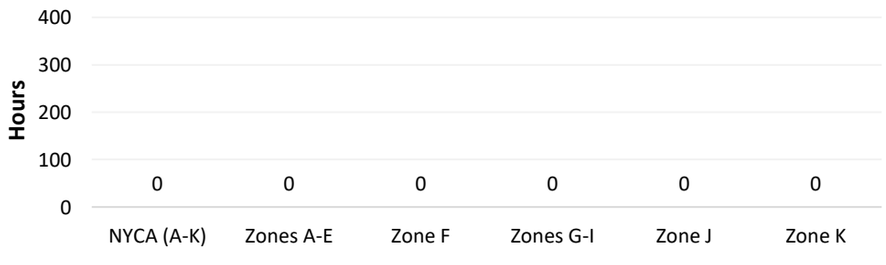


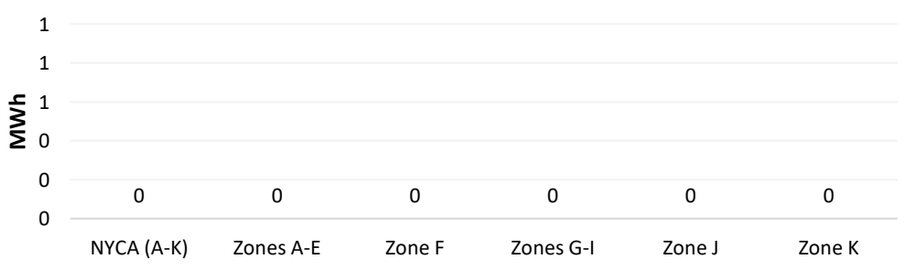


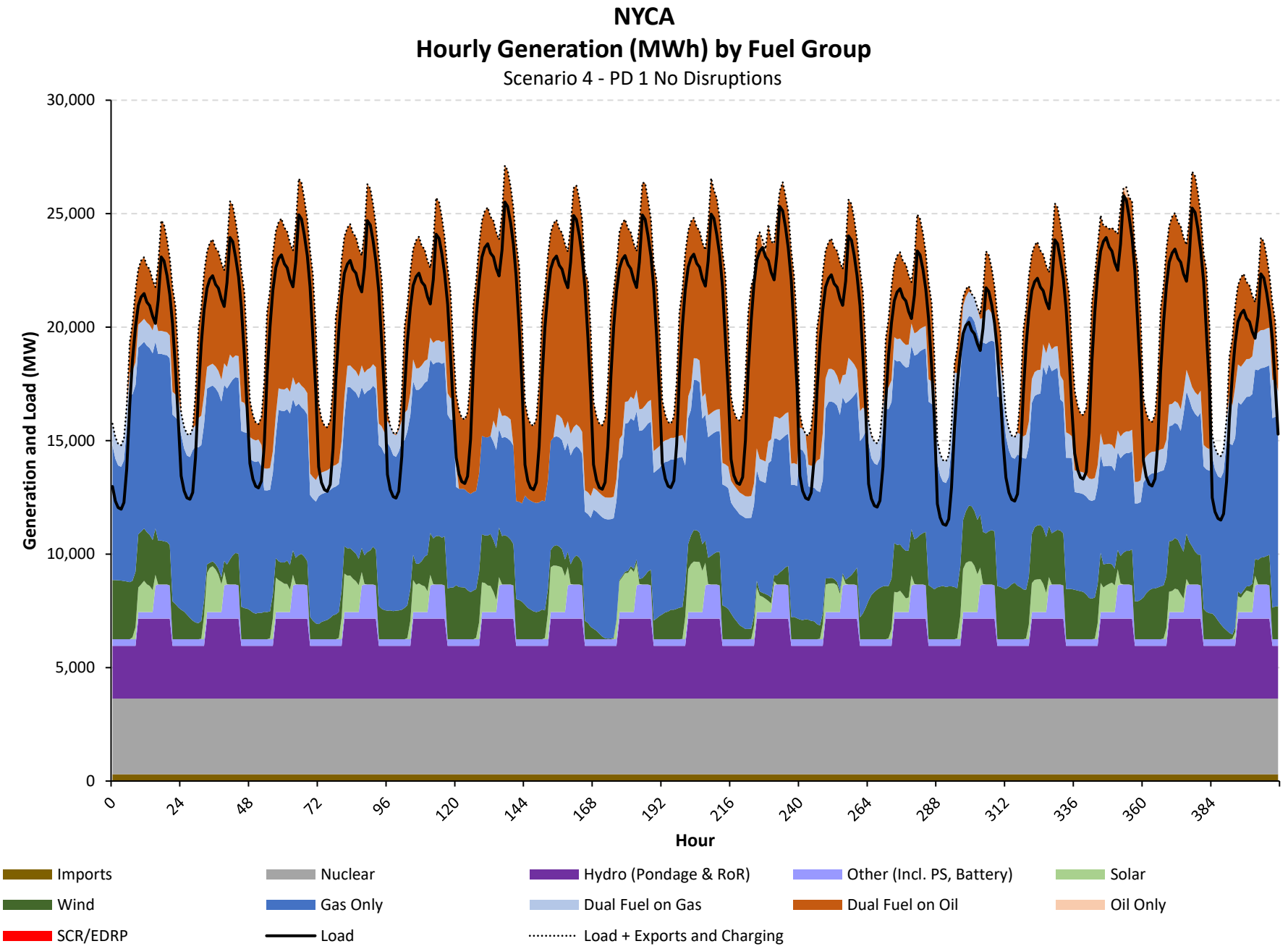




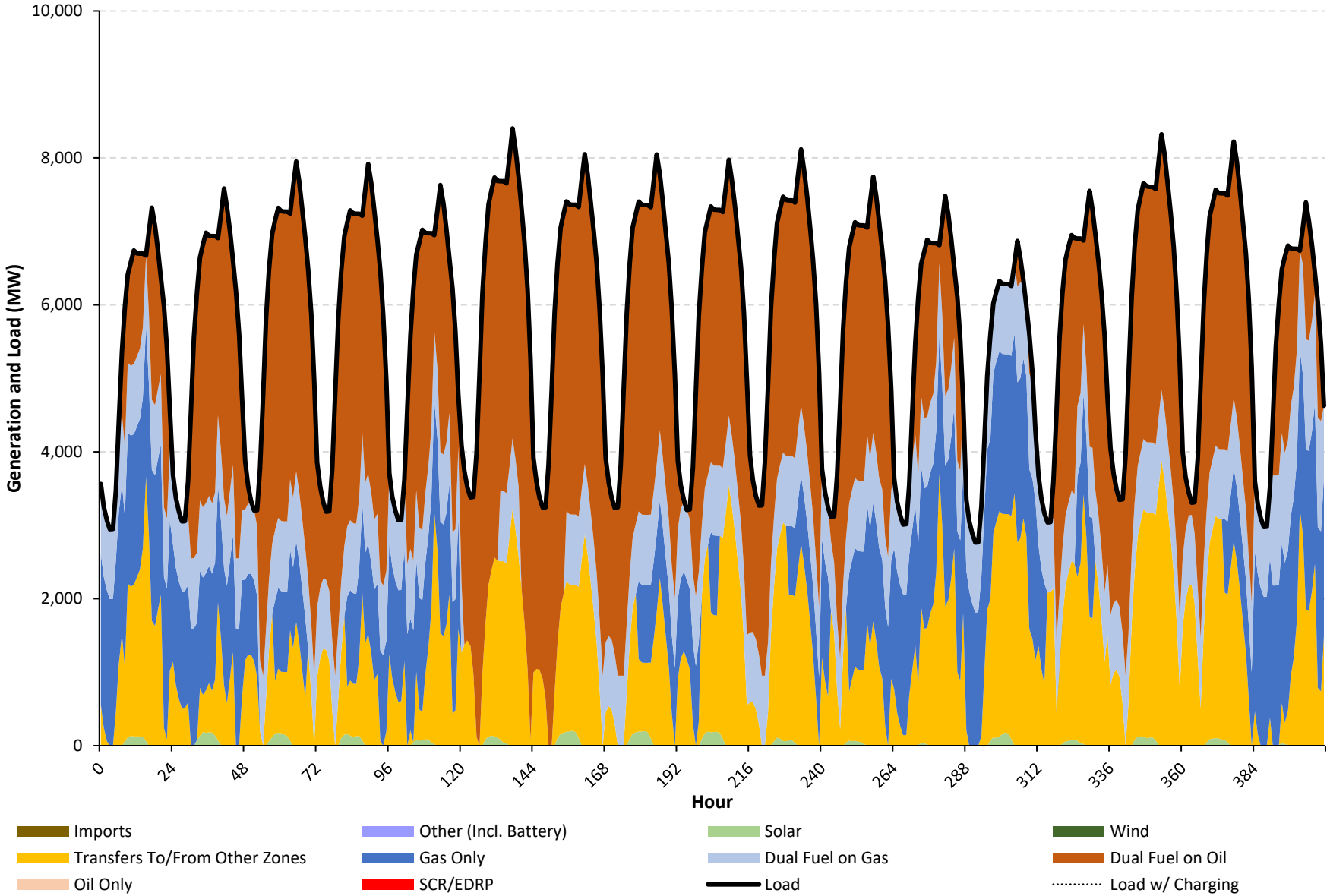




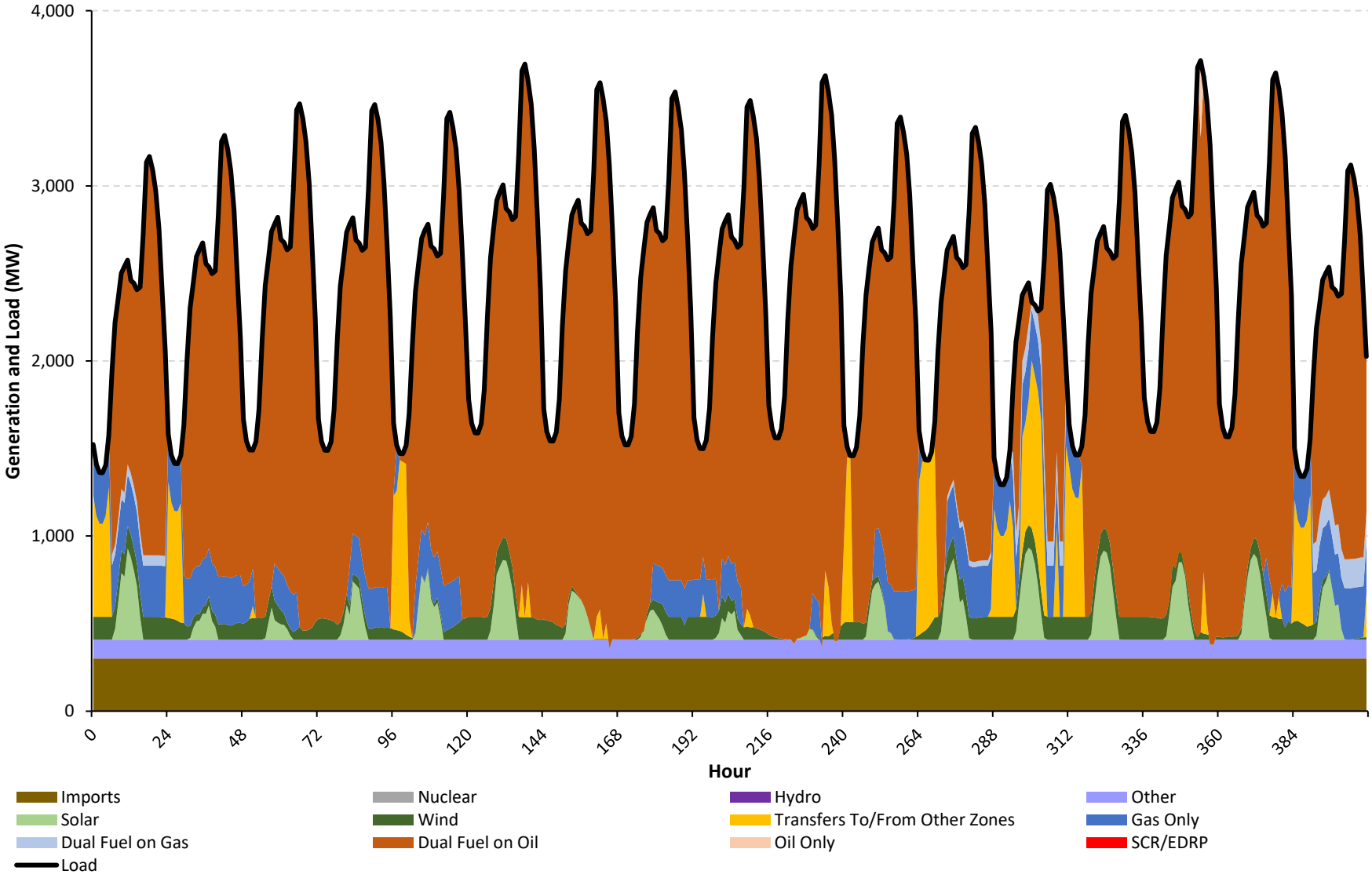



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 1 No Disruptions
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

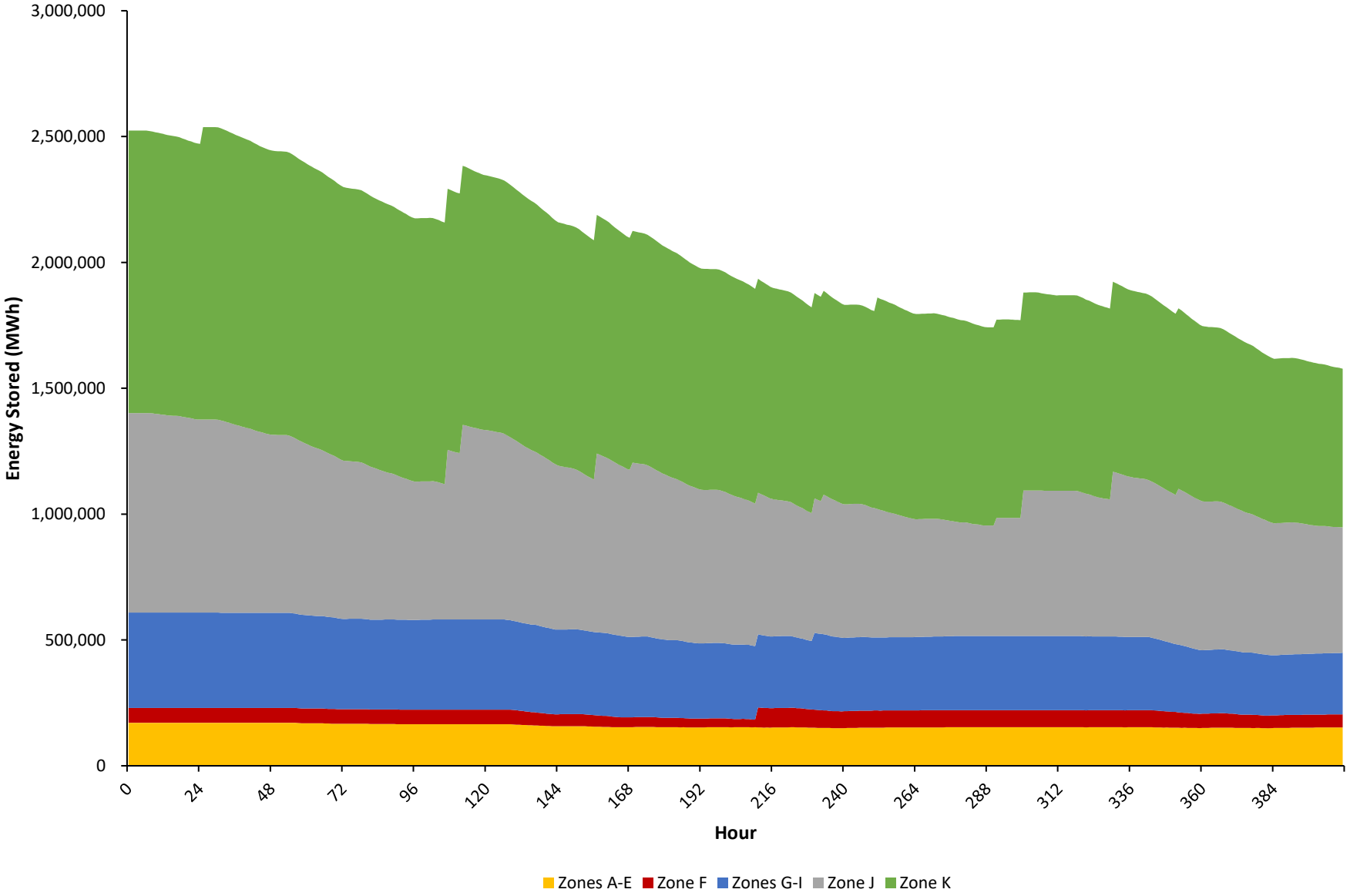
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 1 No Disruptions

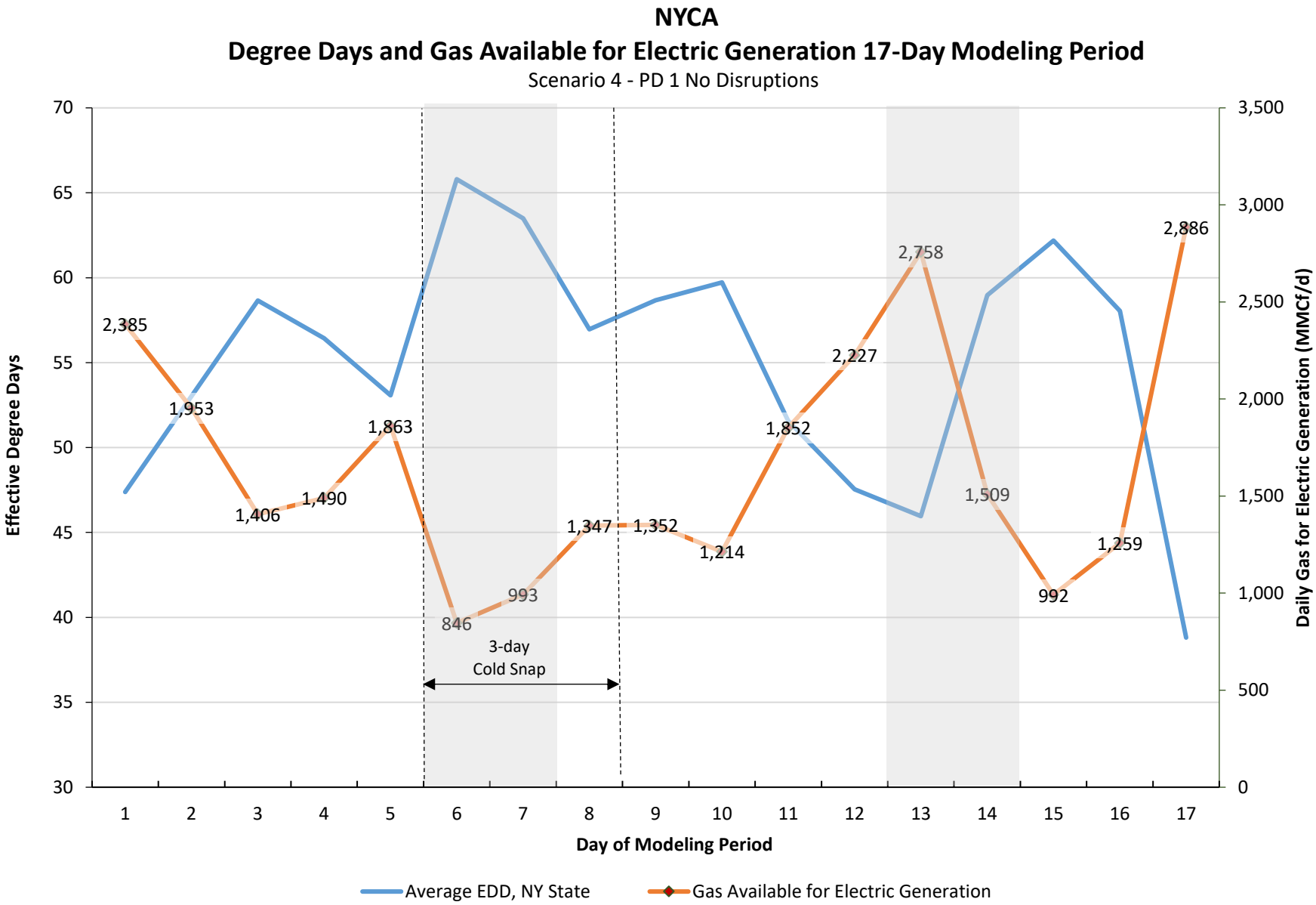


Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 1 No Disruptions

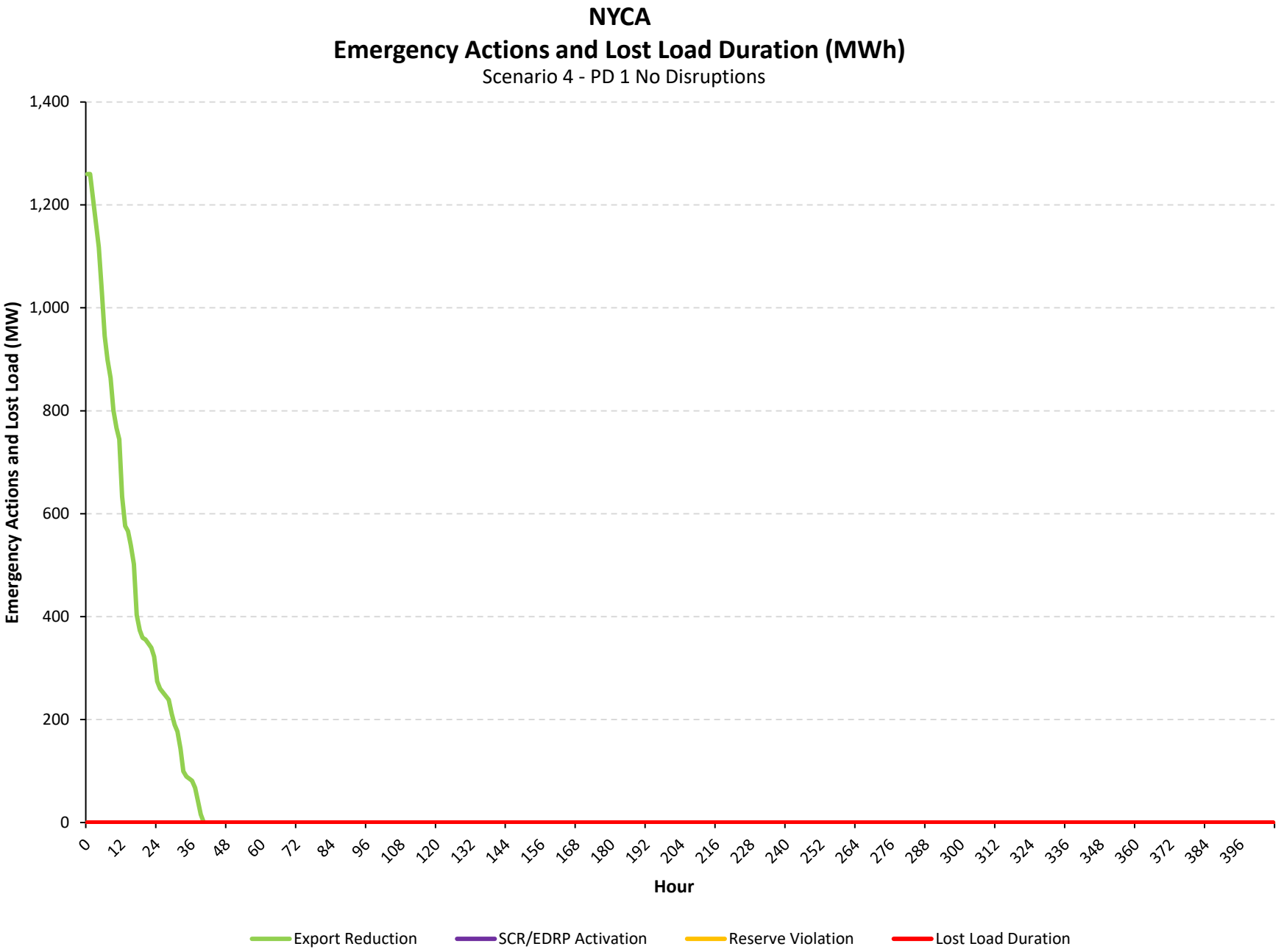


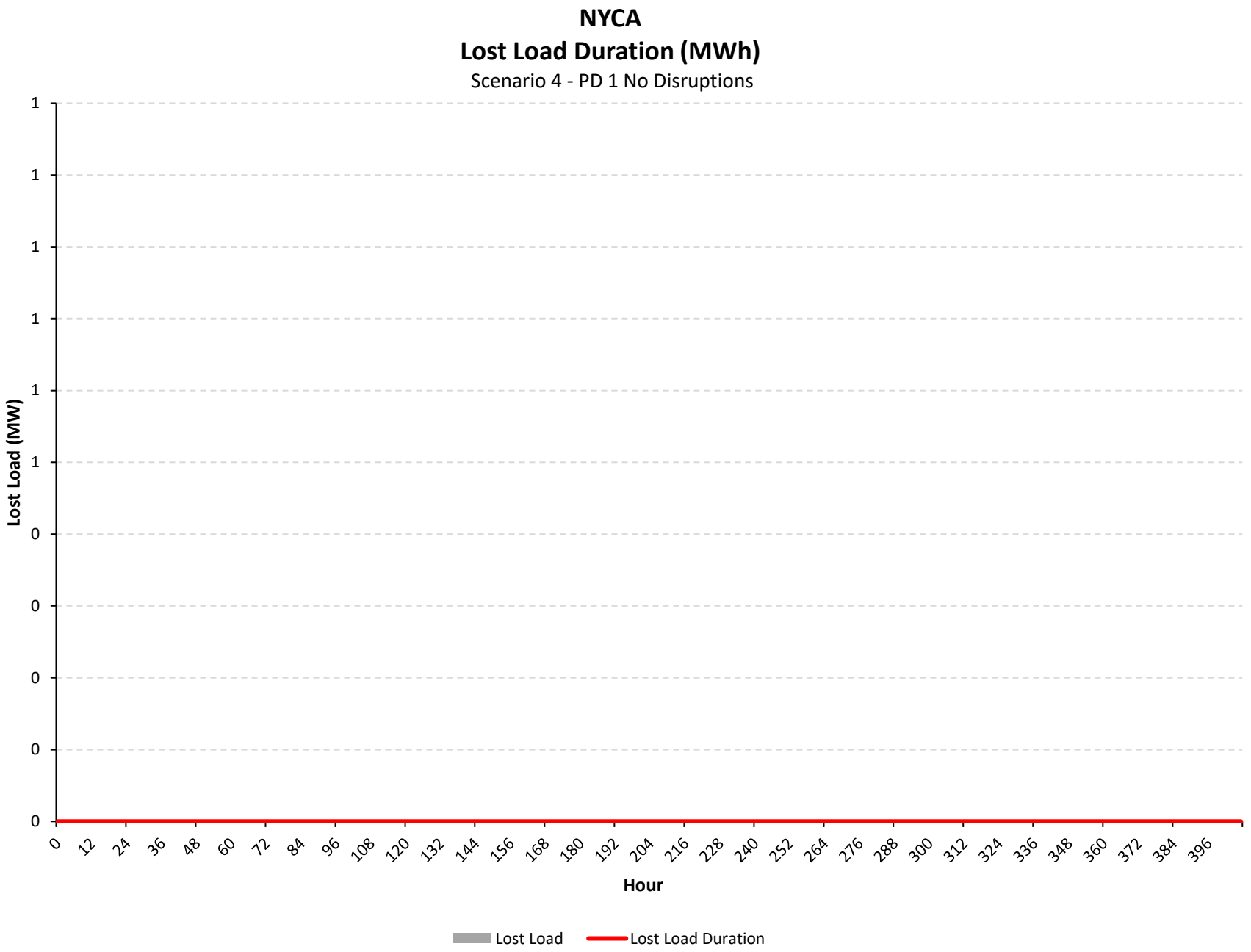
NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 4 - PD 1 No Disruptions





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 1 No Disruptions
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 1 No Disruptions
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

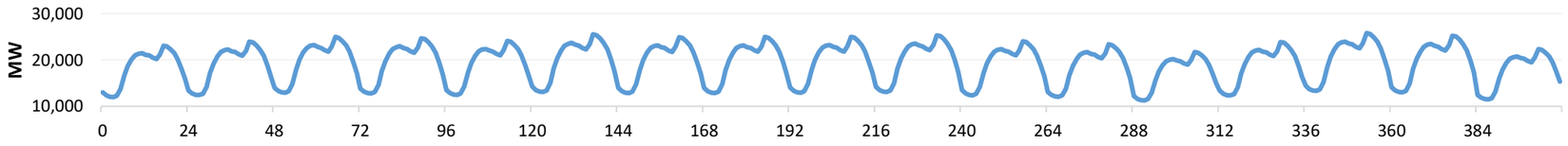
Case: Scenario 4 - PD 2 High Outage (Winter 2023/2024)

Hourly Results Summary

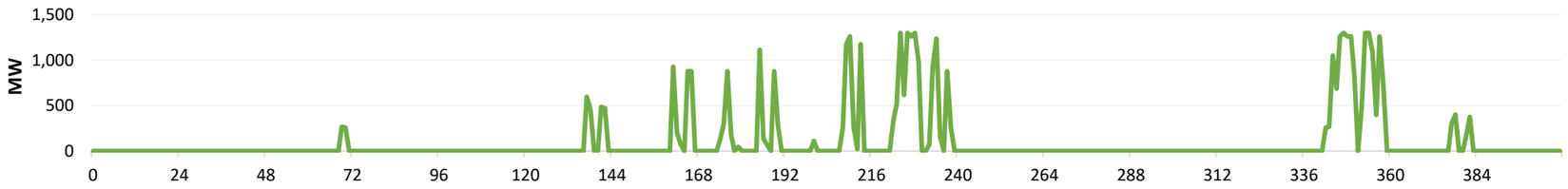
Case Name: Scenario 4 - PD 2 High Outage

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

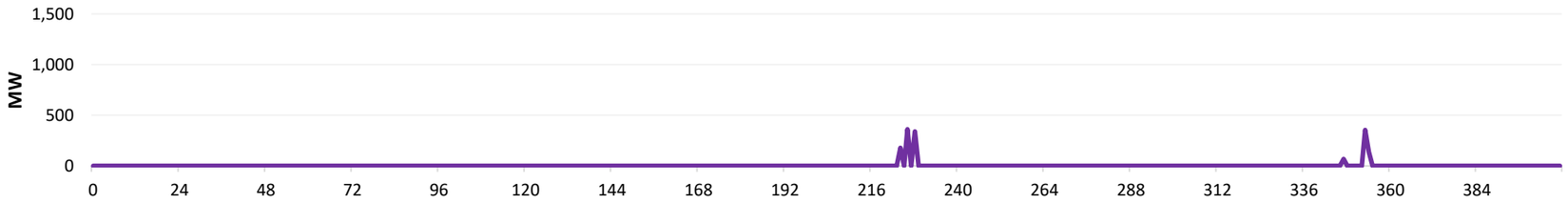


Export to ISO-NE Reduction During Modeling Period



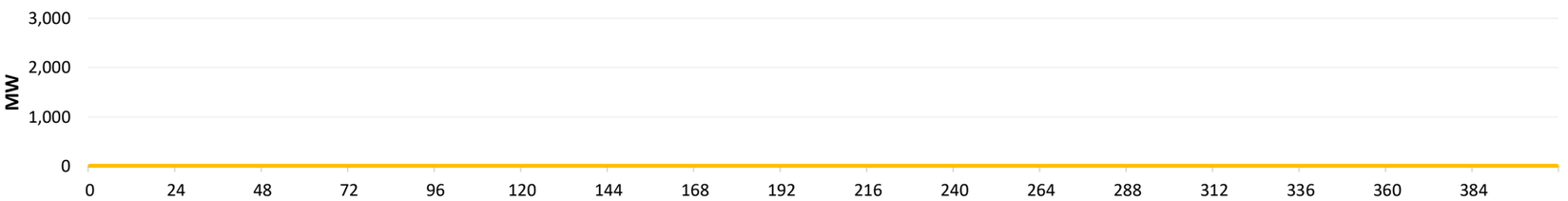
Export Reductions	
Total Hrs.	62
Total MWh	40,916
Avg. MW	100.3

SCR/EDRP Deployed During Modeling Period



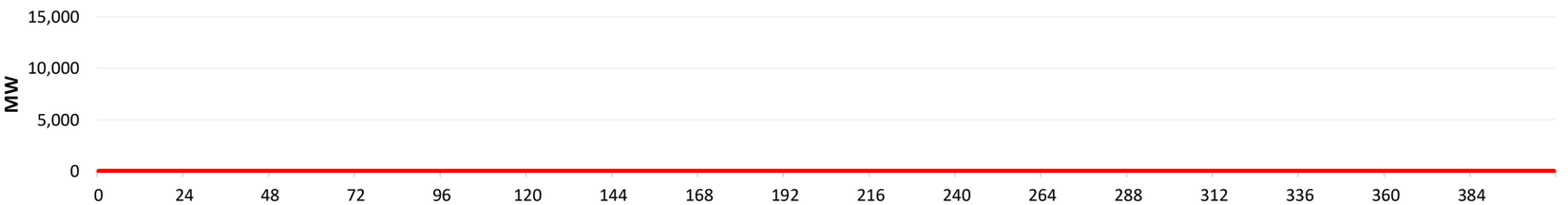
SCR Deployment	
Total Hrs.	6
Total MWh	1,439
Avg. MW	3.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Viol.	

Loss of Load During Modeling Period

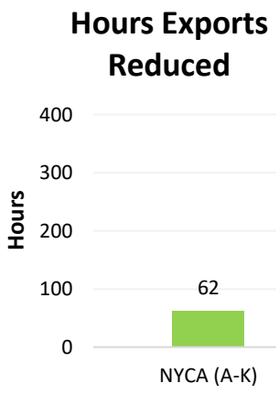


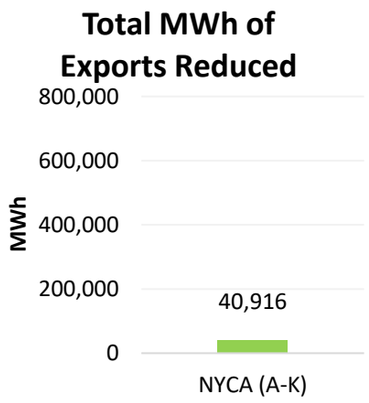
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

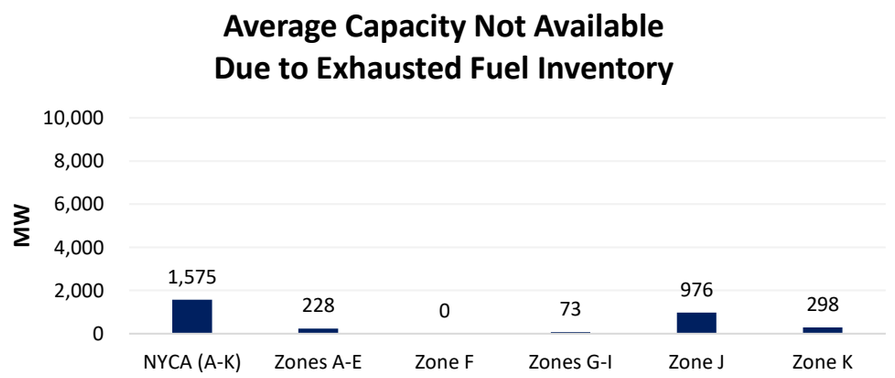
Full Period Results Summary

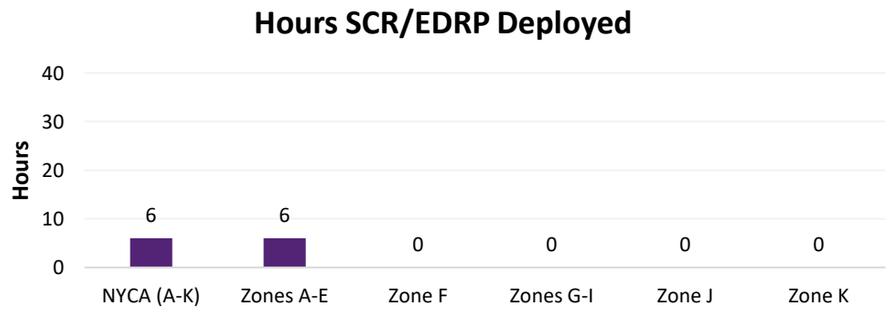
Case Name: Scenario 4 - PD 2 High Outage

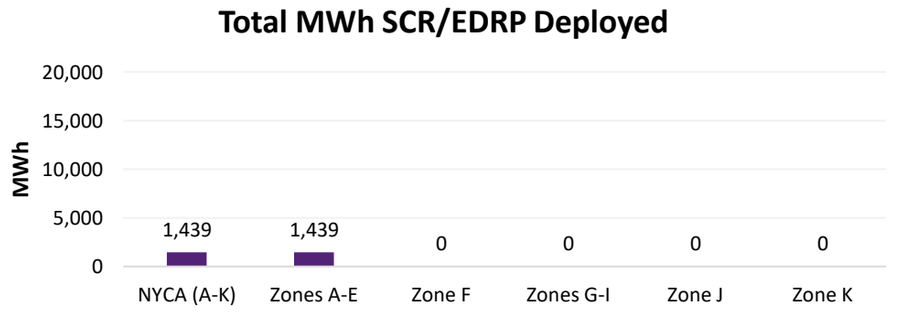
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

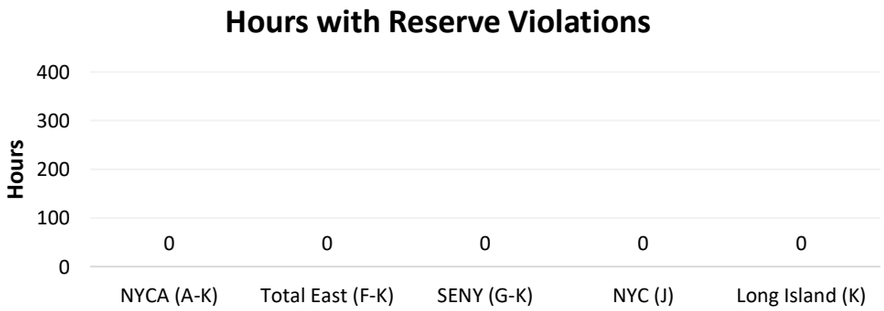


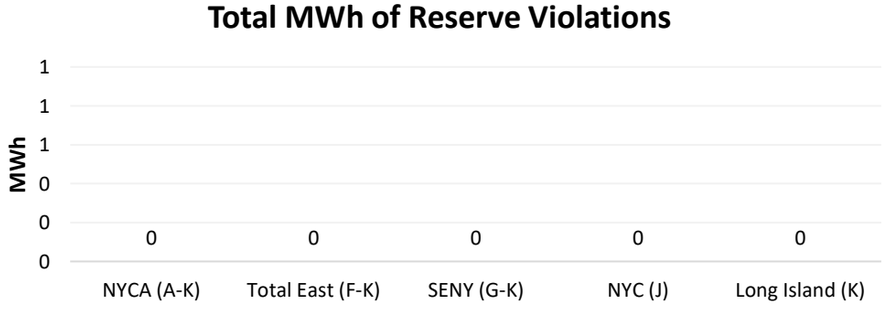


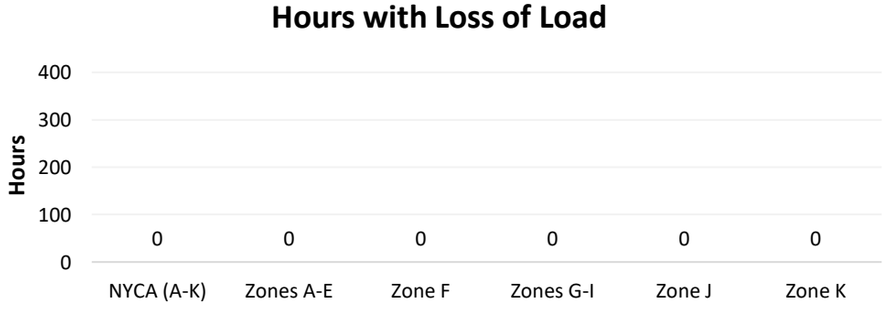


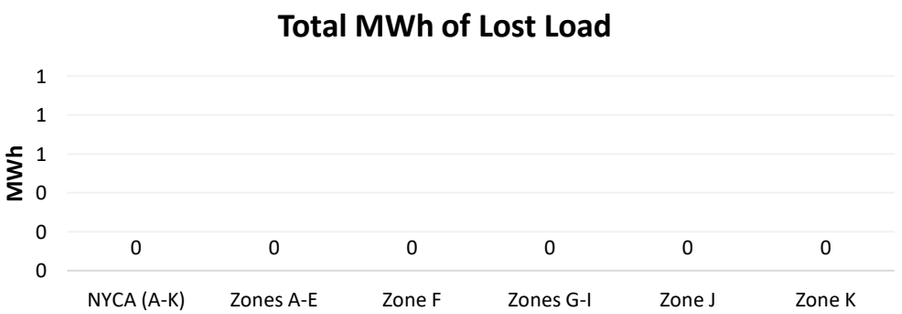


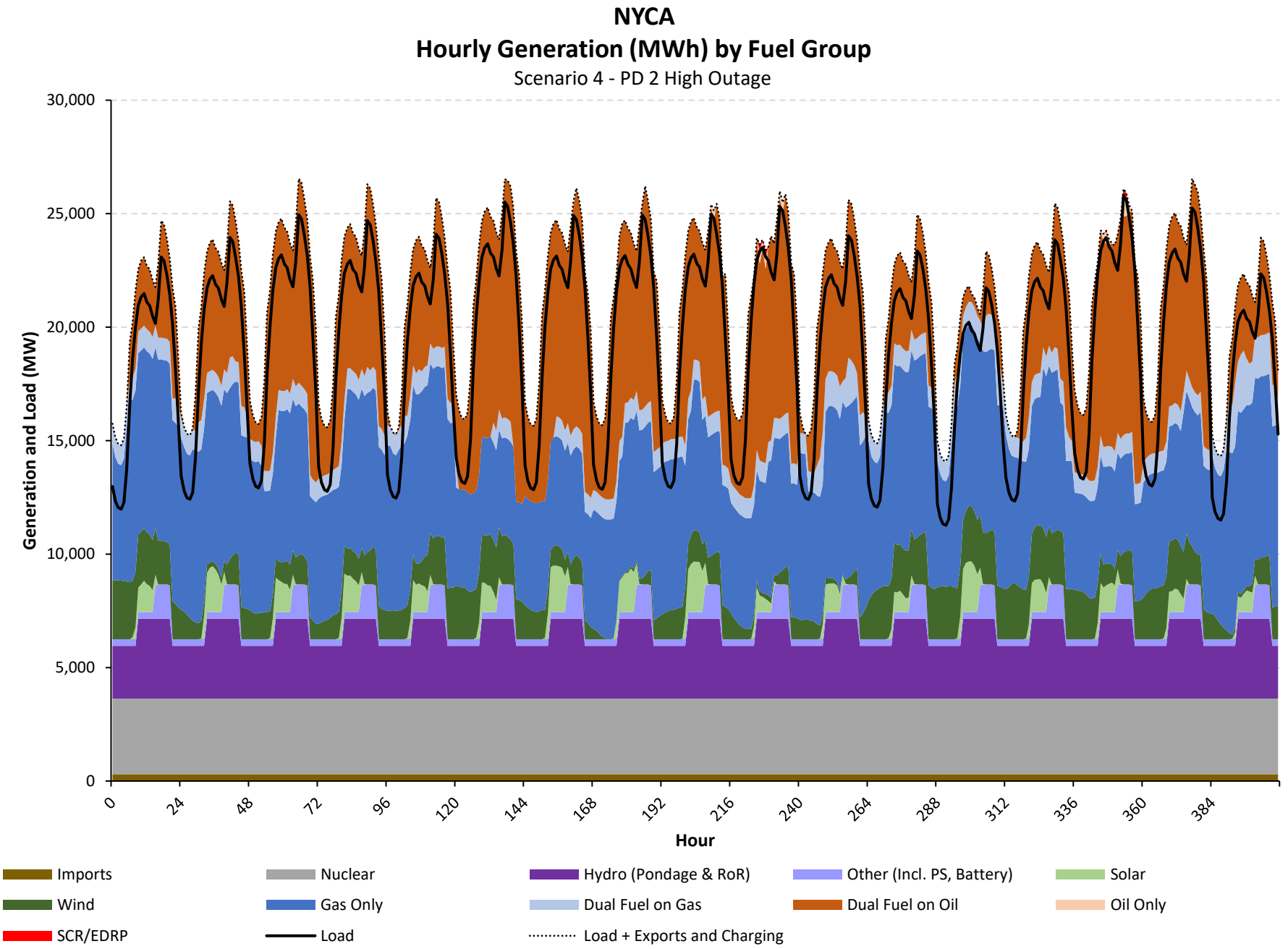


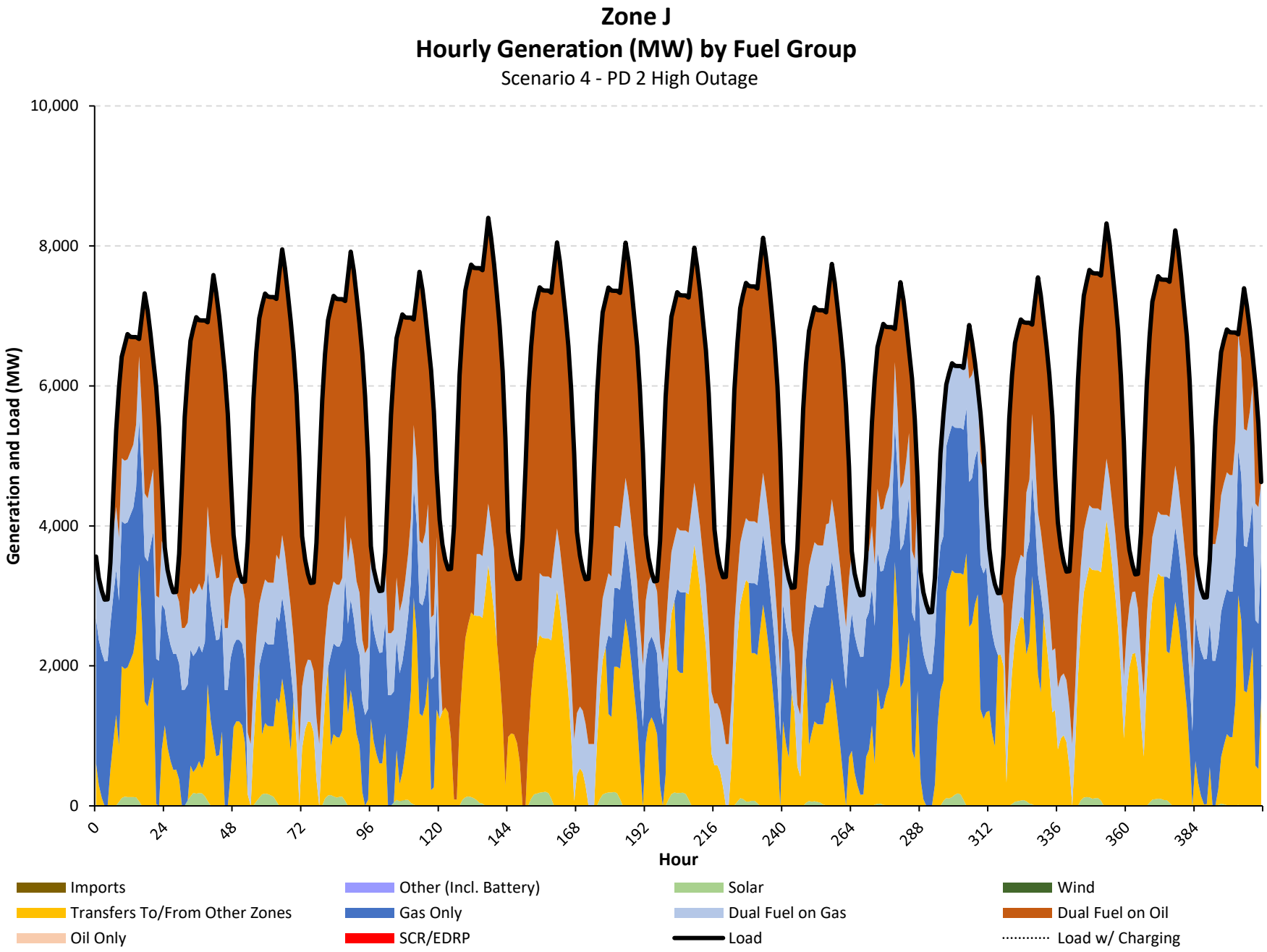




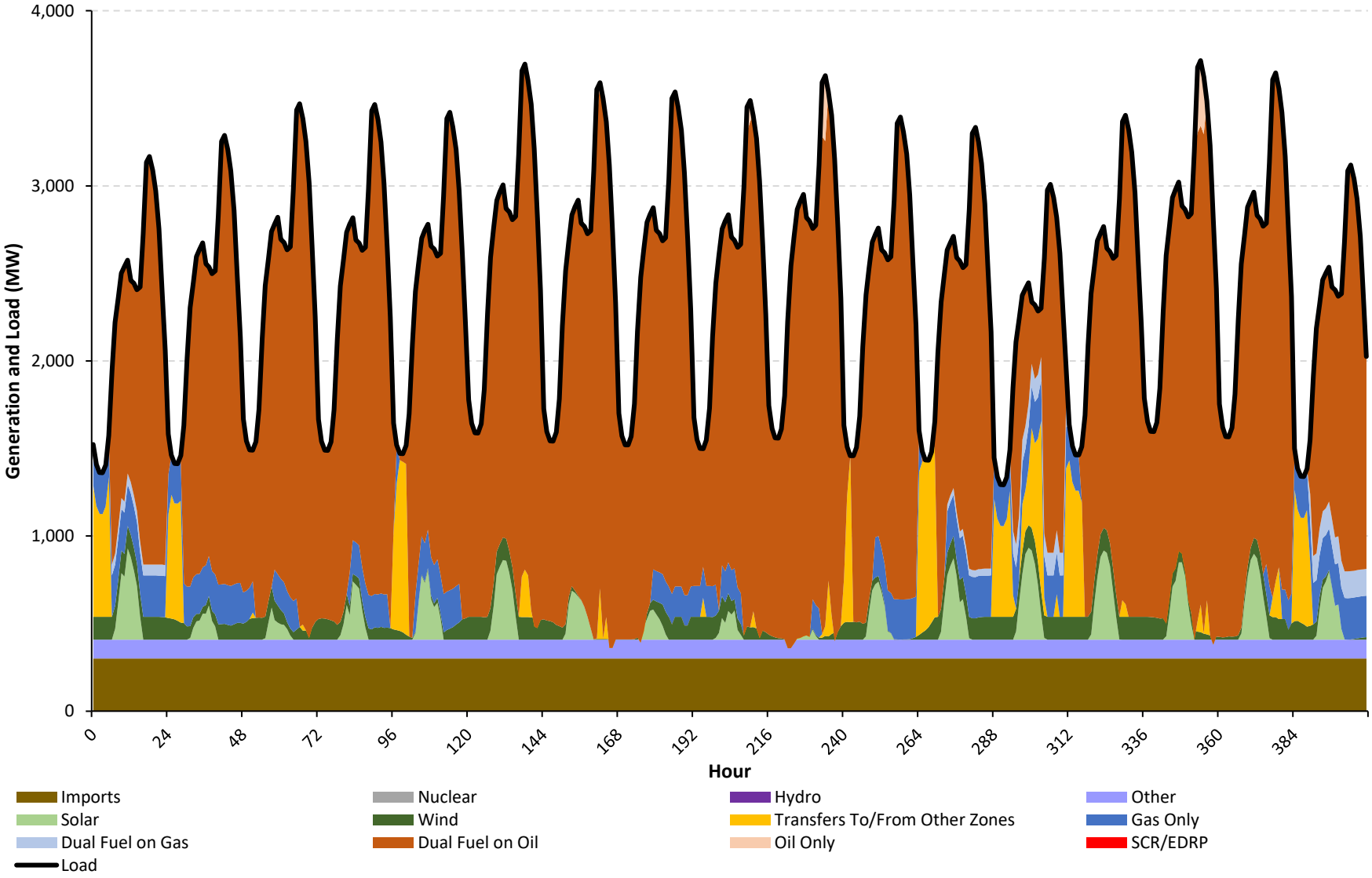




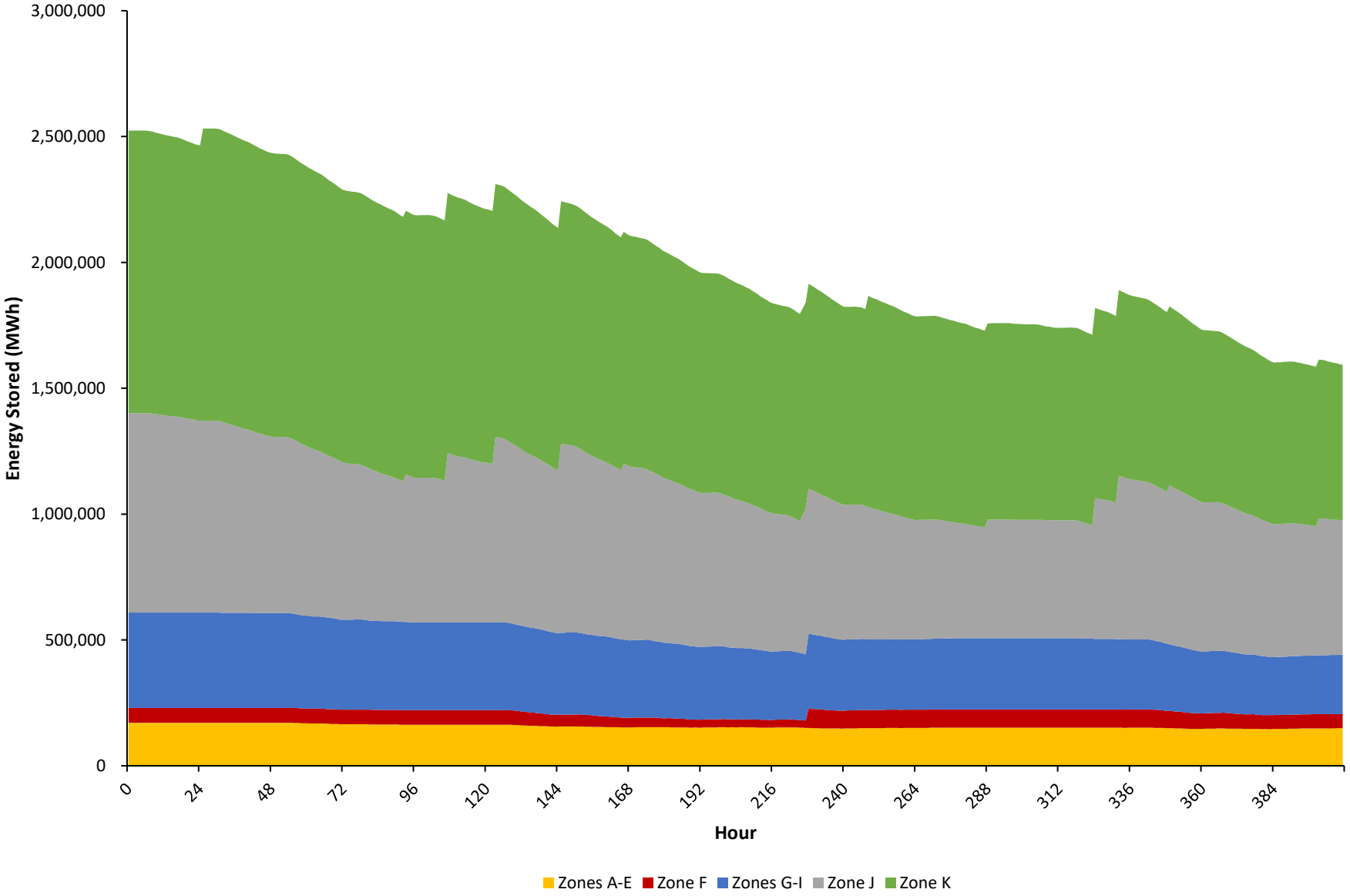

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 2 High Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 2 High Outage
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

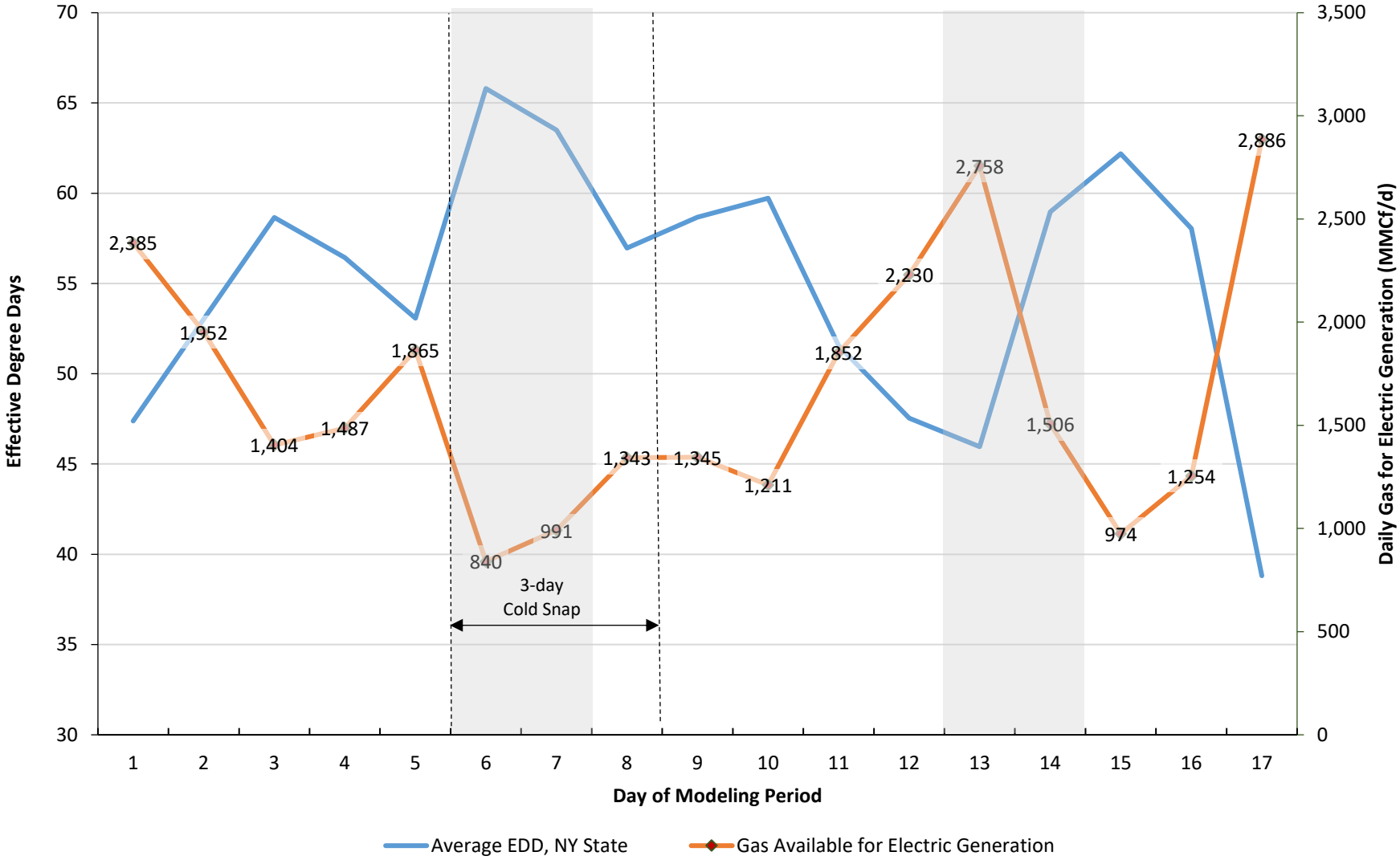
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 2 High Outage



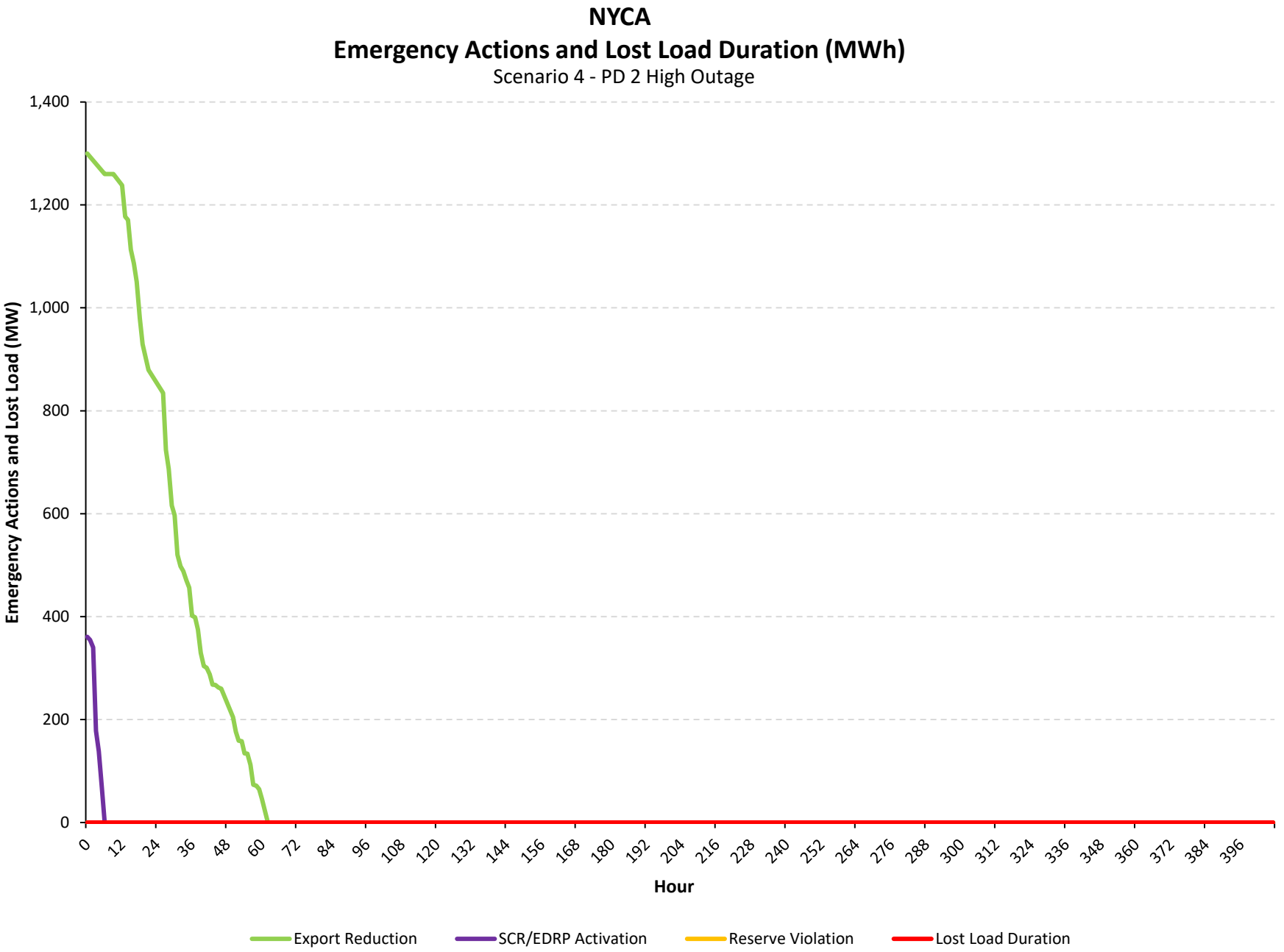
NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 4 - PD 2 High Outage

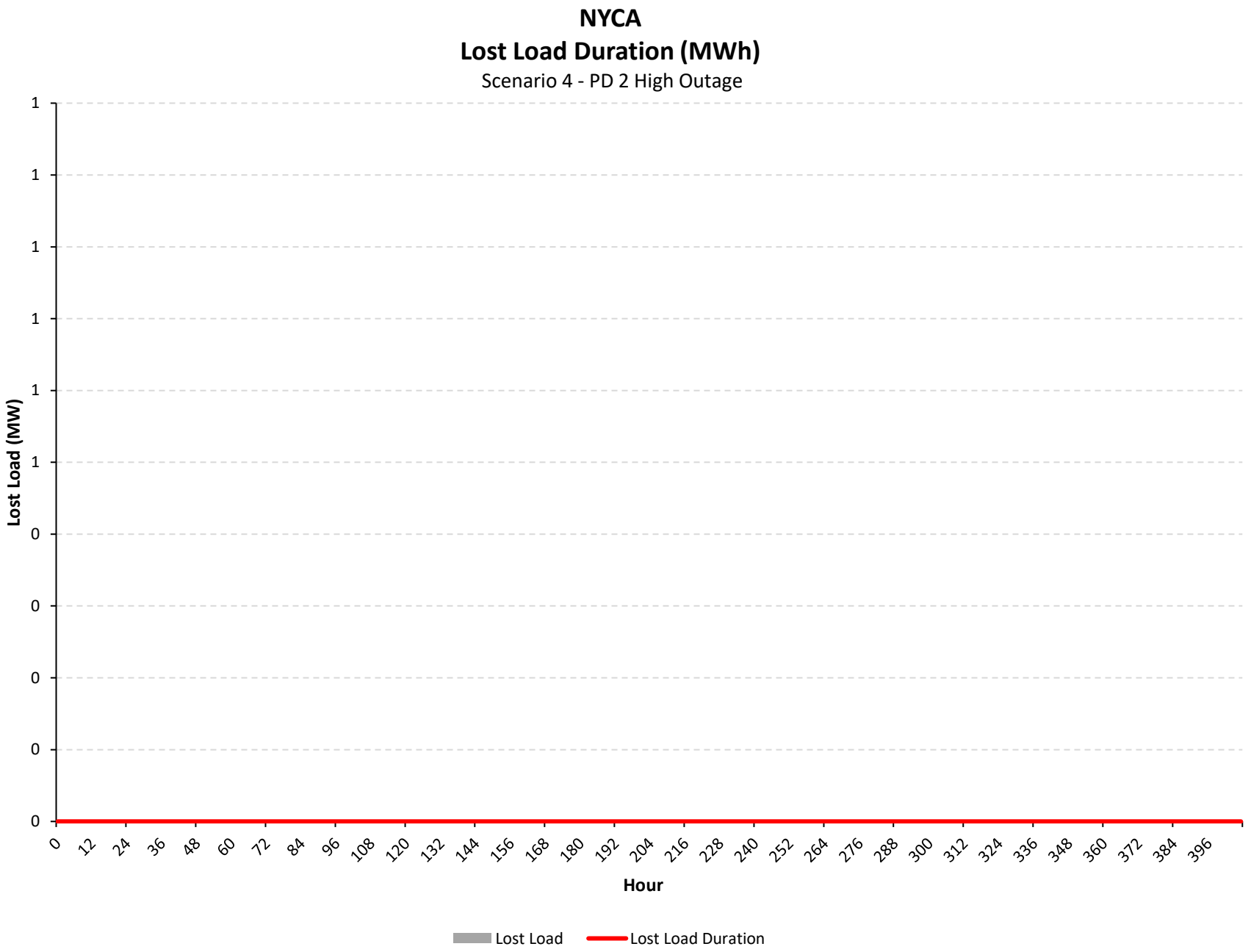


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 2 High Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 2 High Outage
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 2 High Outage
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

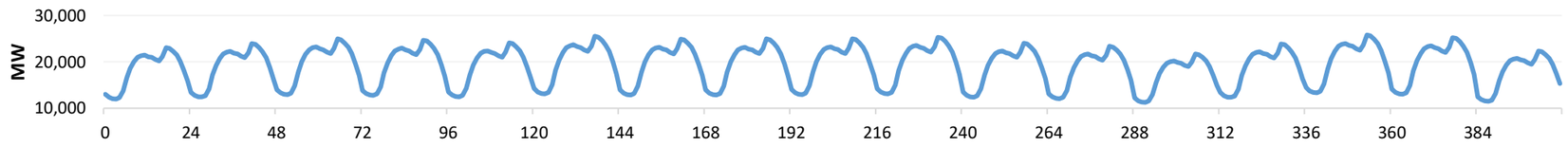
Case: Scenario 4 - PD 3 SENY Deactivation (Winter 2023/2024)

Hourly Results Summary

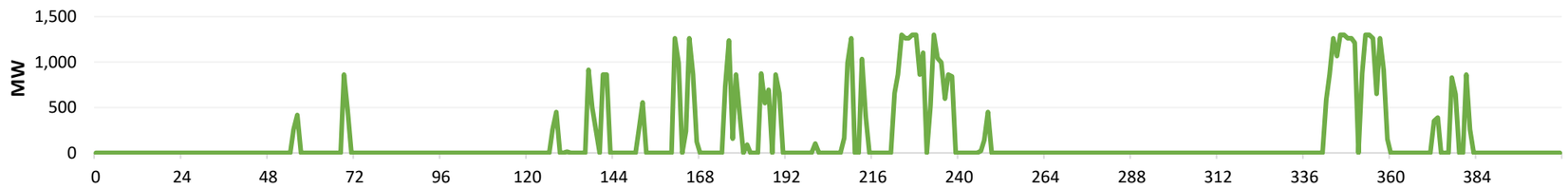
Case Name: Scenario 4 - PD 3 SENY Deactivation

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	Net Zero

Load During Modeling Period

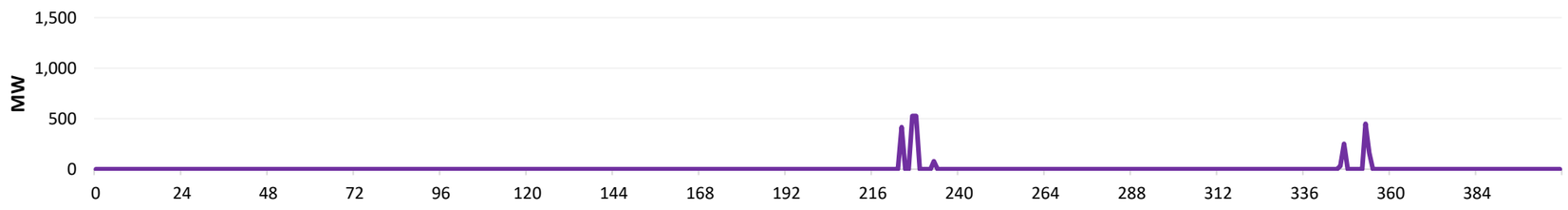


Export to ISO-NE Reduction During Modeling Period



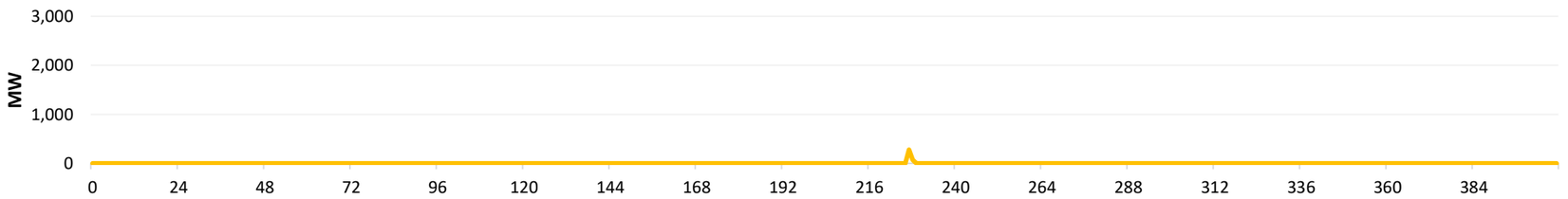
Export Reductions	
Total Hrs.	79
Total MWh	60,610
Avg. MW	148.6

SCR/EDRP Deployed During Modeling Period



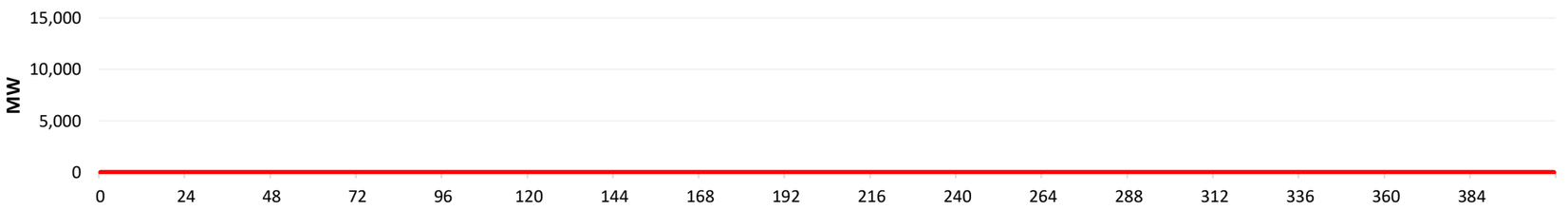
SCR Deployment	
Total Hrs.	8
Total MWh	2,447
Avg. MW	6.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	2
Total MWh	346
Avg. MW	0.8
First Hour with Viol.	227

Loss of Load During Modeling Period

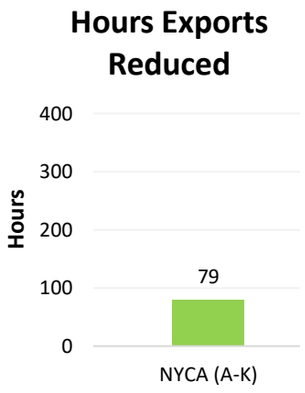


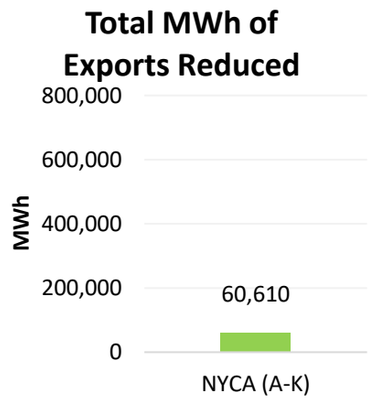
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

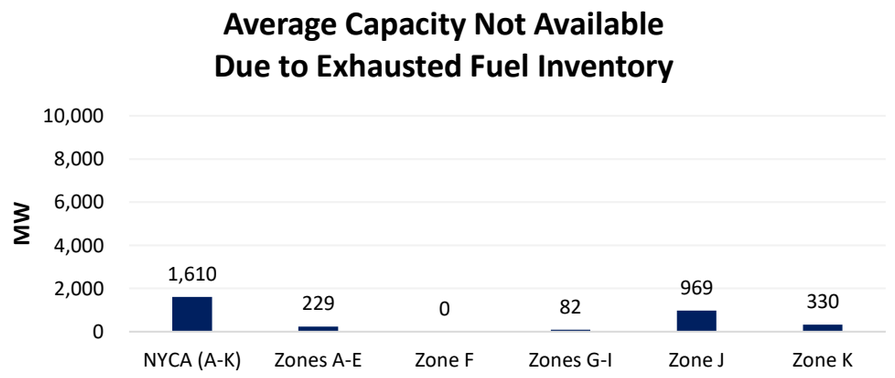
Full Period Results Summary

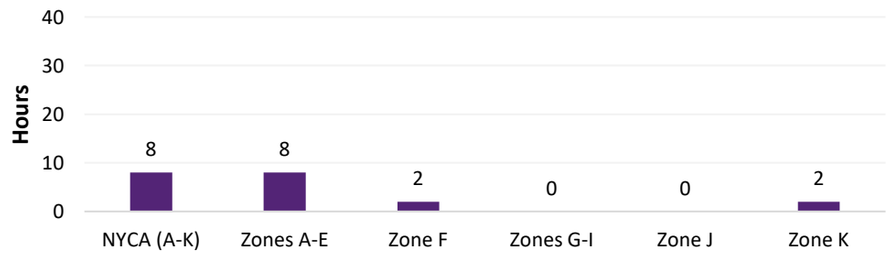
Case Name: Scenario 4 - PD 3 SENY Deactivation

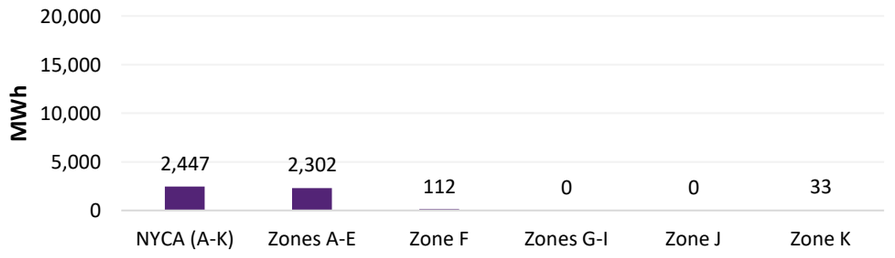
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	Roseton
Import Scenario:	Net Zero

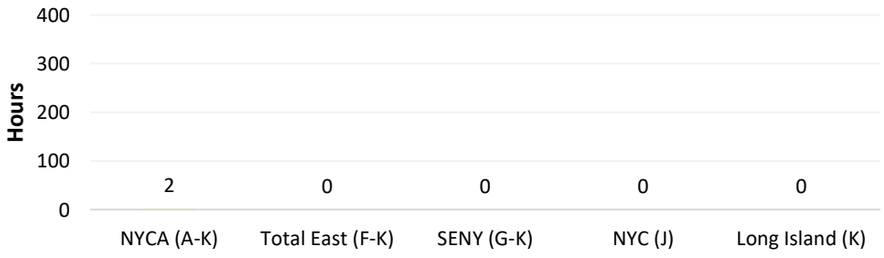


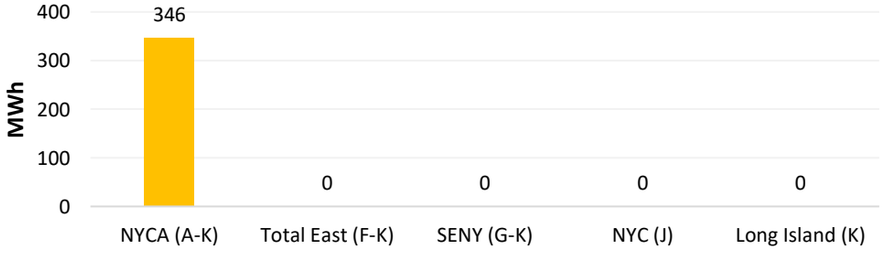


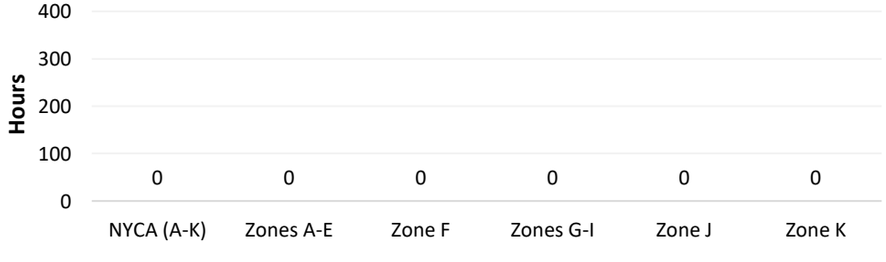


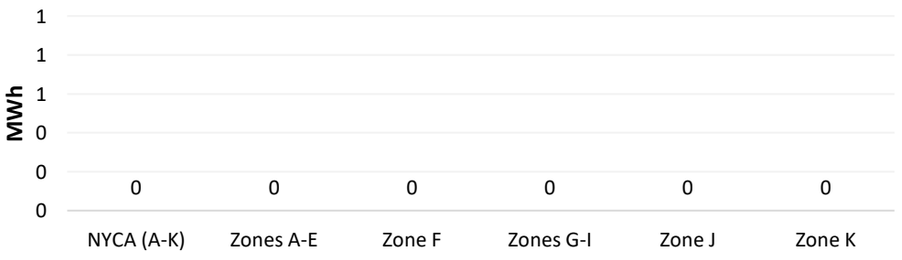


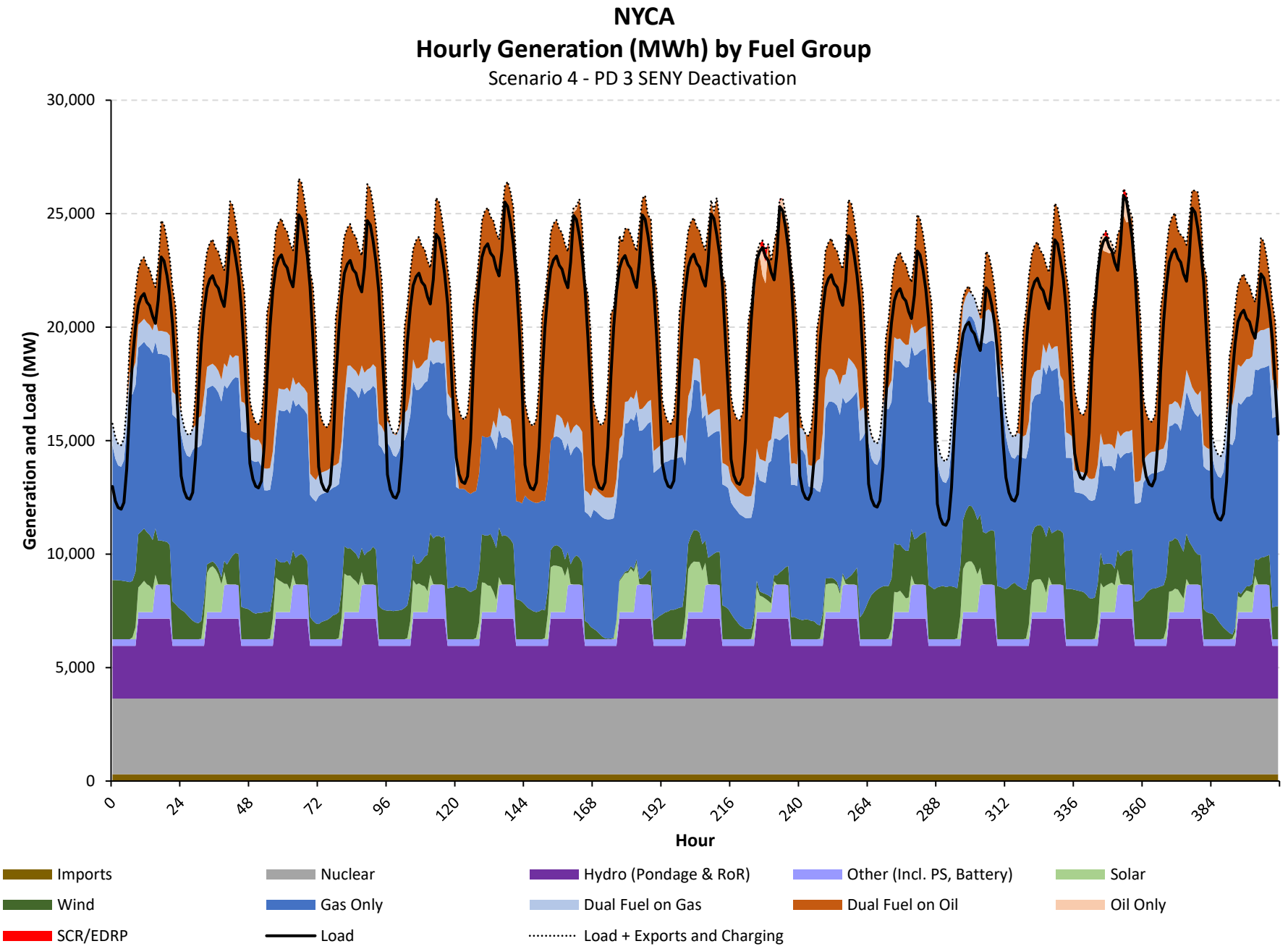


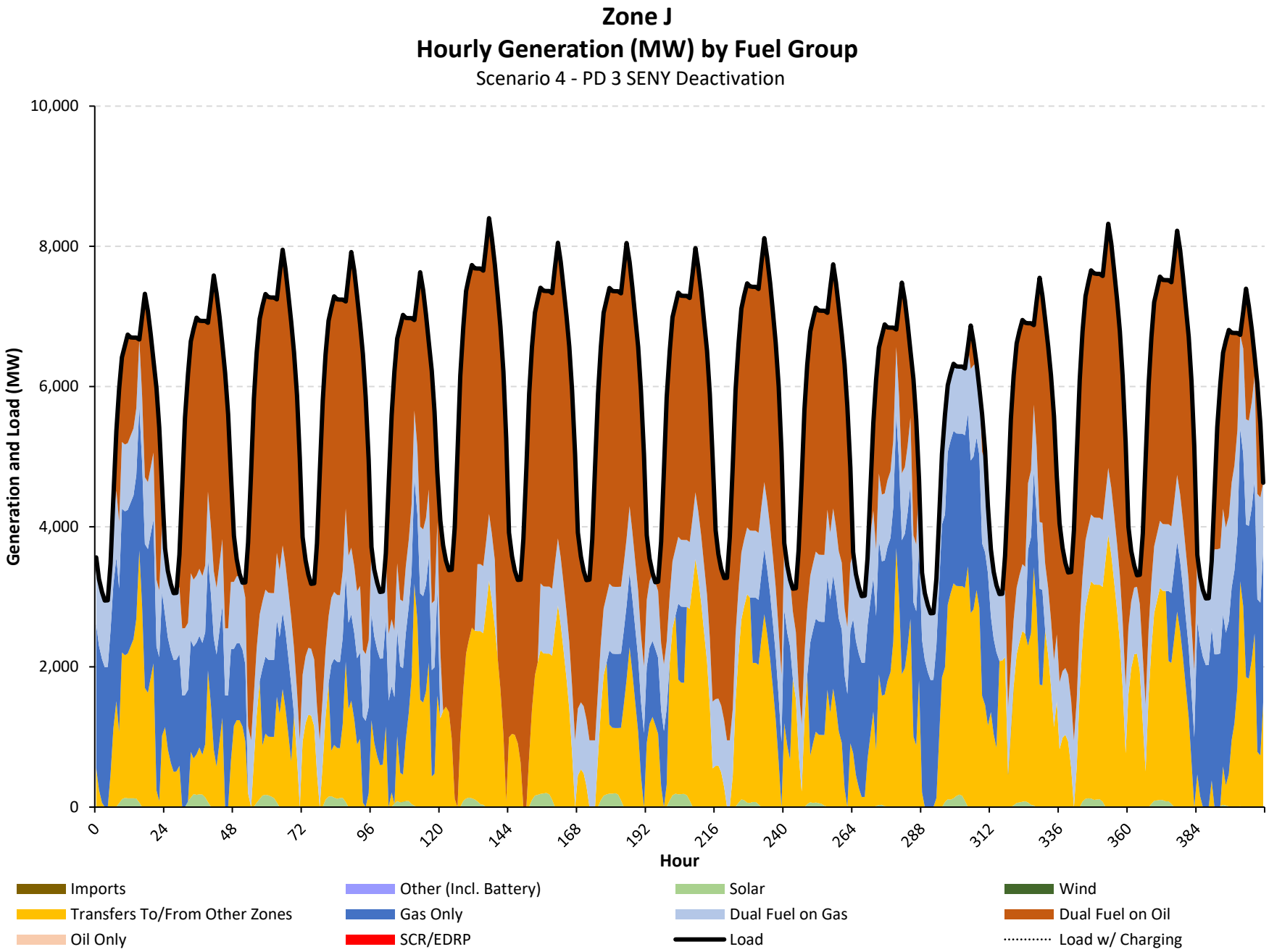




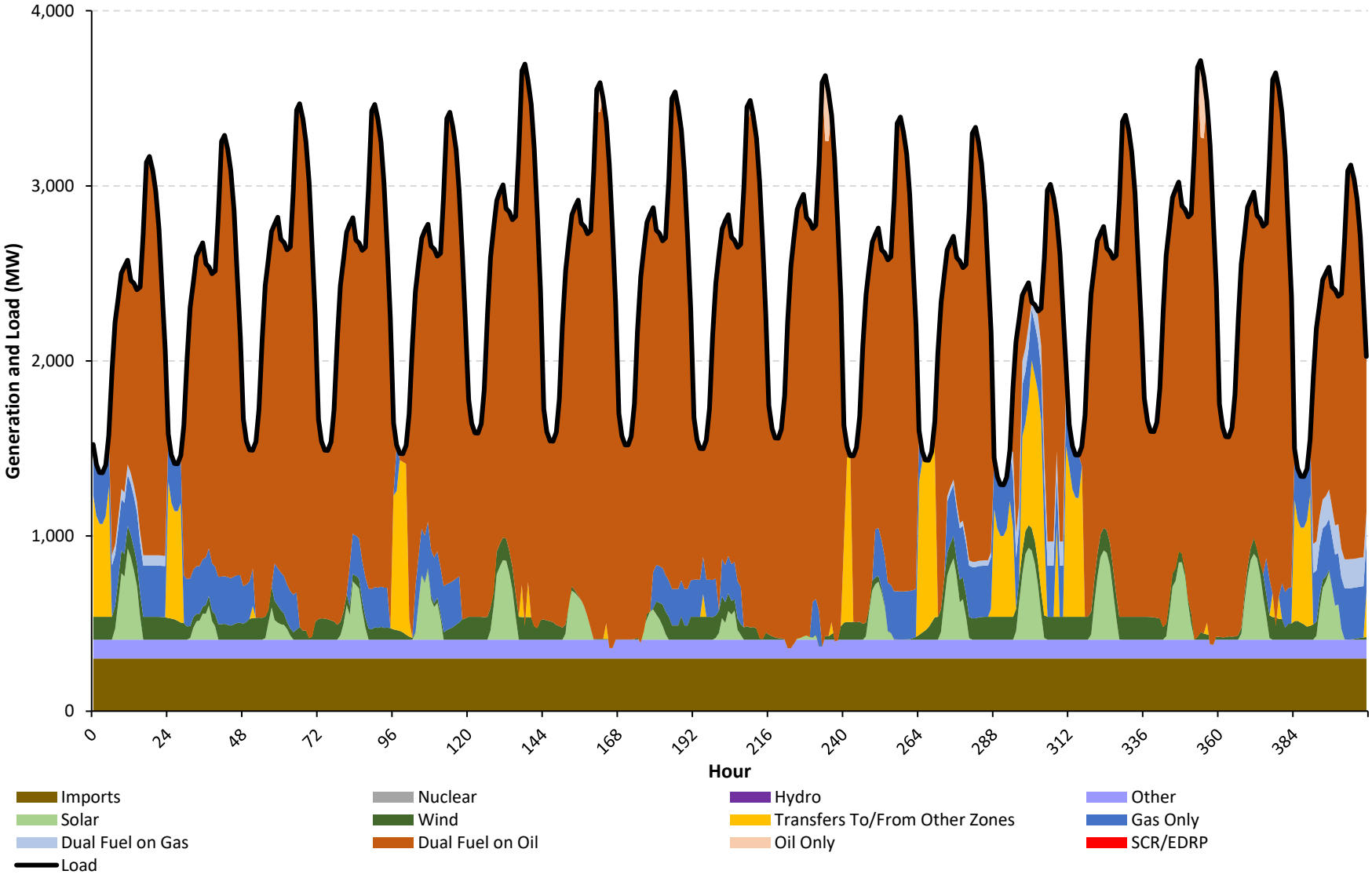





NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 3 SENY Deactivation
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 3 SENY Deactivation
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

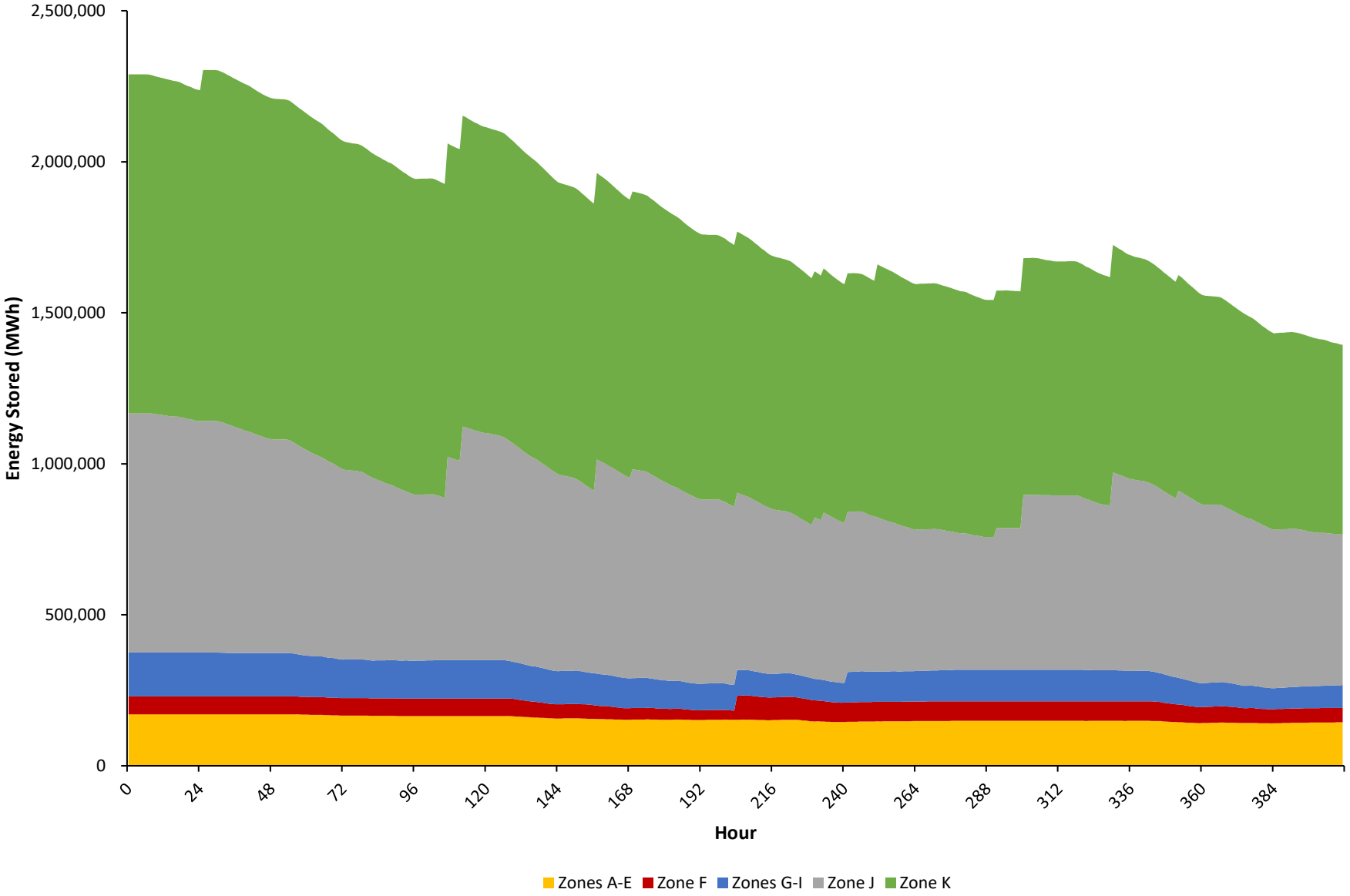
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 3 SENY Deactivation

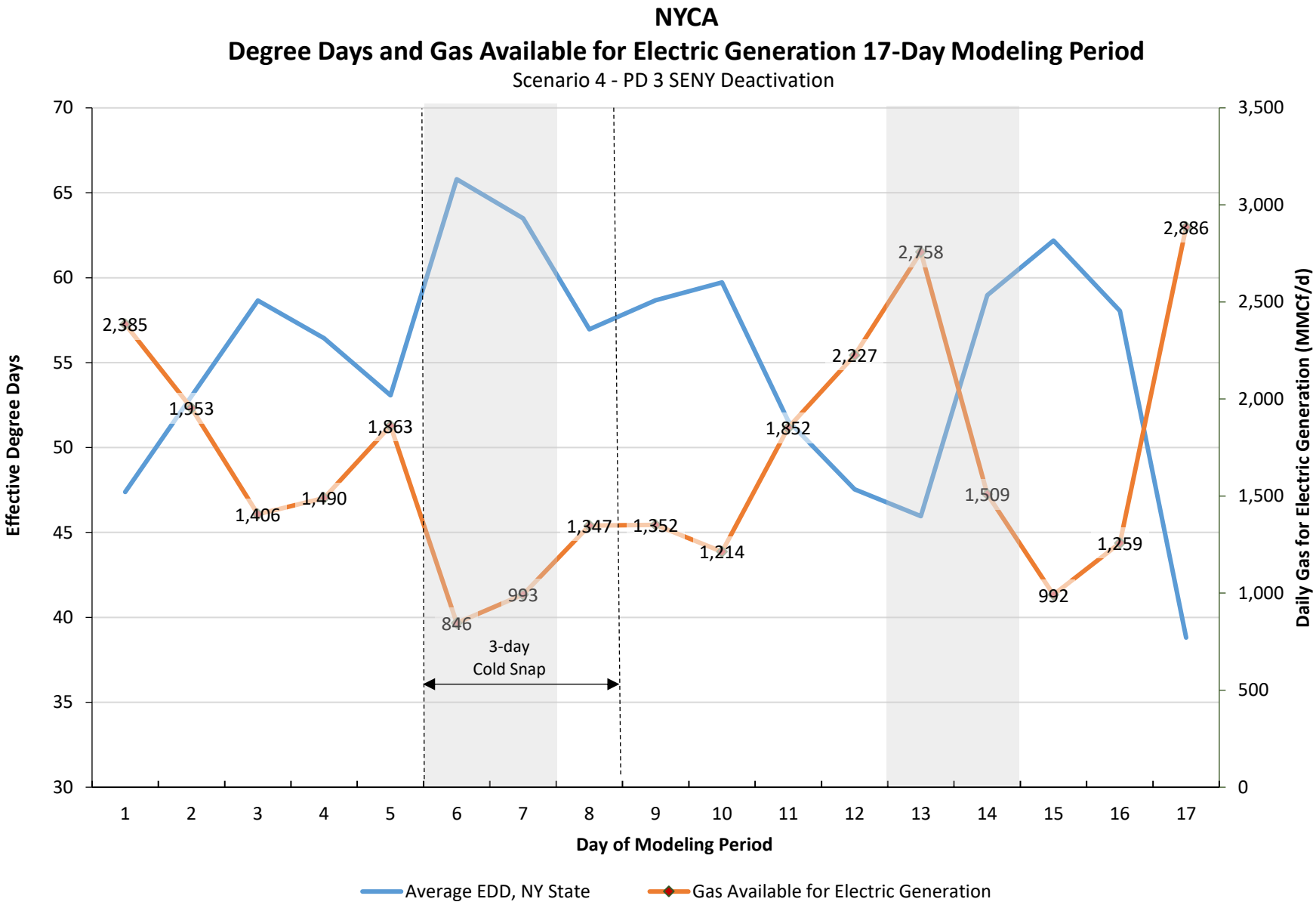


NYCA

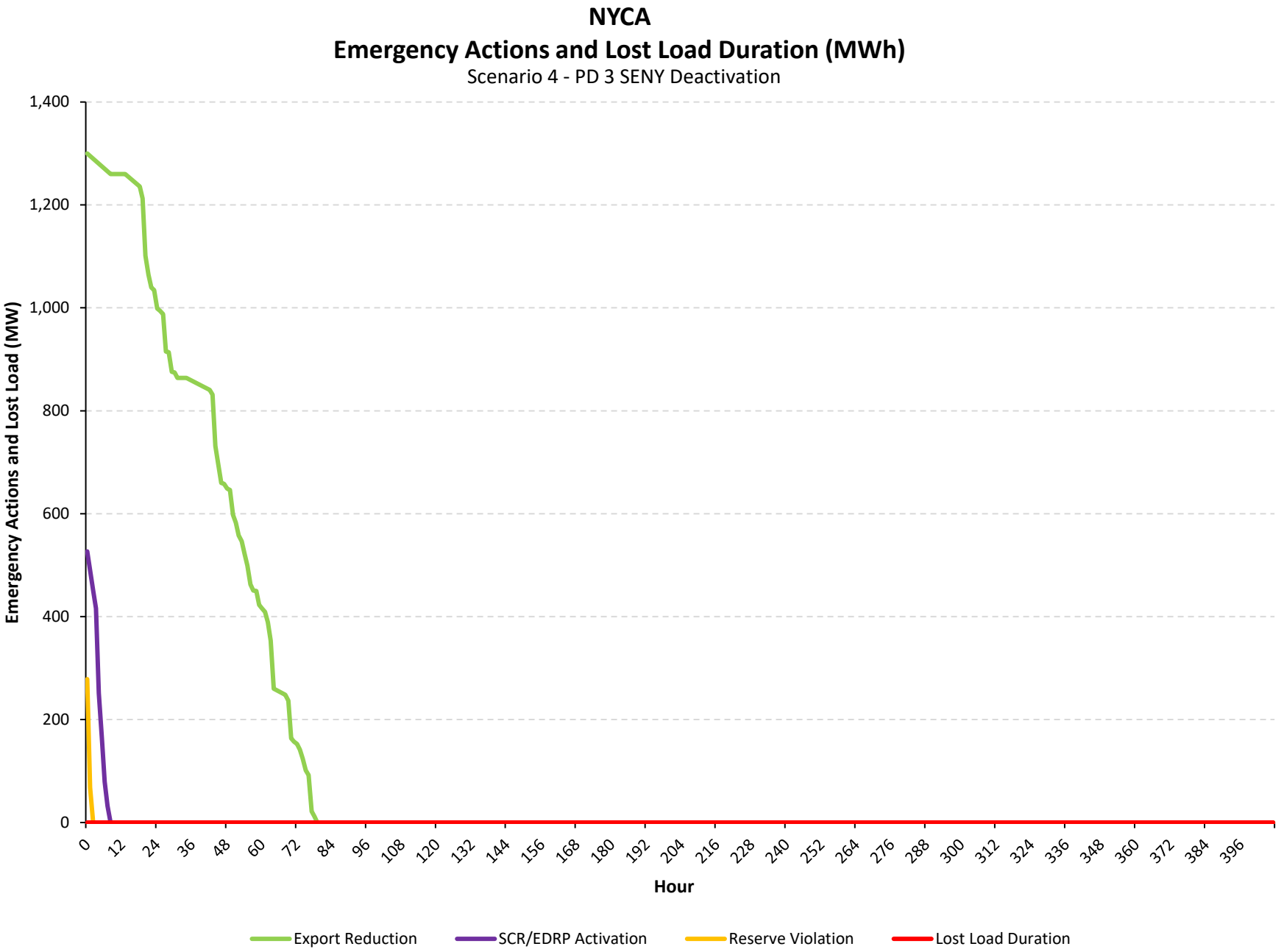
Quantity of Stored Fuel for Oil and Dual Fuel Units

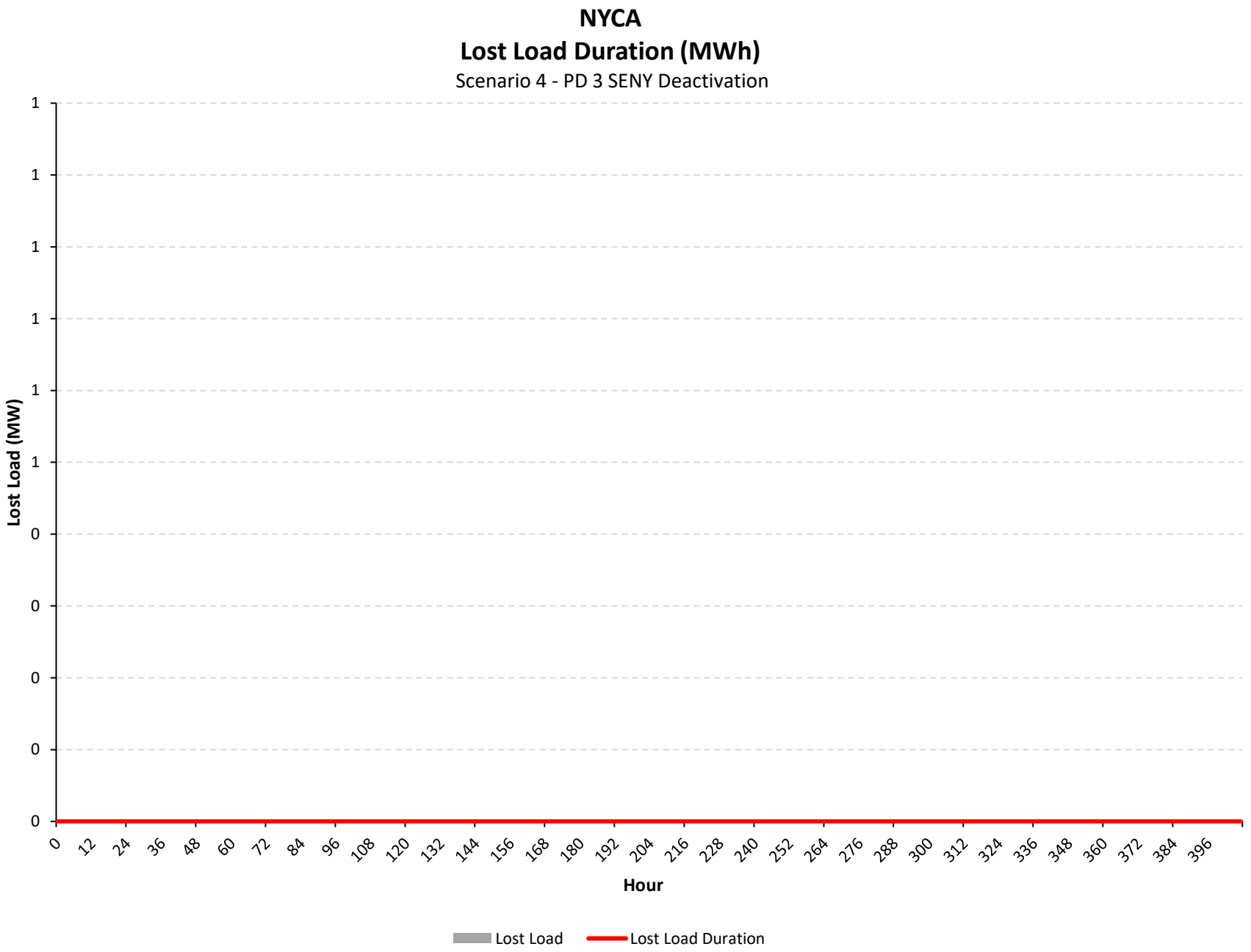
Scenario 4 - PD 3 SENY Deactivation





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 3 SENY Deactivation
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 3 SENY Deactivation
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

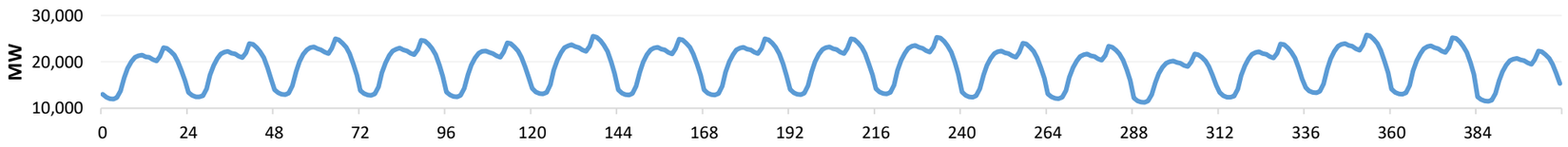
Case: Scenario 4 - PD 4 Nuclear Station Outage (Winter 2023/2024)

Hourly Results Summary

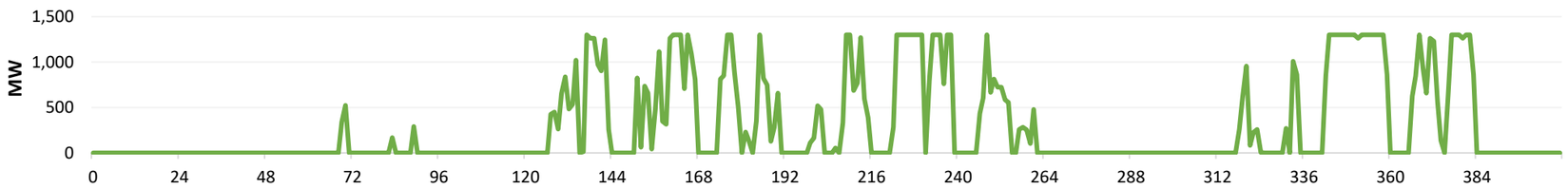
Case Name: Scenario 4 - PD 4 Nuclear Station Outage

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

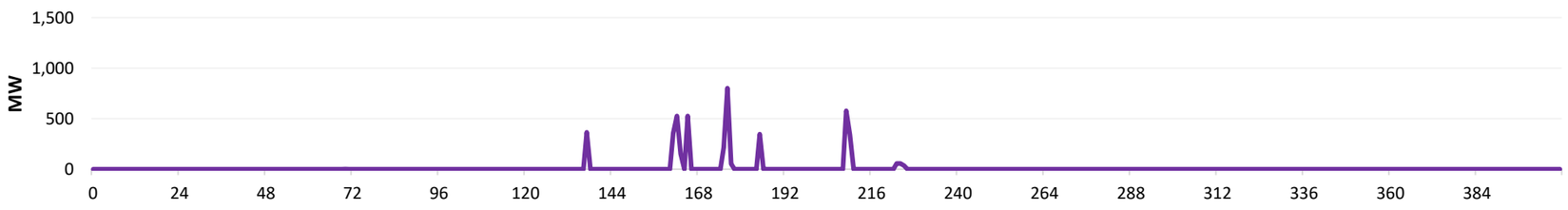


Export to ISO-NE Reduction During Modeling Period



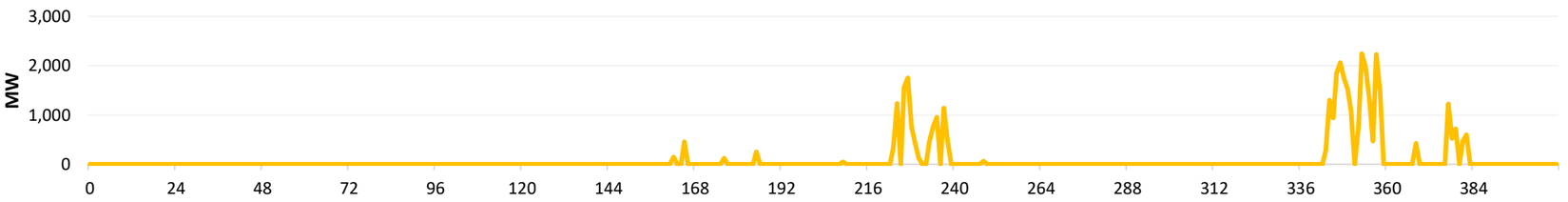
Export Reductions	
Total Hrs.	140
Total MWh	115,497
Avg. MW	283.1

SCR/EDRP Deployed During Modeling Period



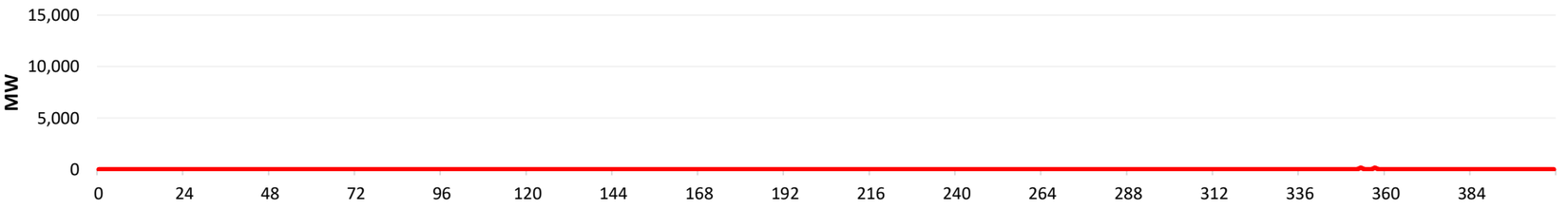
SCR Deployment	
Total Hrs.	14
Total MWh	4,413
Avg. MW	10.8

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	39
Total MWh	36,312
Avg. MW	89.0
First Hour with Viol.	162

Loss of Load During Modeling Period

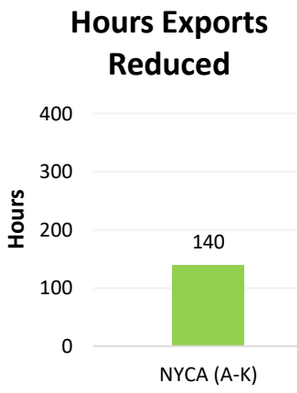


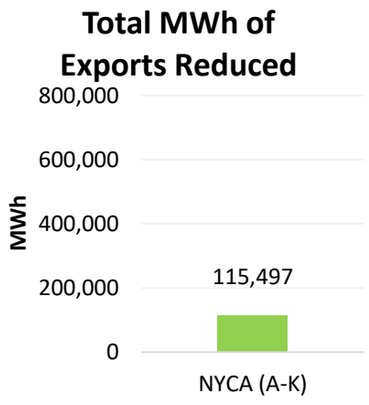
Loss of Load	
Total Hrs.	2
Total MWh	309
Avg. MW	0.8
First Hour with Losses	353

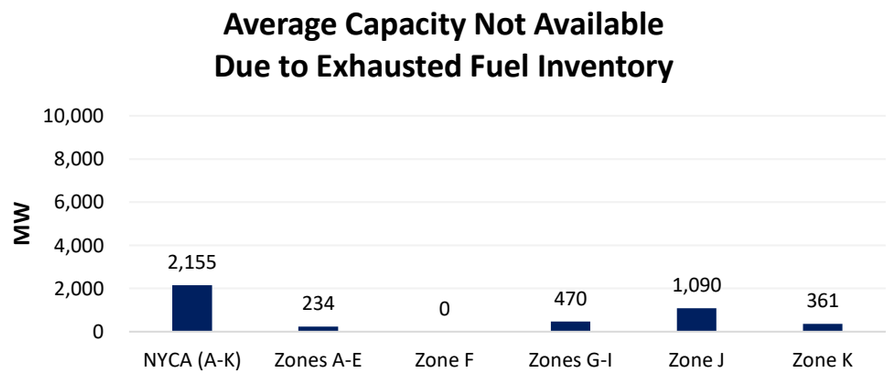
Full Period Results Summary

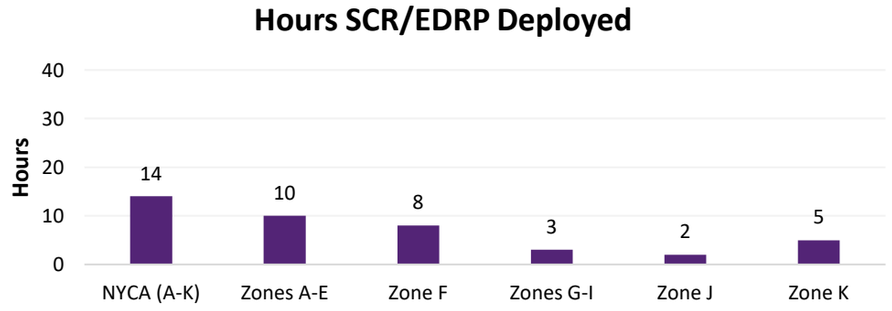
Case Name: Scenario 4 - PD 4 Nuclear Station Outage

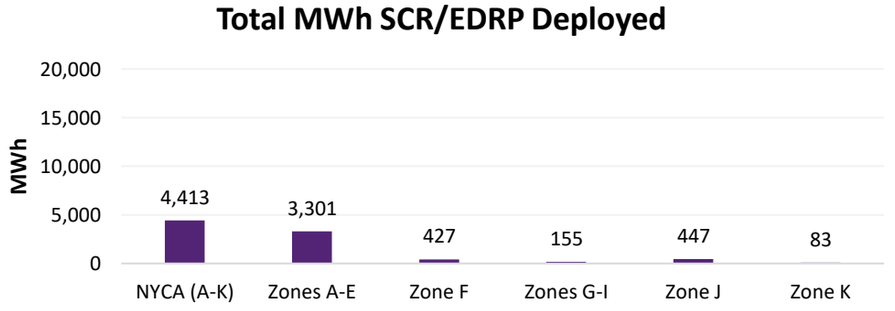
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	On
Plant Outage:	None
Import Scenario:	Net Zero

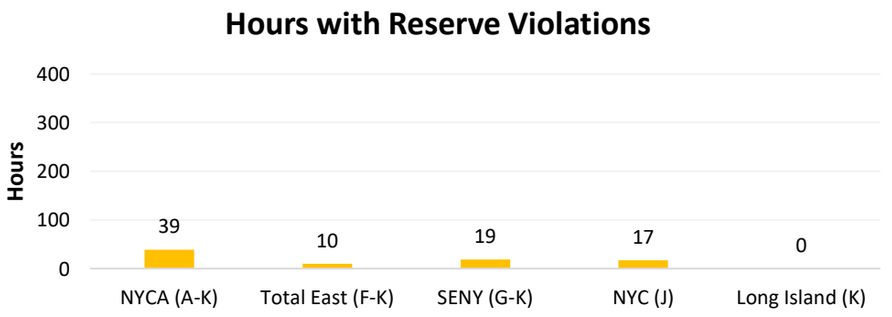


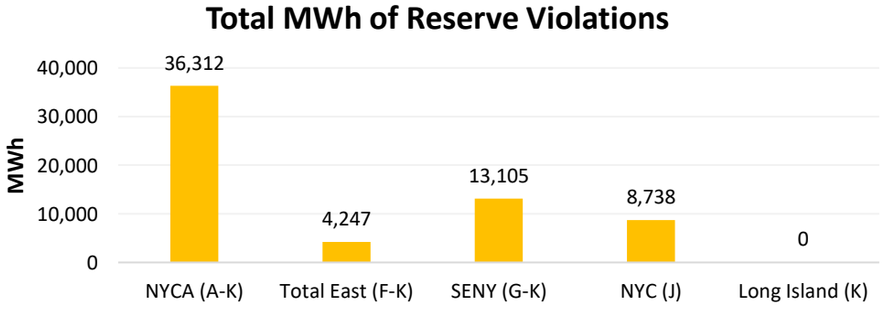


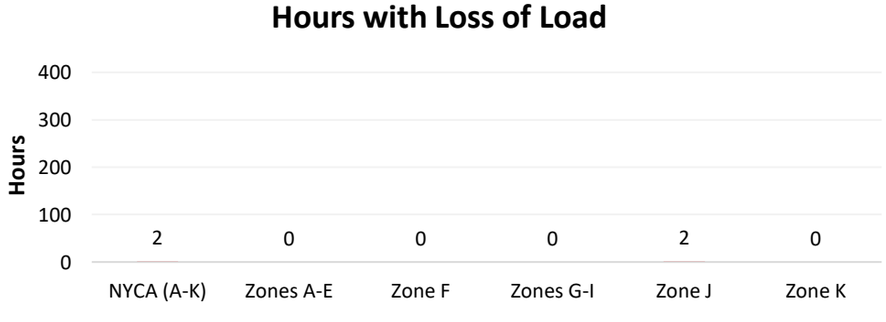


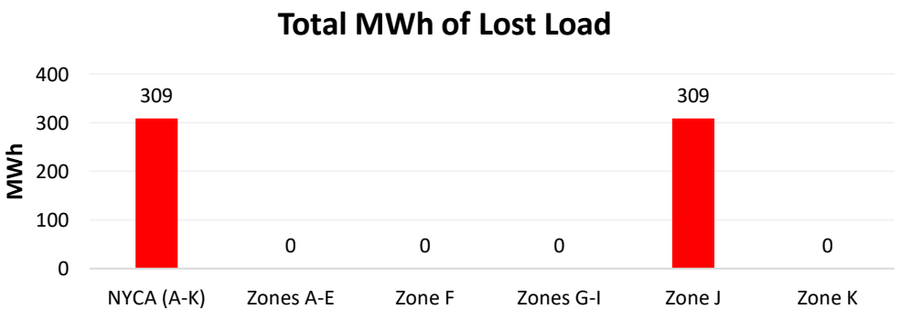


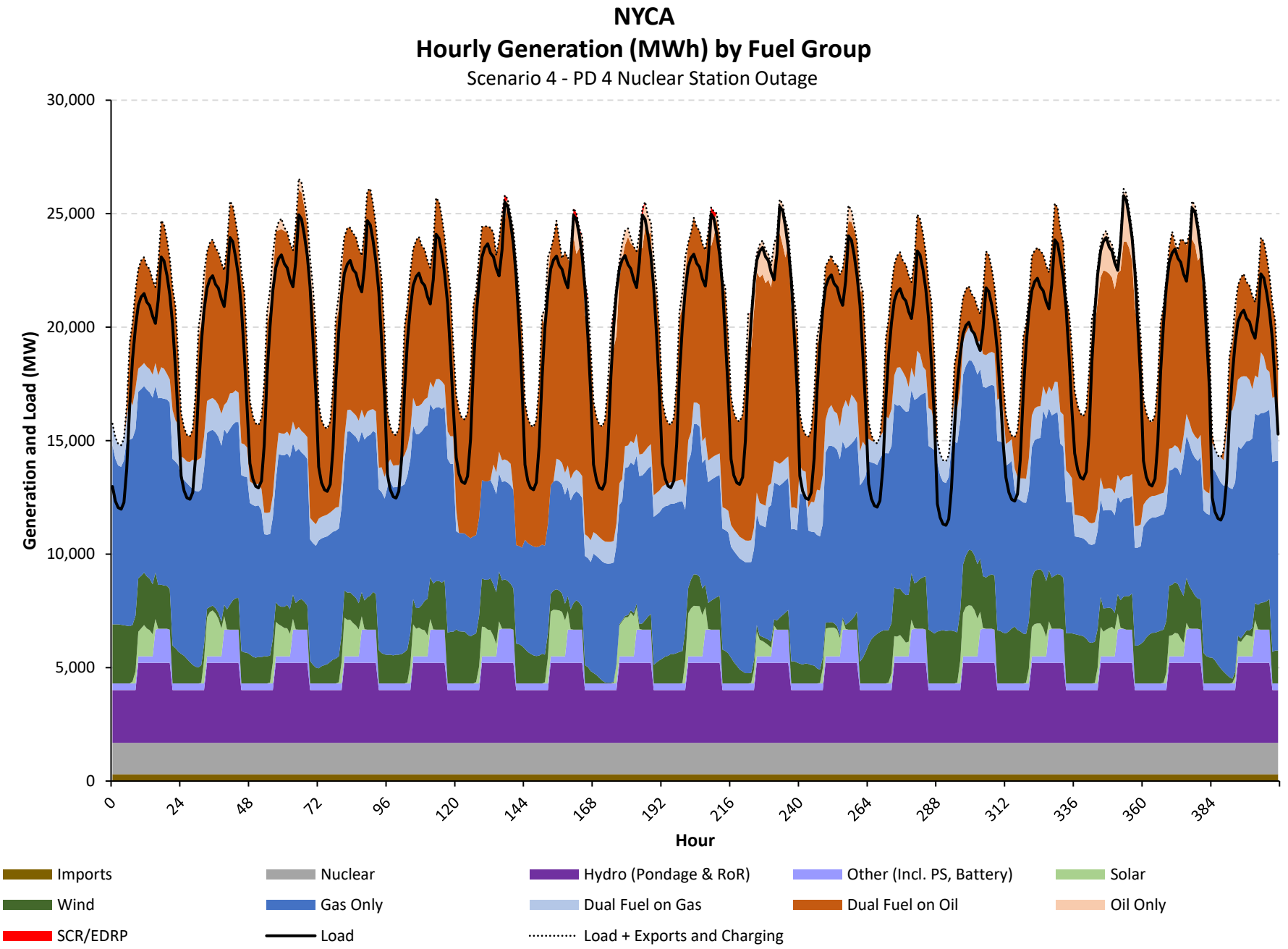




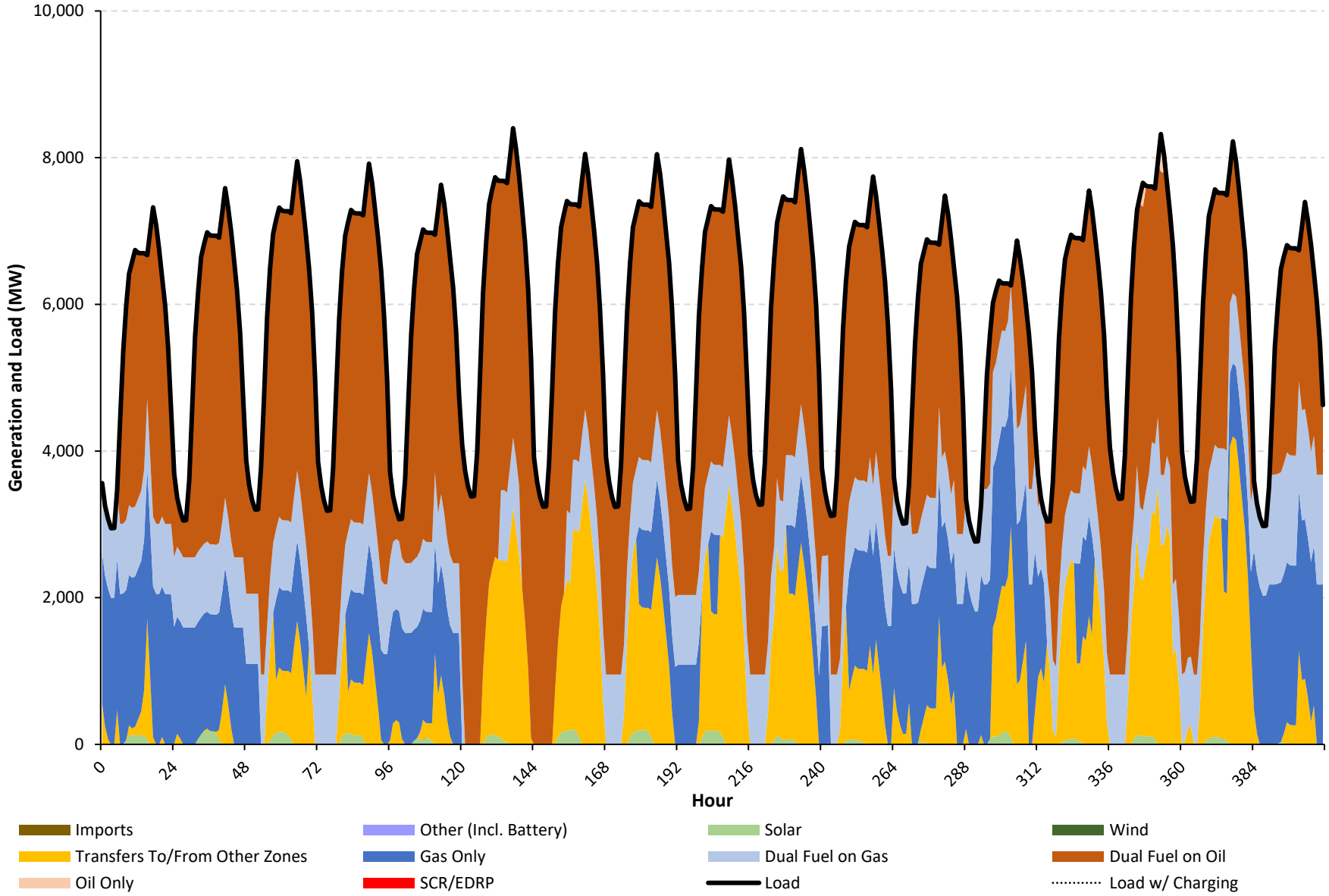




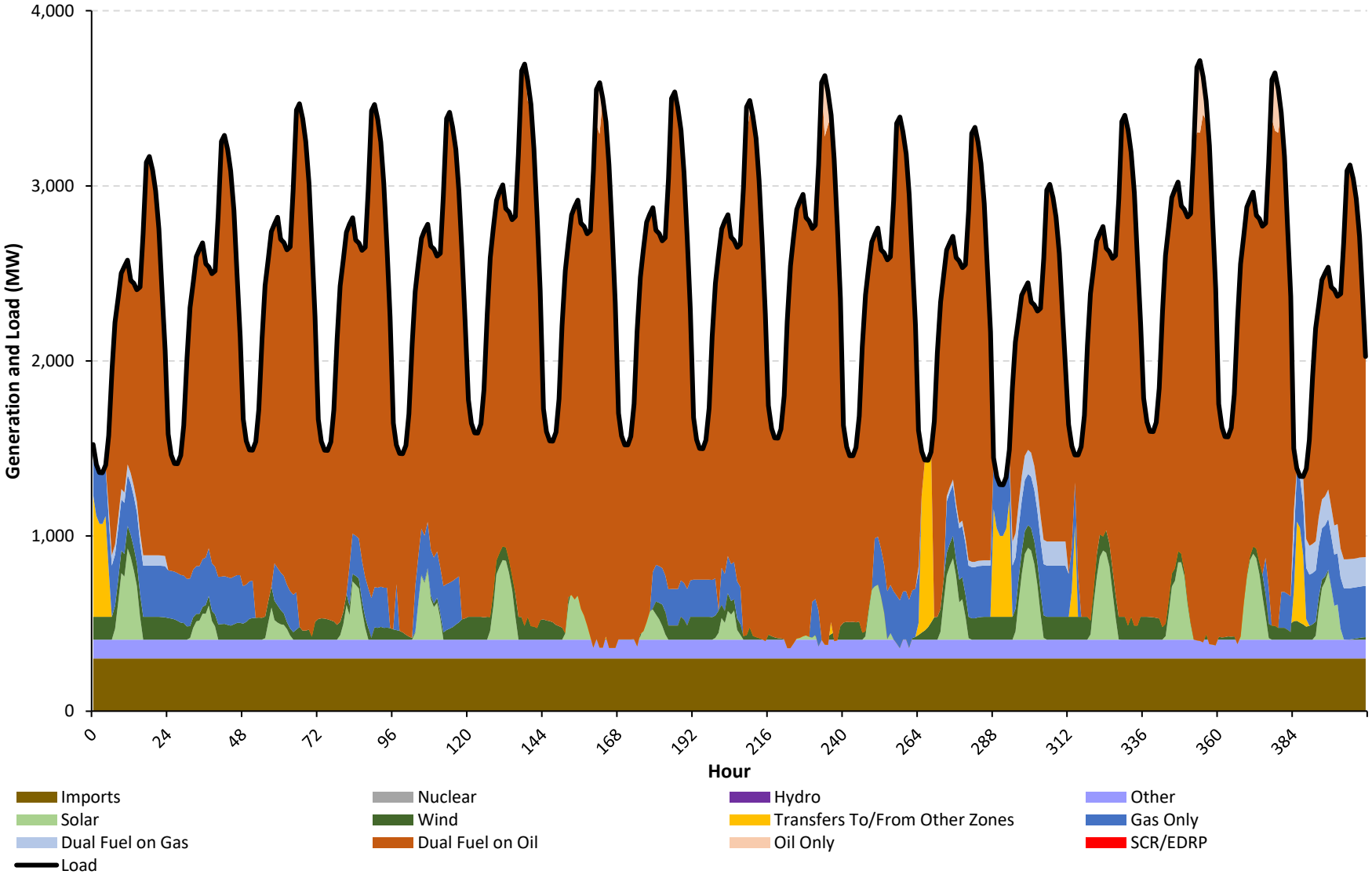



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 4 Nuclear Station Outage
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 4 Nuclear Station Outage



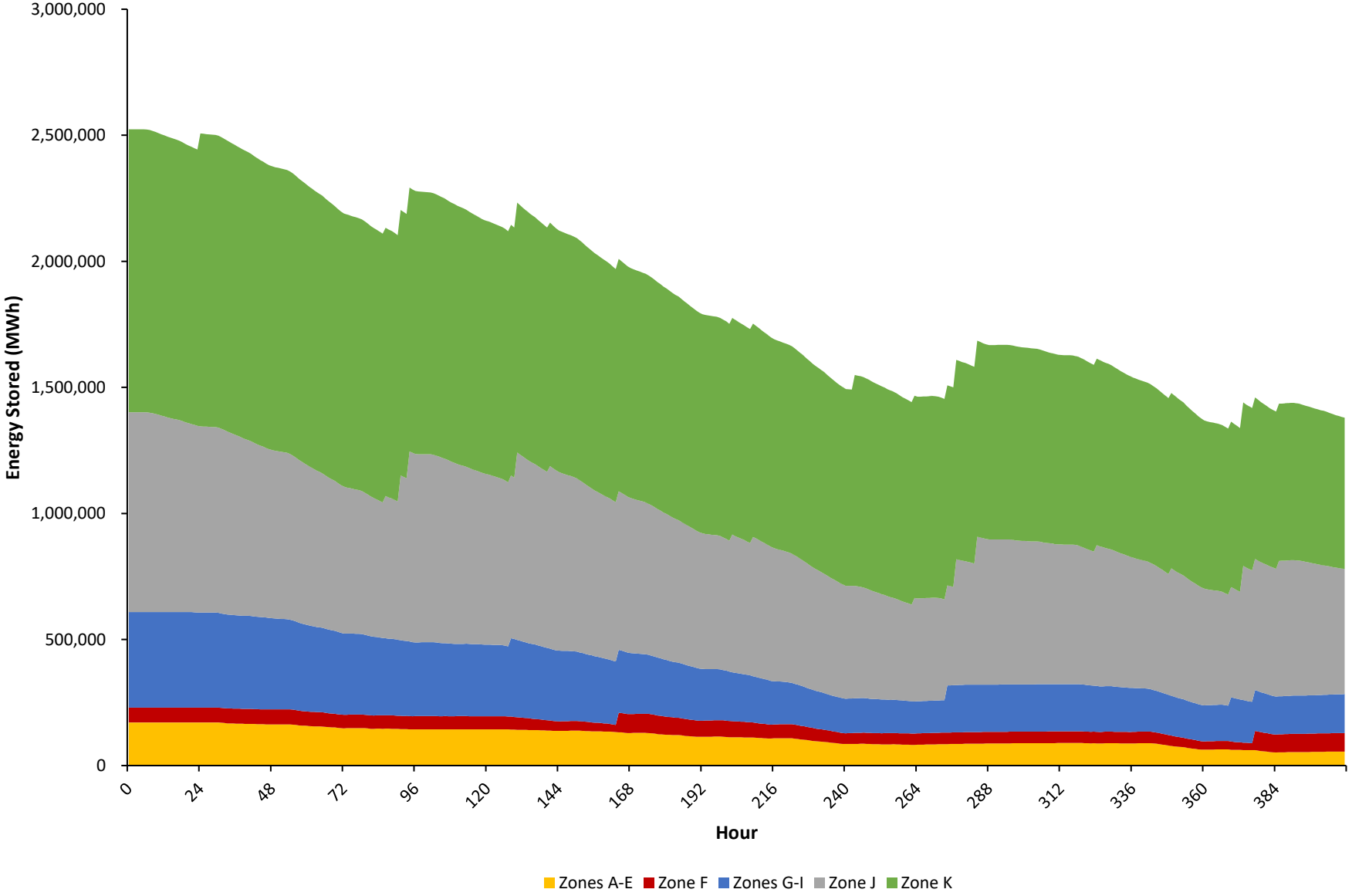
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 4 Nuclear Station Outage



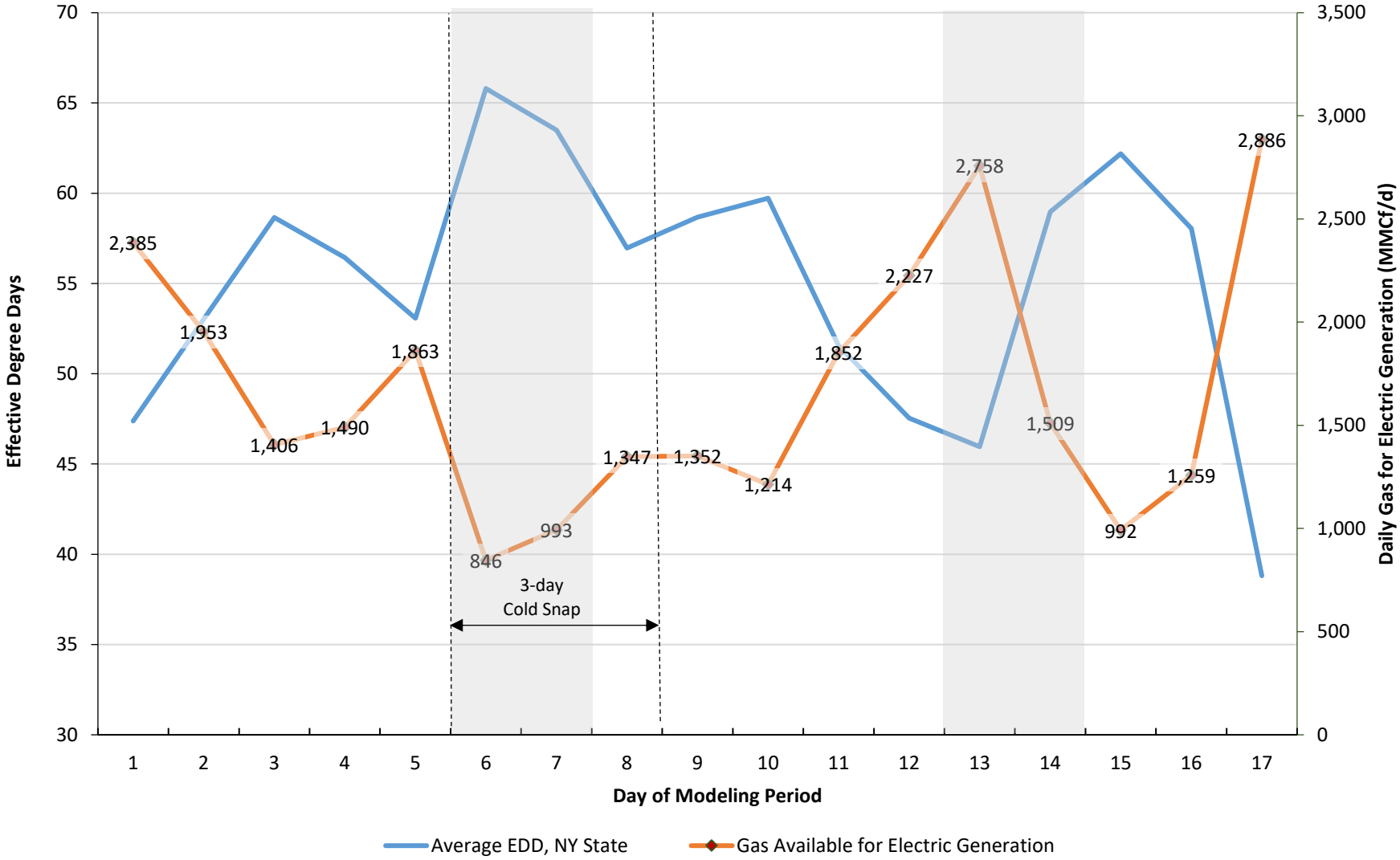
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

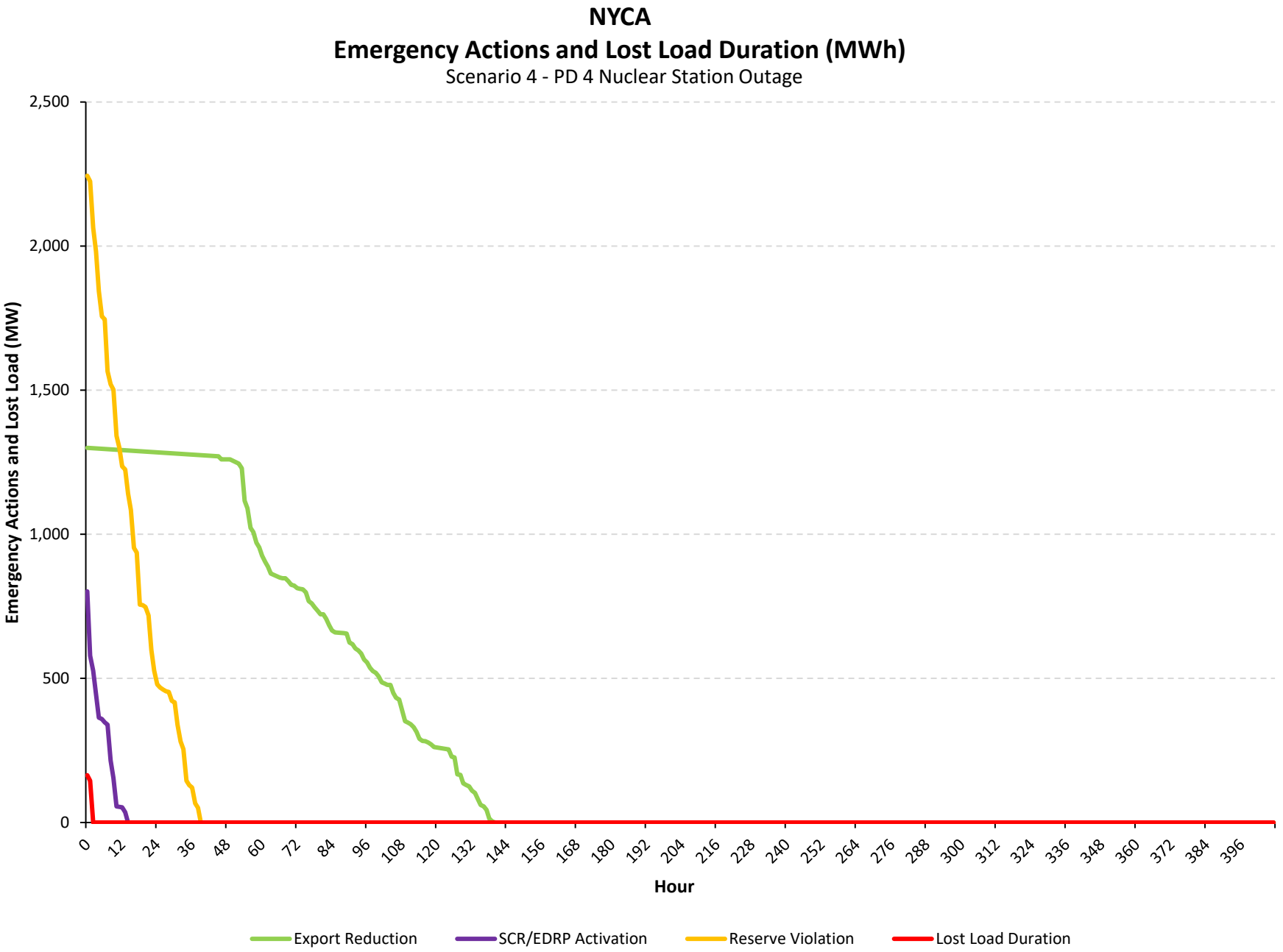
Scenario 4 - PD 4 Nuclear Station Outage

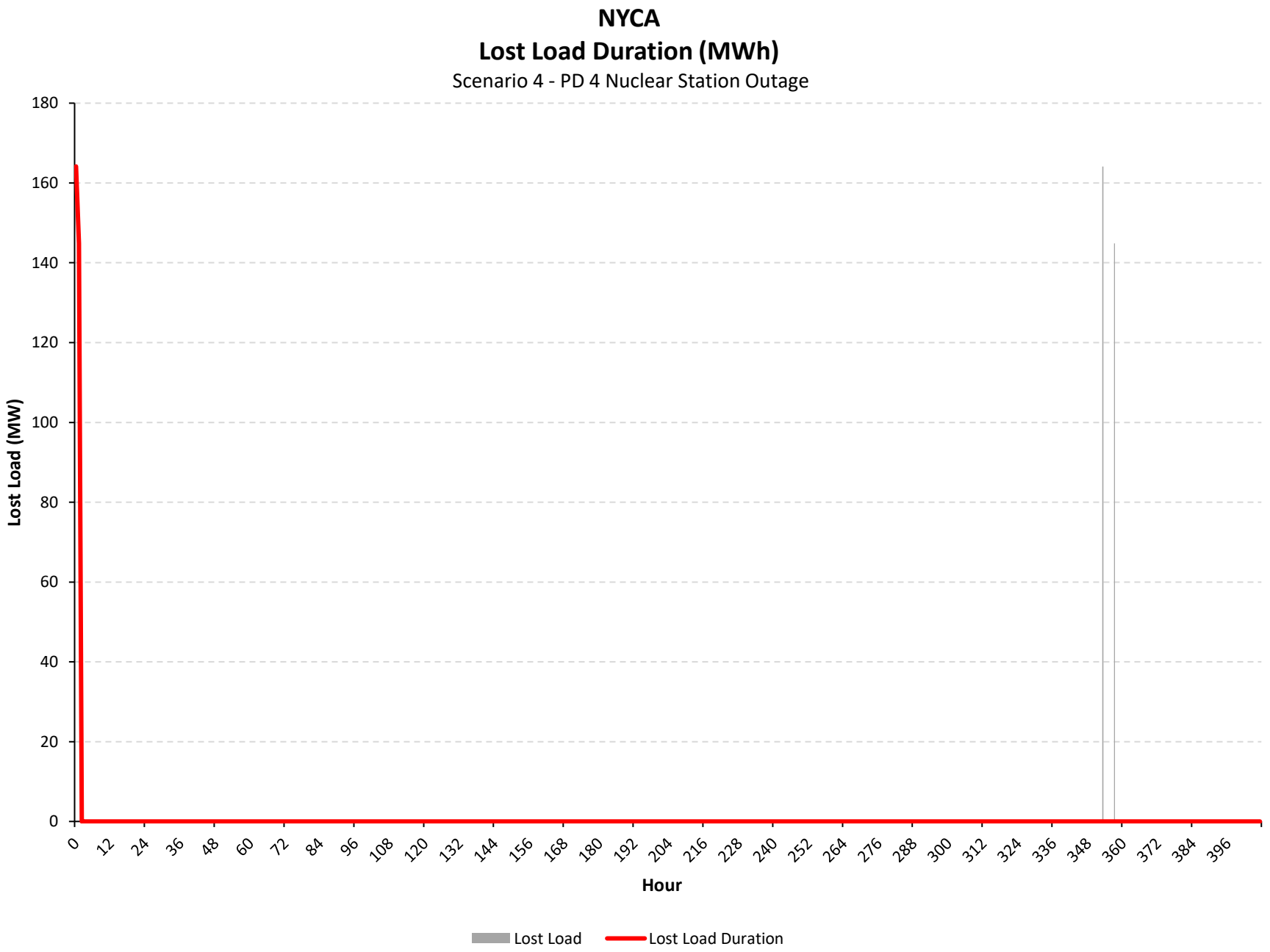


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 4 Nuclear Station Outage



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 4 Nuclear Station Outage
Emergency Actions and Lost Load (MW)
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 4 Nuclear Station Outage
Lost Load (MW)
180
160
140
120
100
80
60
40
20
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

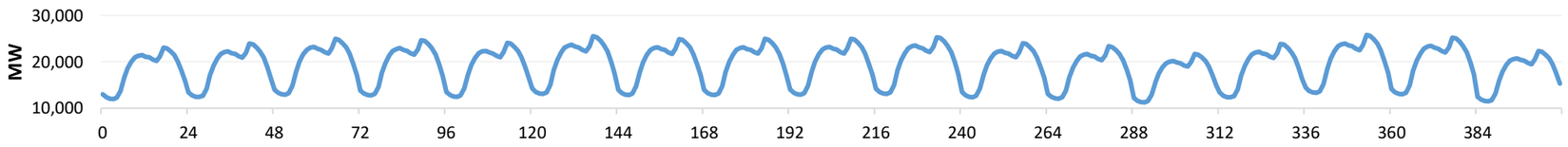
Case: Scenario 4 - PD 5 No Truck Refill (Winter 2023/2024)

Hourly Results Summary

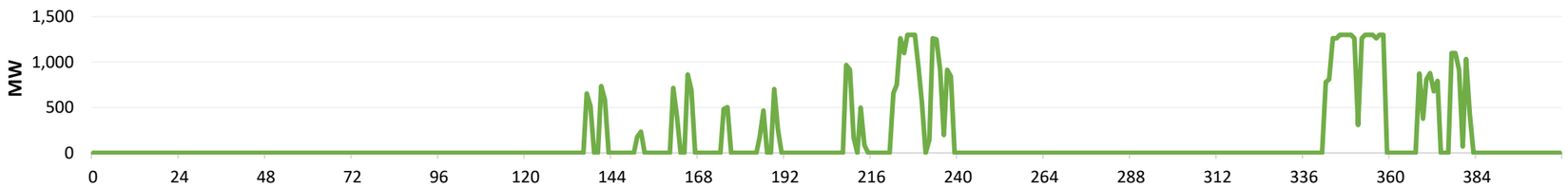
Case Name: Scenario 4 - PD 5 No Truck Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

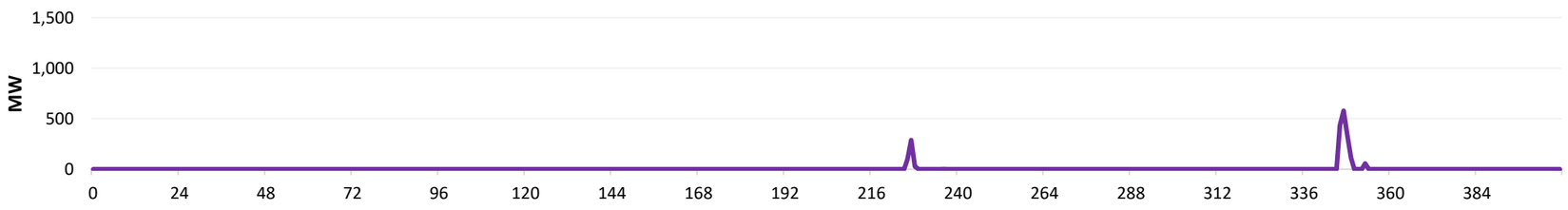


Export to ISO-NE Reduction During Modeling Period



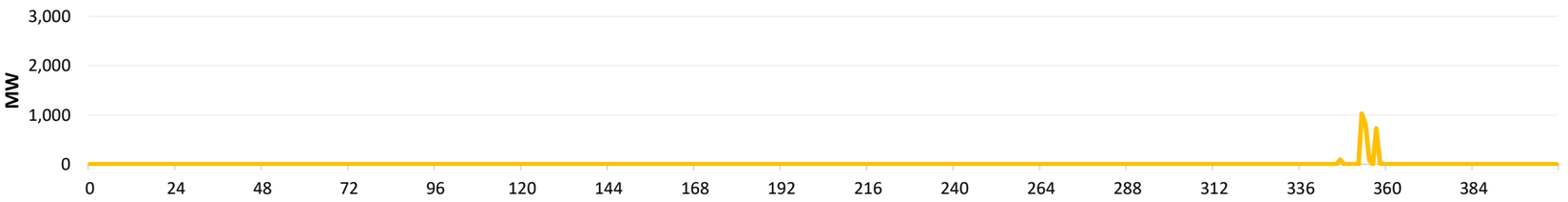
Export Reductions	
Total Hrs.	66
Total MWh	54,390
Avg. MW	133.3

SCR/EDRP Deployed During Modeling Period



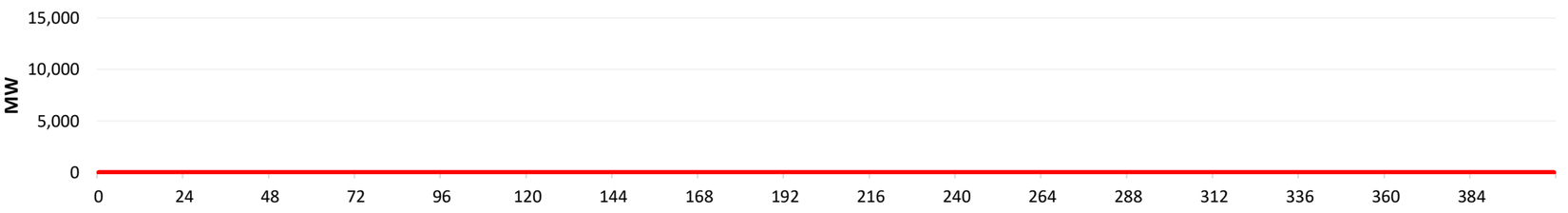
SCR Deployment	
Total Hrs.	8
Total MWh	1,928
Avg. MW	4.7

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	6
Total MWh	2,752
Avg. MW	6.7
First Hour with Viol.	347

Loss of Load During Modeling Period

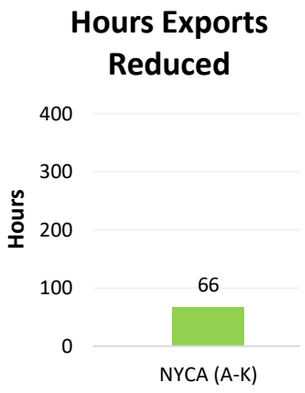


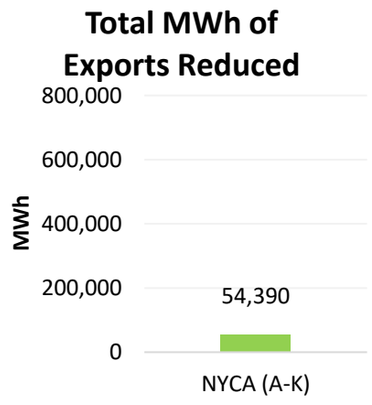
Loss of Load	
Total Hrs.	0
Total MWh	0
Avg. MW	0.0
First Hour with Losses	

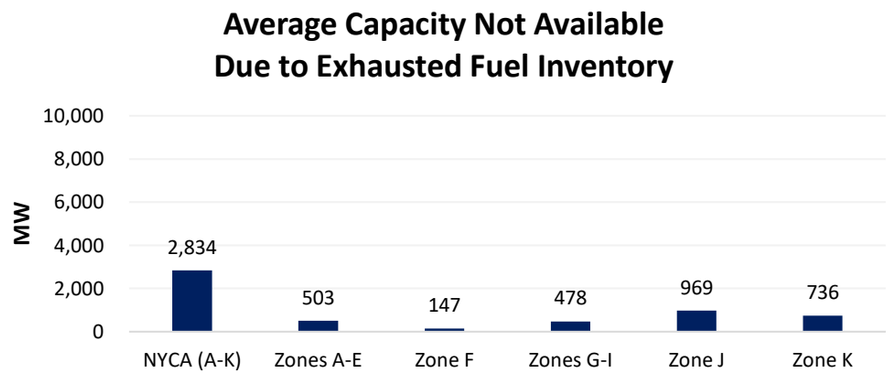
Full Period Results Summary

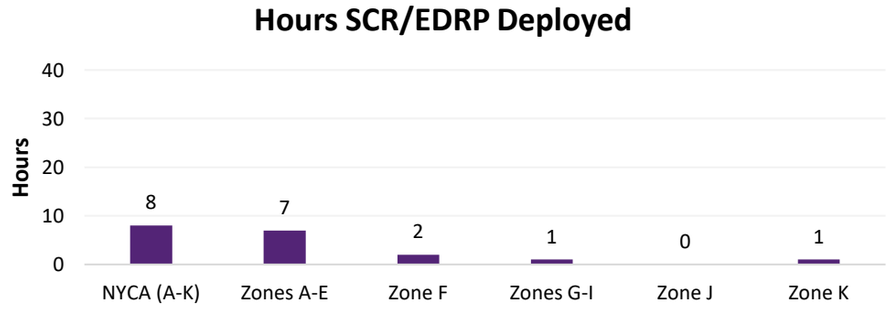
Case Name: Scenario 4 - PD 5 No Truck Refill

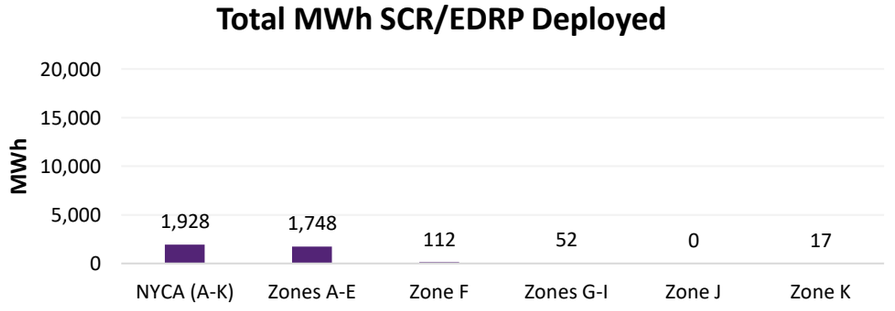
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Trucks
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

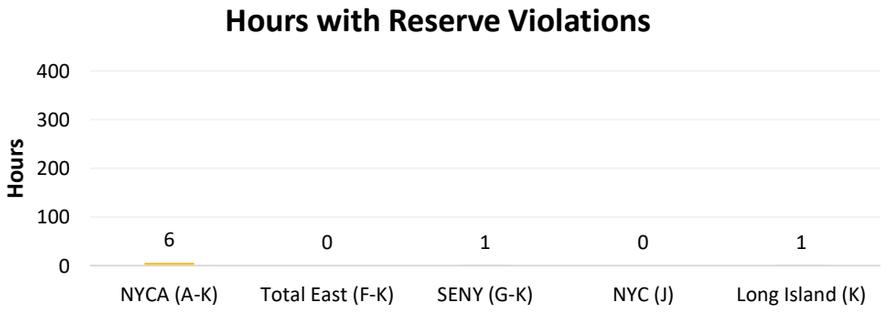


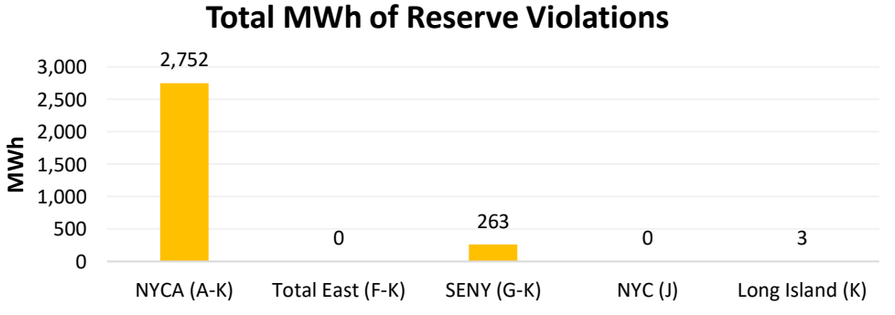


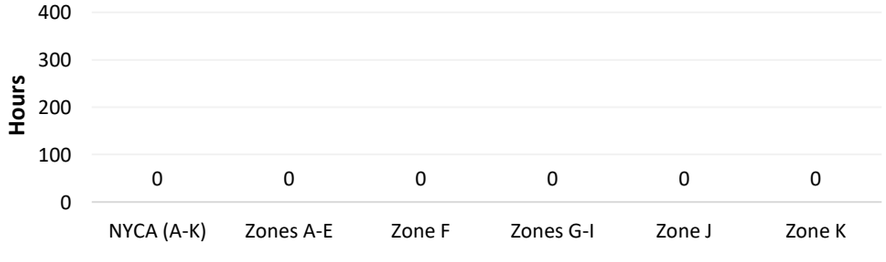


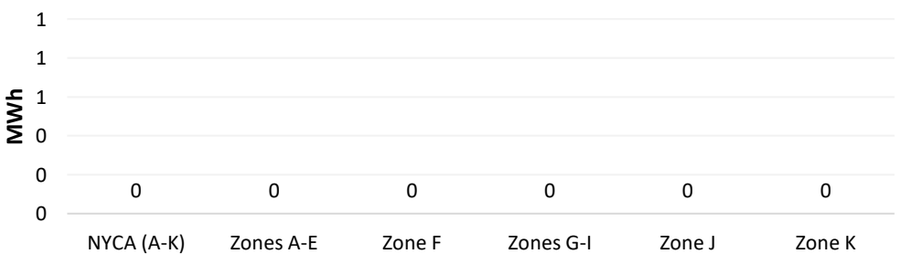


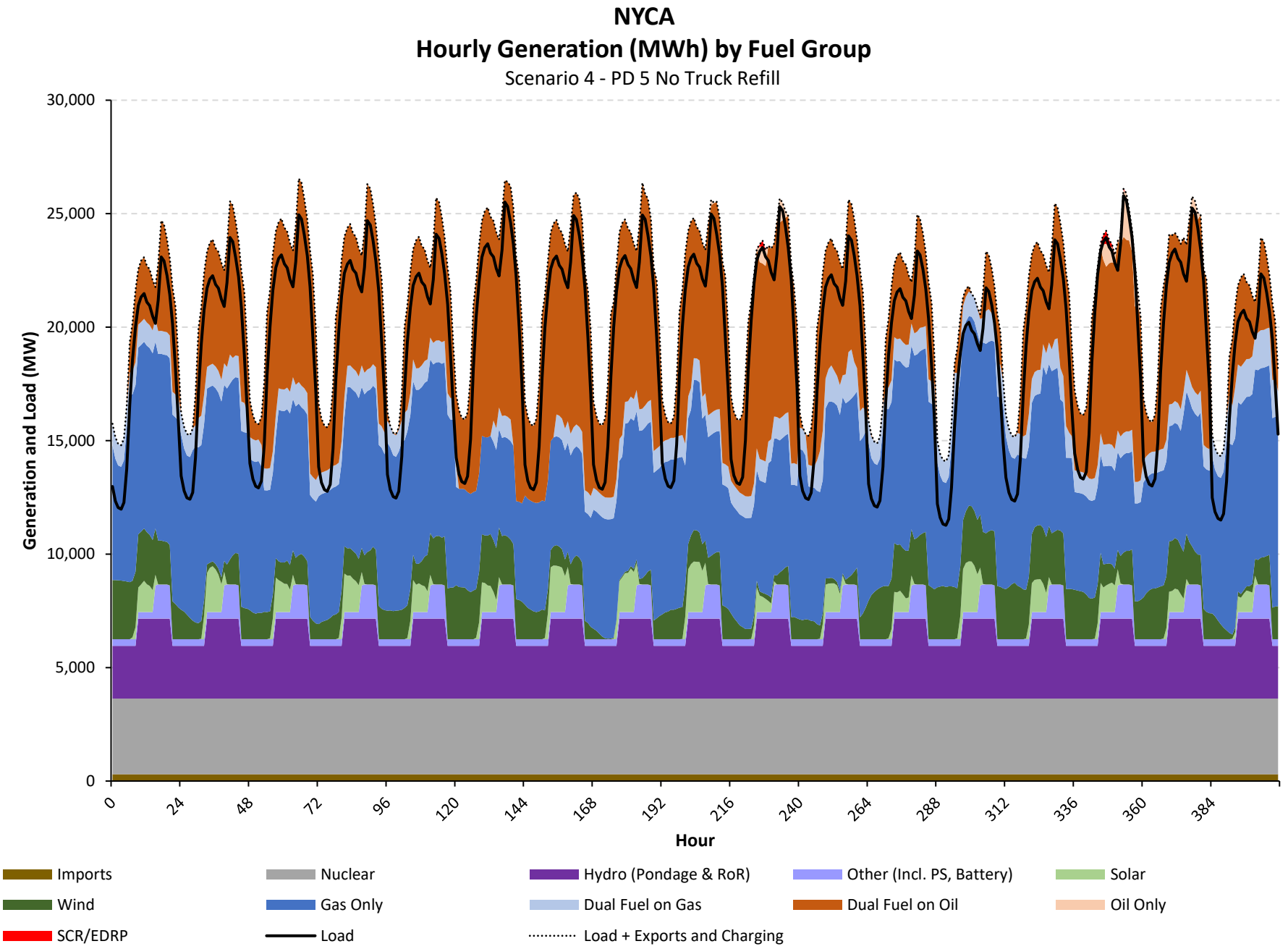




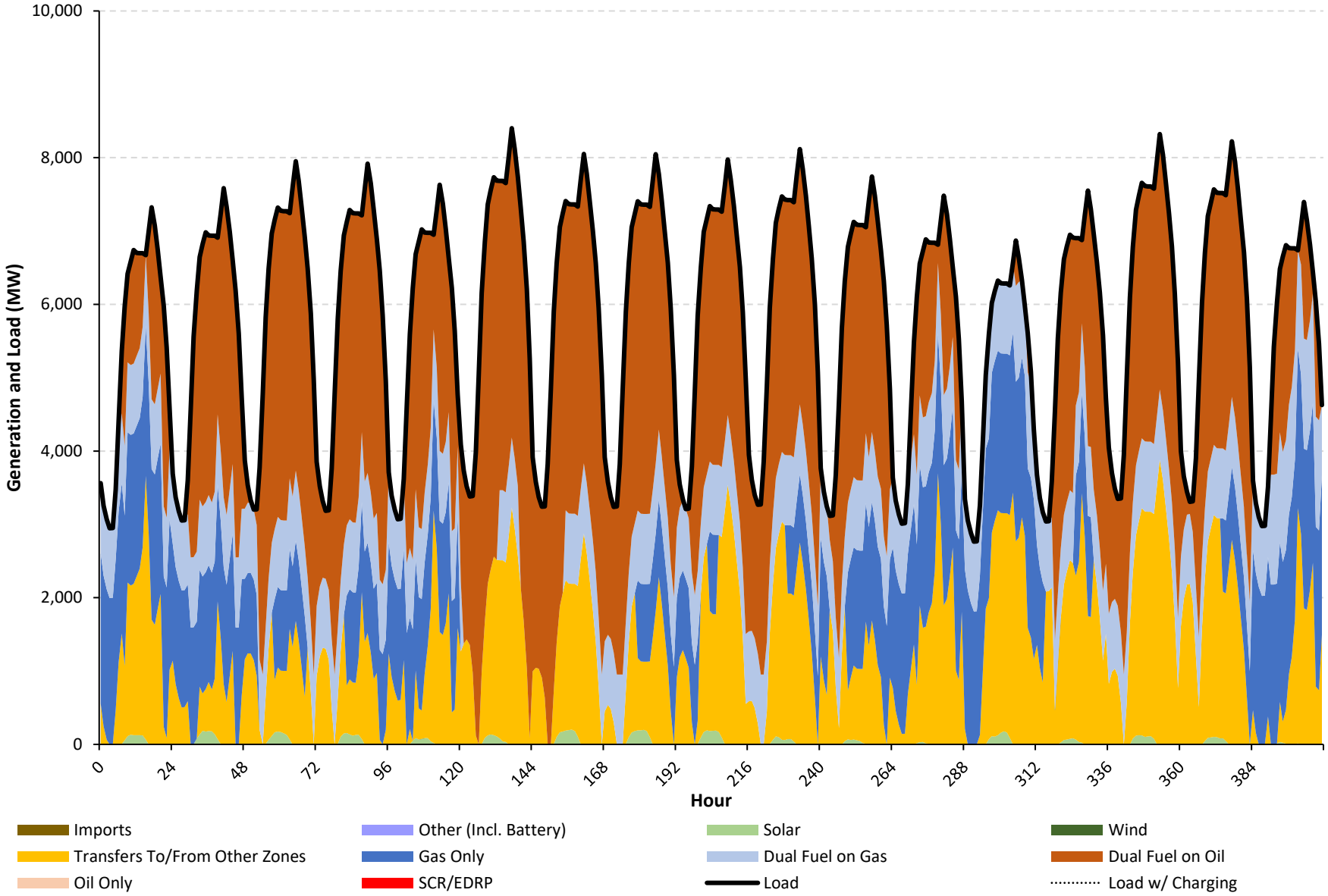




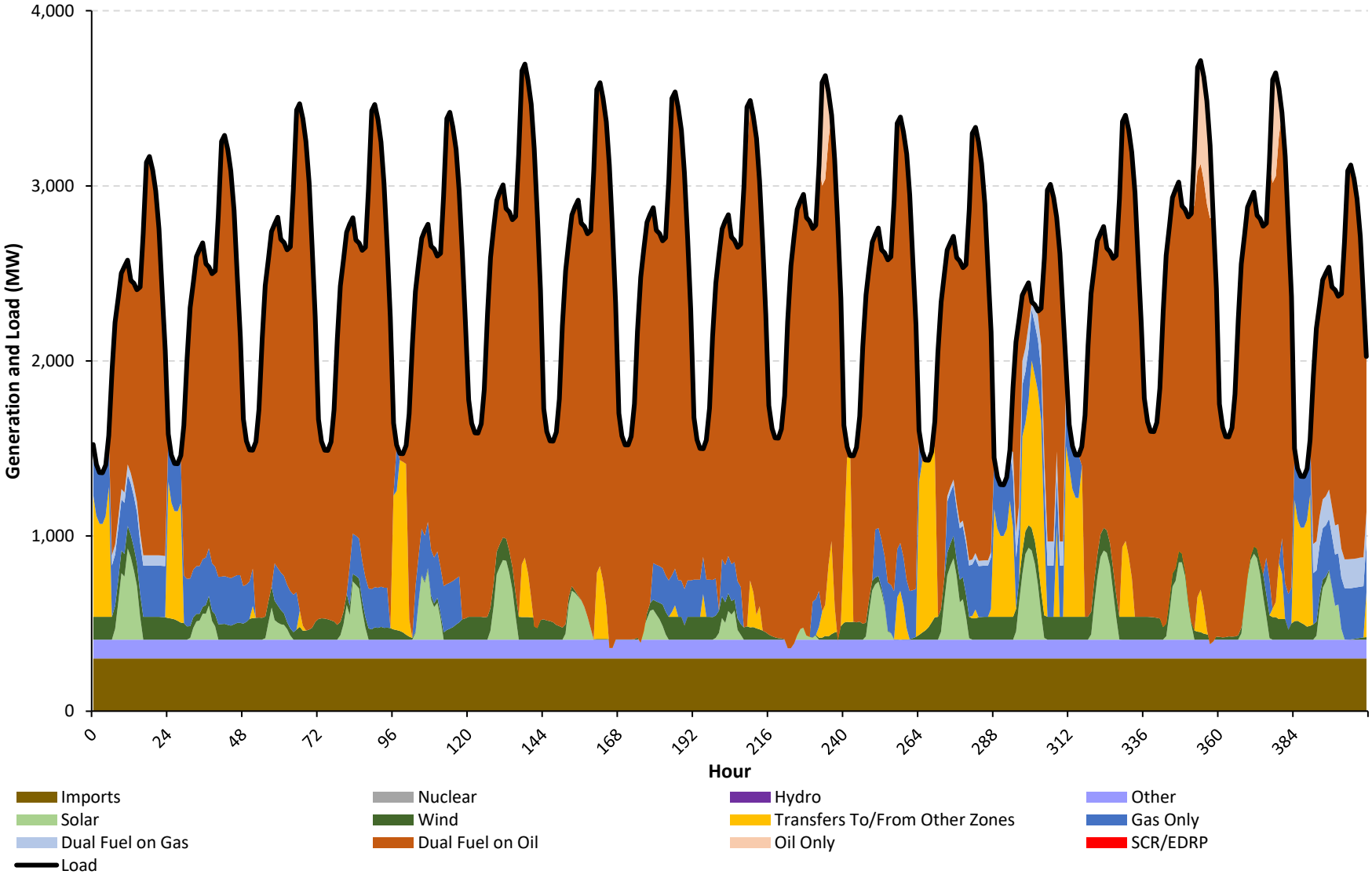


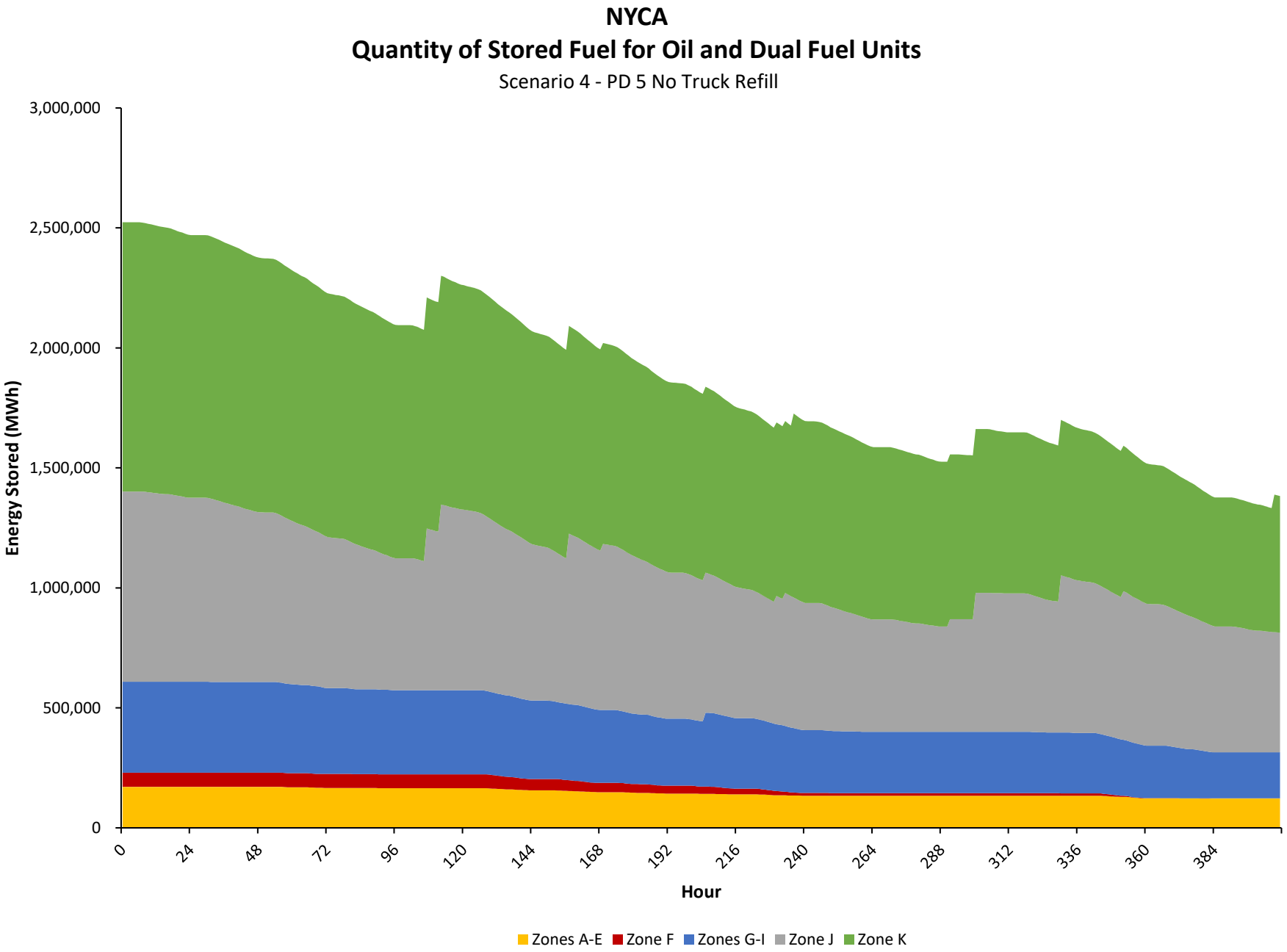

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 5 No Truck Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

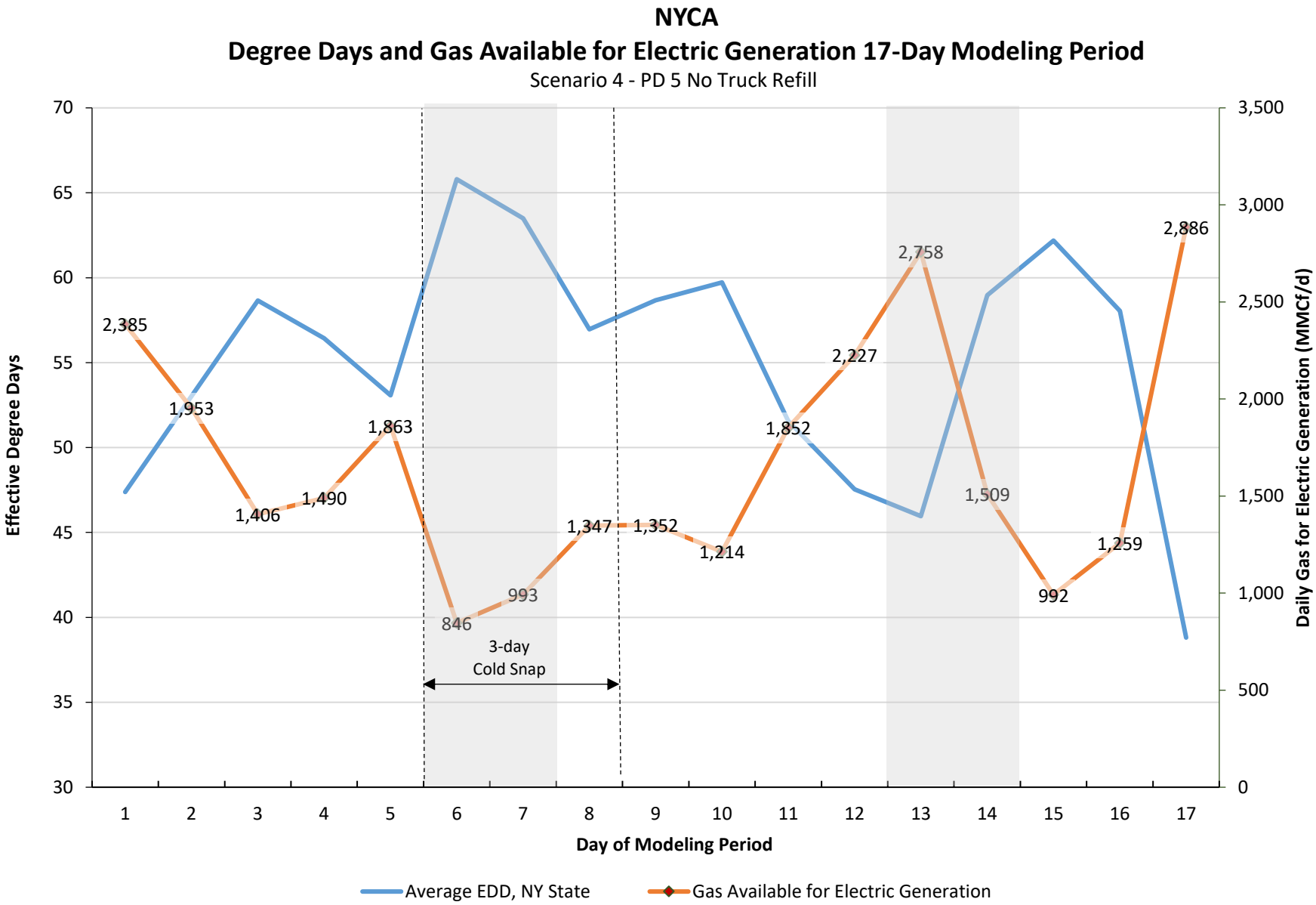
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 5 No Truck Refill



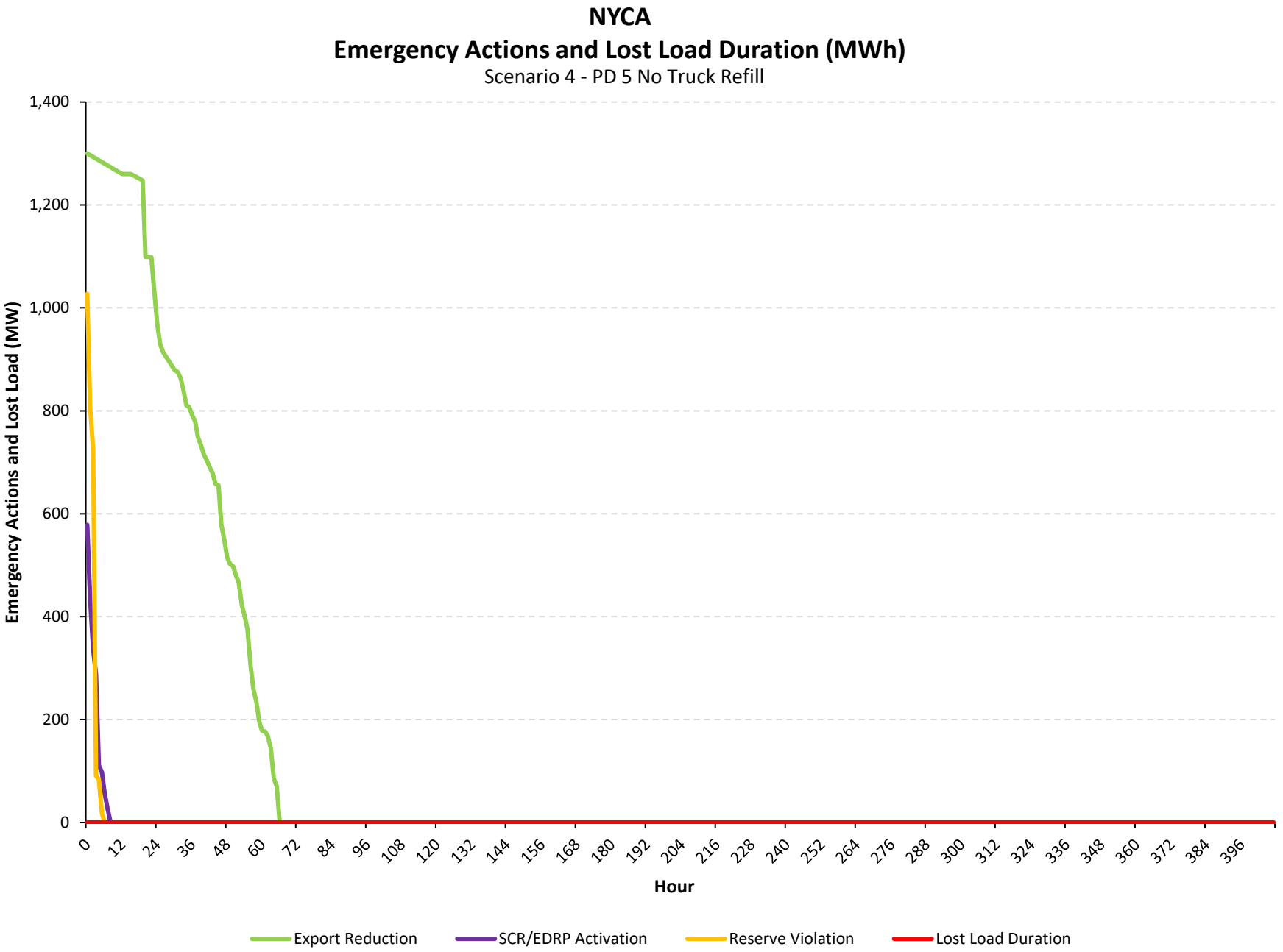
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 5 No Truck Refill

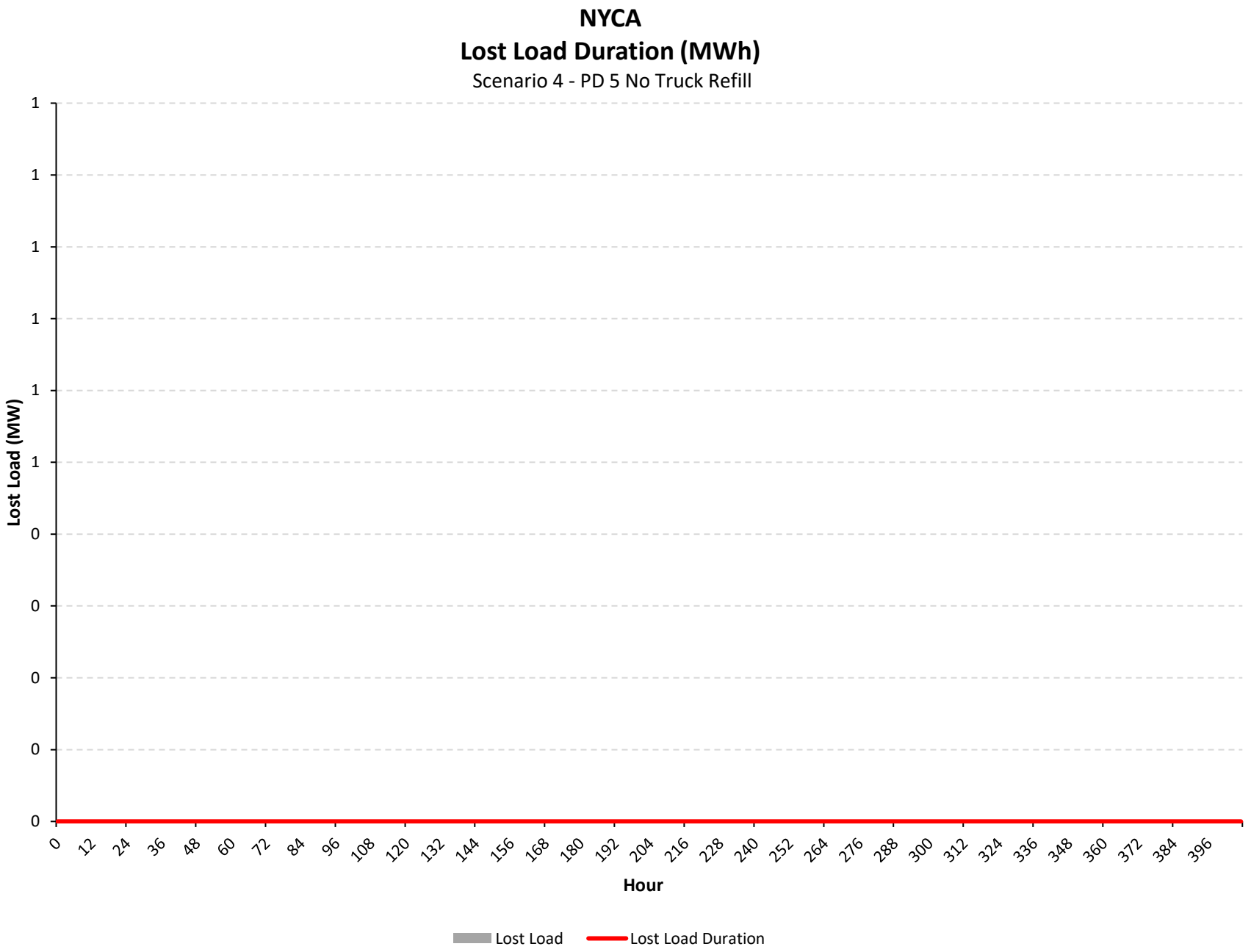



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 4 - PD 5 No Truck Refill
Energy Stored (MWh)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 5 No Truck Refill
Emergency Actions and Lost Load (MW)
1,400
1,200
1,000
800
600
400
200
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 5 No Truck Refill
Lost Load (MW)
1
1
1
1
1
1
0
0
0
0
0
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

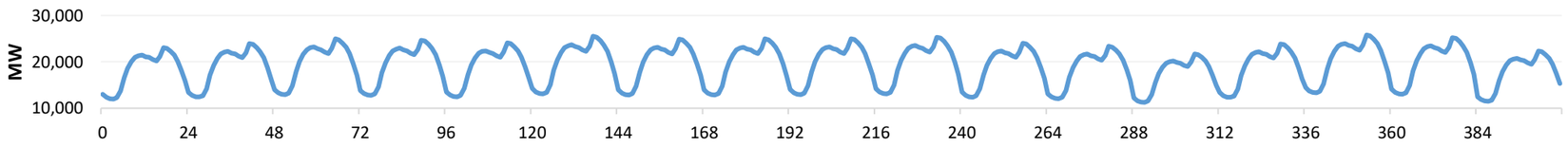
Case: Scenario 4 - PD 6 No Barge Refill (Winter 2023/2024)

Hourly Results Summary

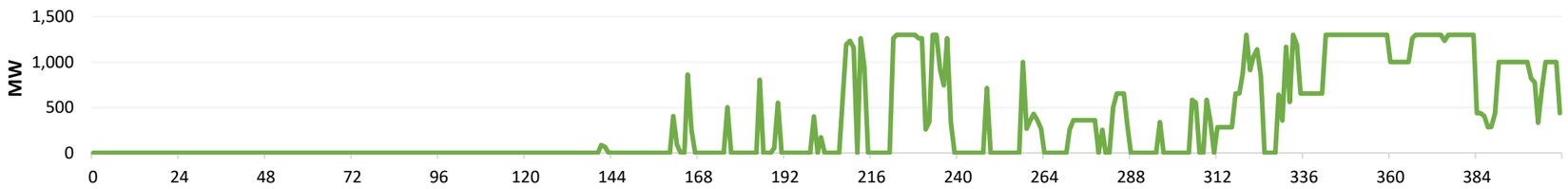
Case Name: Scenario 4 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

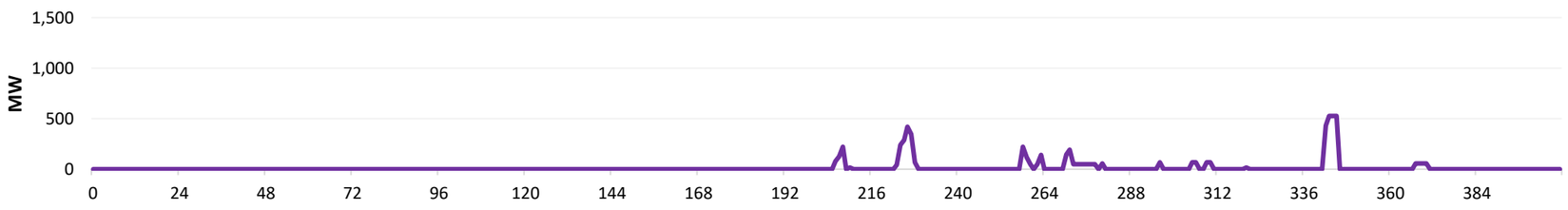


Export to ISO-NE Reduction During Modeling Period



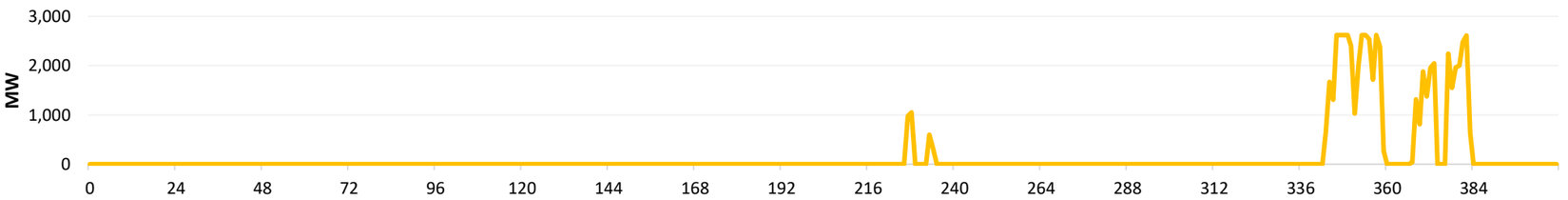
Export Reductions	
Total Hrs.	153
Total MWh	129,981
Avg. MW	318.6

SCR/EDRP Deployed During Modeling Period



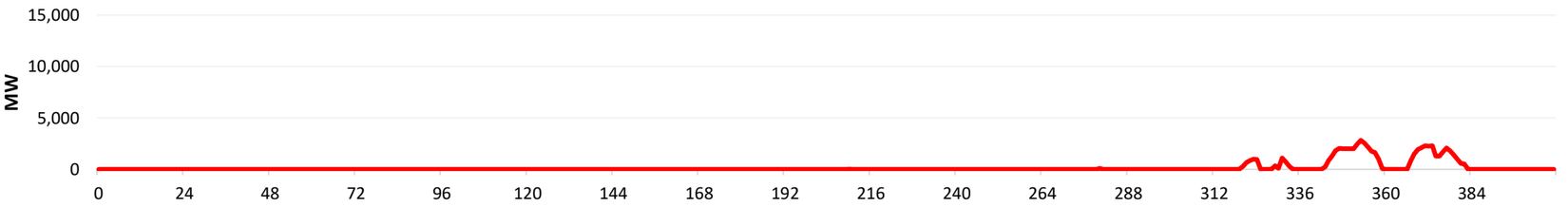
SCR Deployment	
Total Hrs.	39
Total MWh	5,770
Avg. MW	14.1

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	35
Total MWh	60,133
Avg. MW	147.4
First Hour with Viol.	208

Loss of Load During Modeling Period



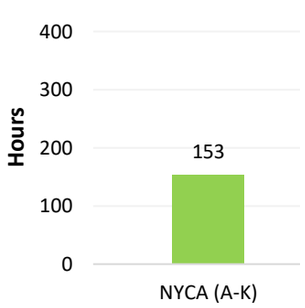
Loss of Load	
Total Hrs.	45
Total MWh	59,922
Avg. MW	146.9
First Hour with Losses	210

Full Period Results Summary

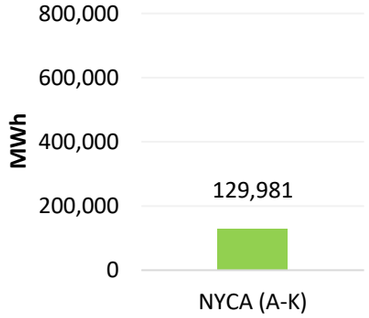
Case Name: Scenario 4 - PD 6 No Barge Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Barge
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

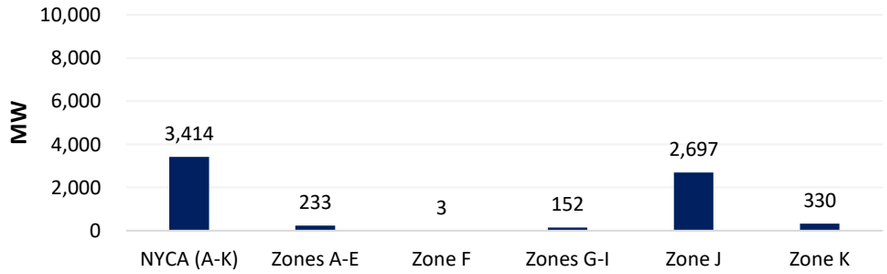
Hours Exports Reduced



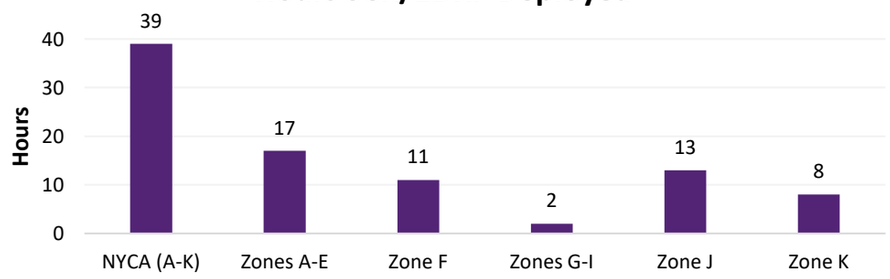
Total MWh of Exports Reduced



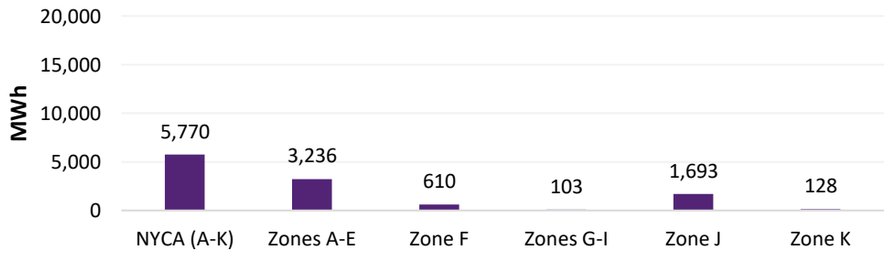
Average Capacity Not Available Due to Exhausted Fuel Inventory



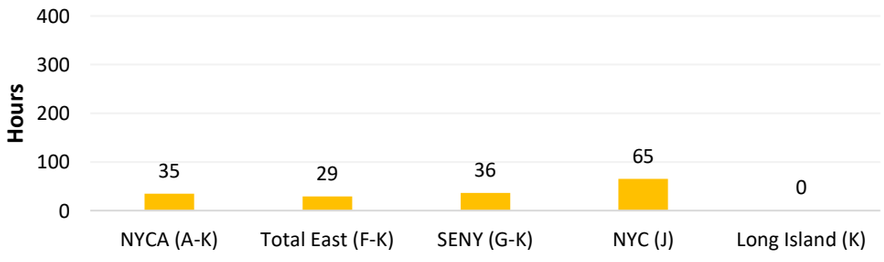
Hours SCR/EDRP Deployed



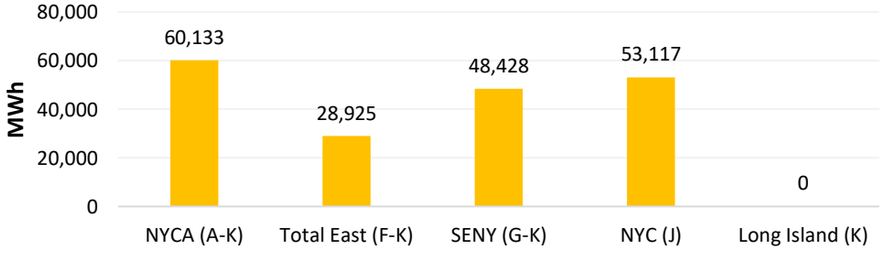
Total MWh SCR/EDRP Deployed



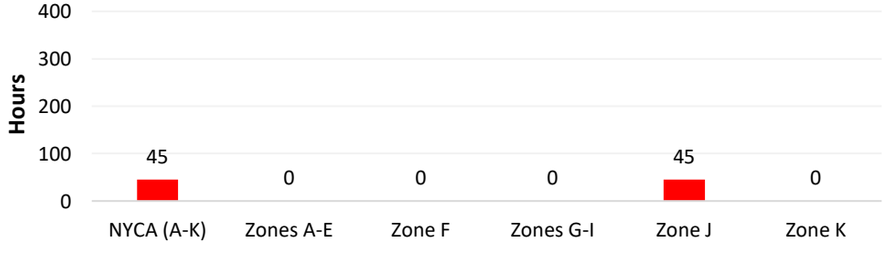
Hours with Reserve Violations



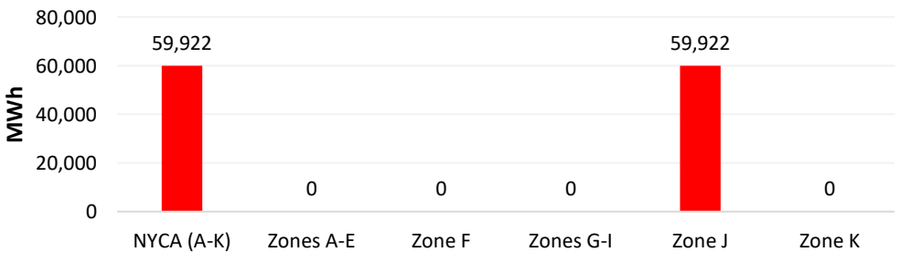
Total MWh of Reserve Violations

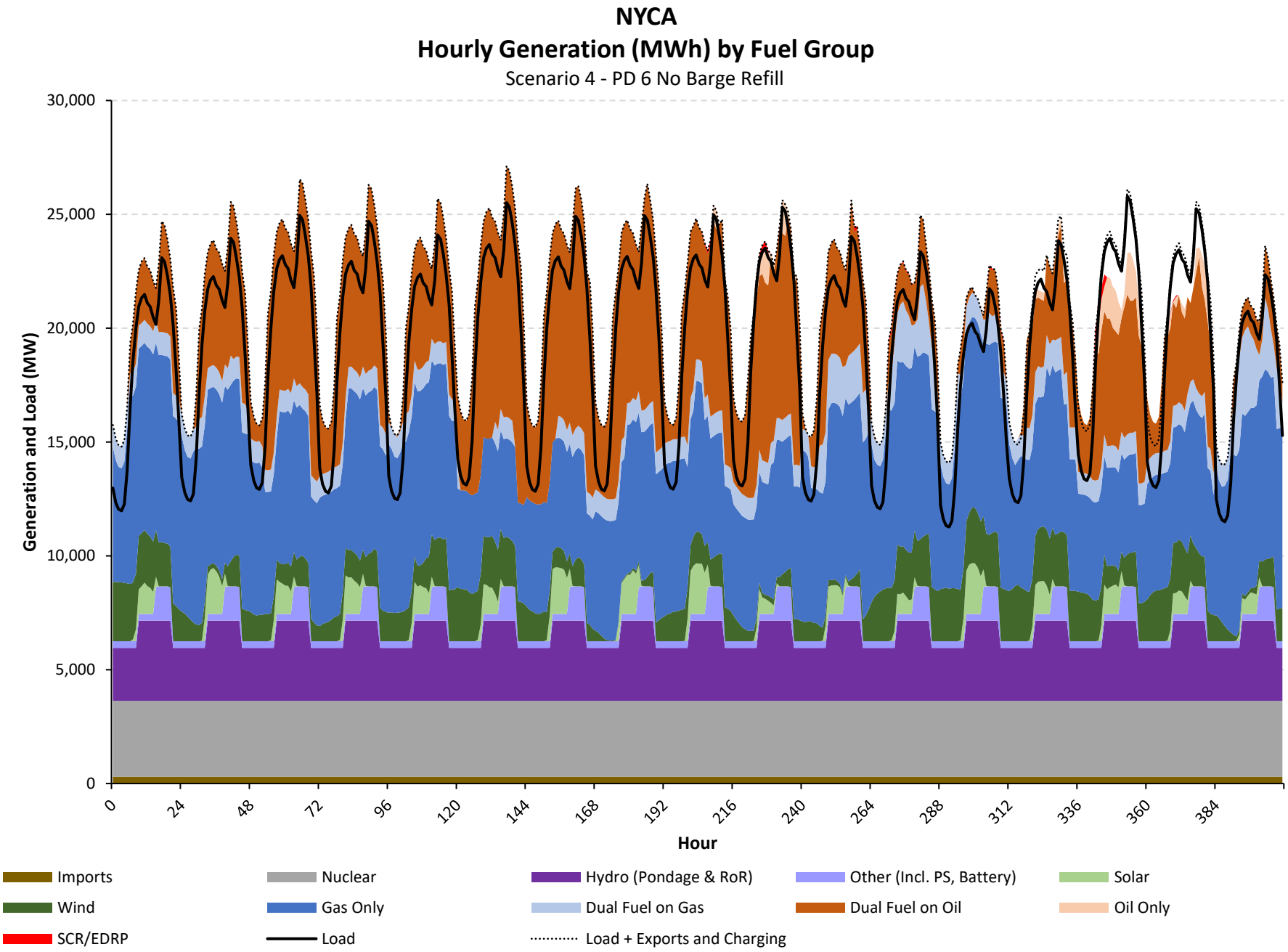


Hours with Loss of Load

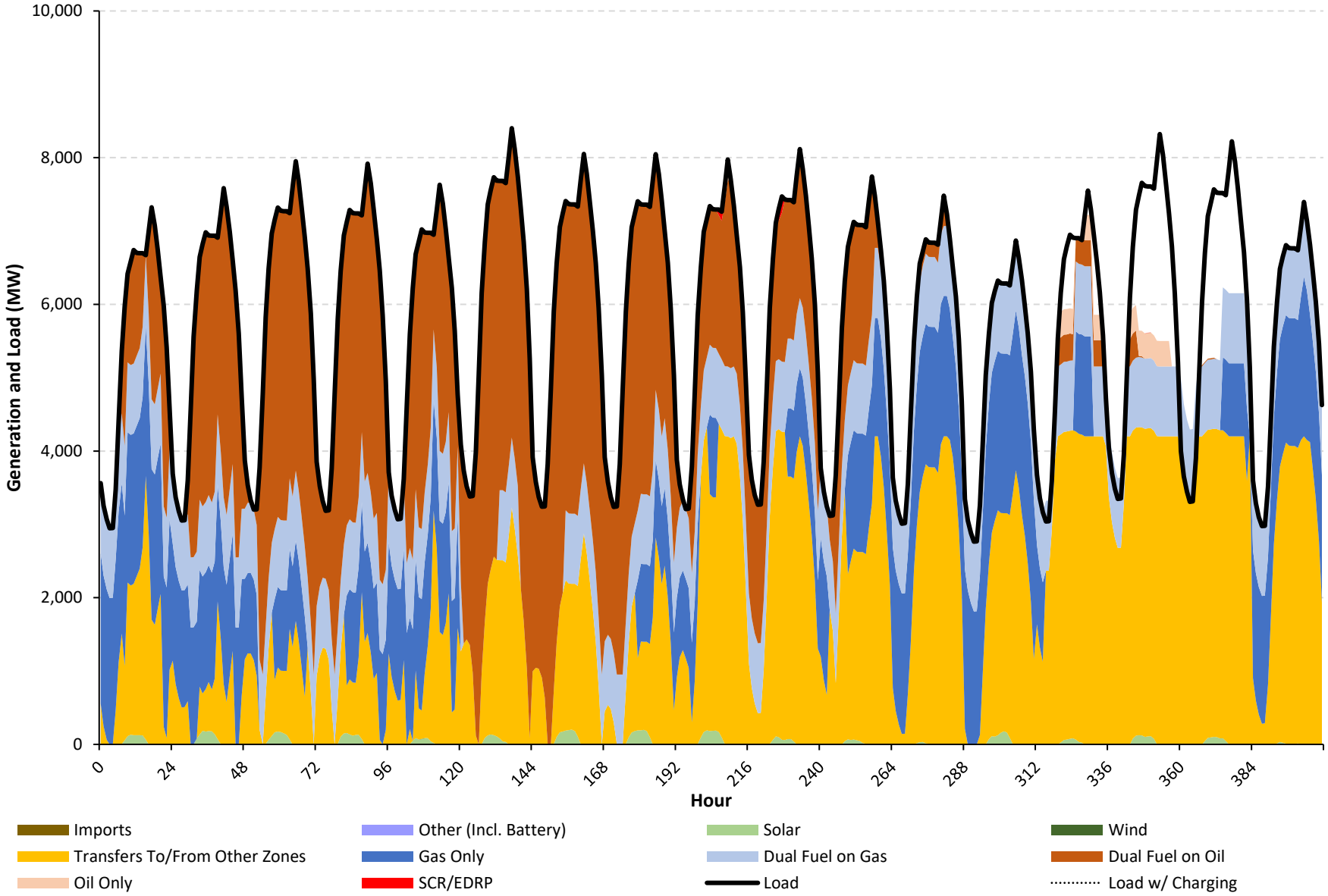


Total MWh of Lost Load

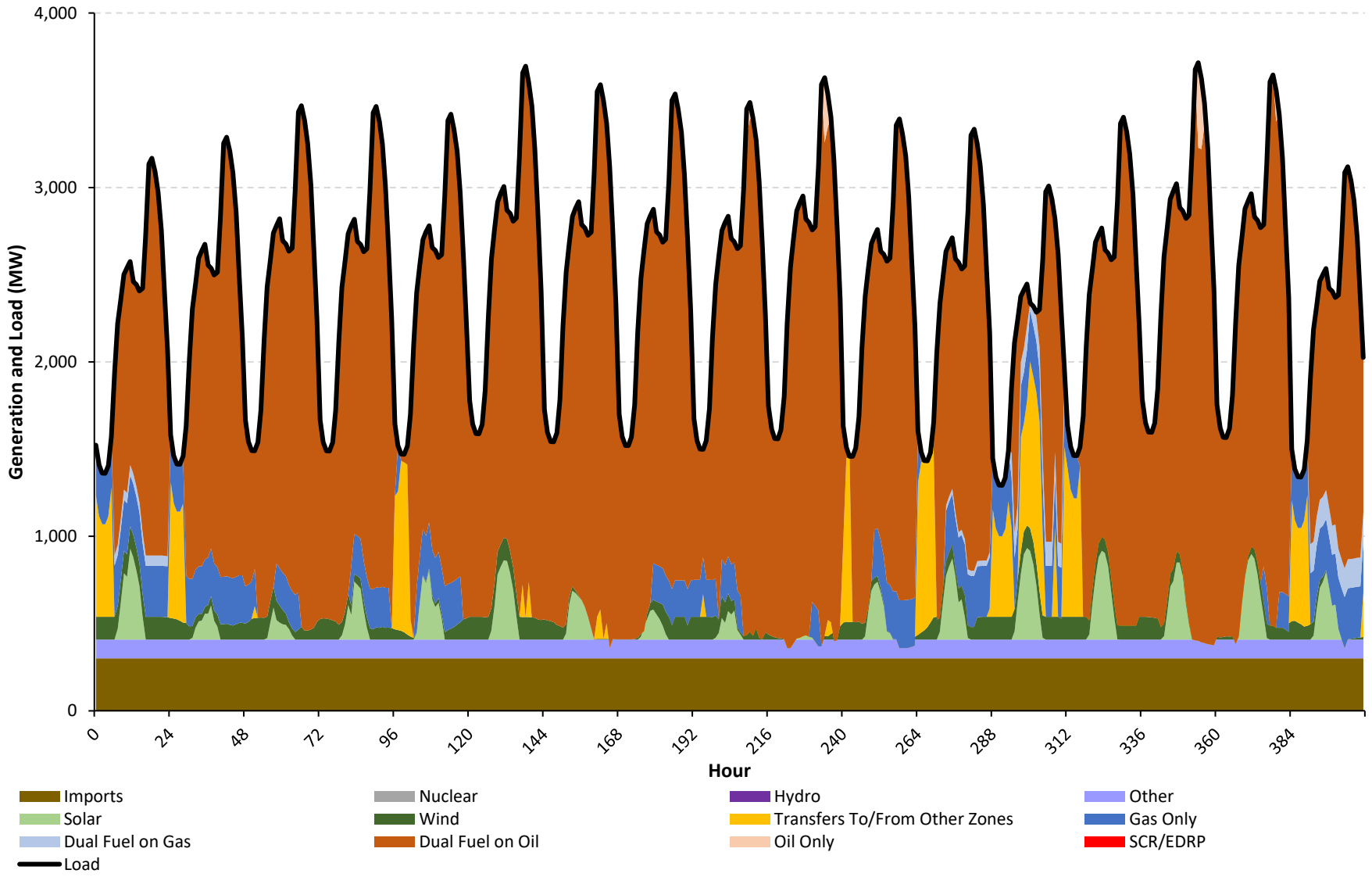



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 6 No Barge Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 6 No Barge Refill



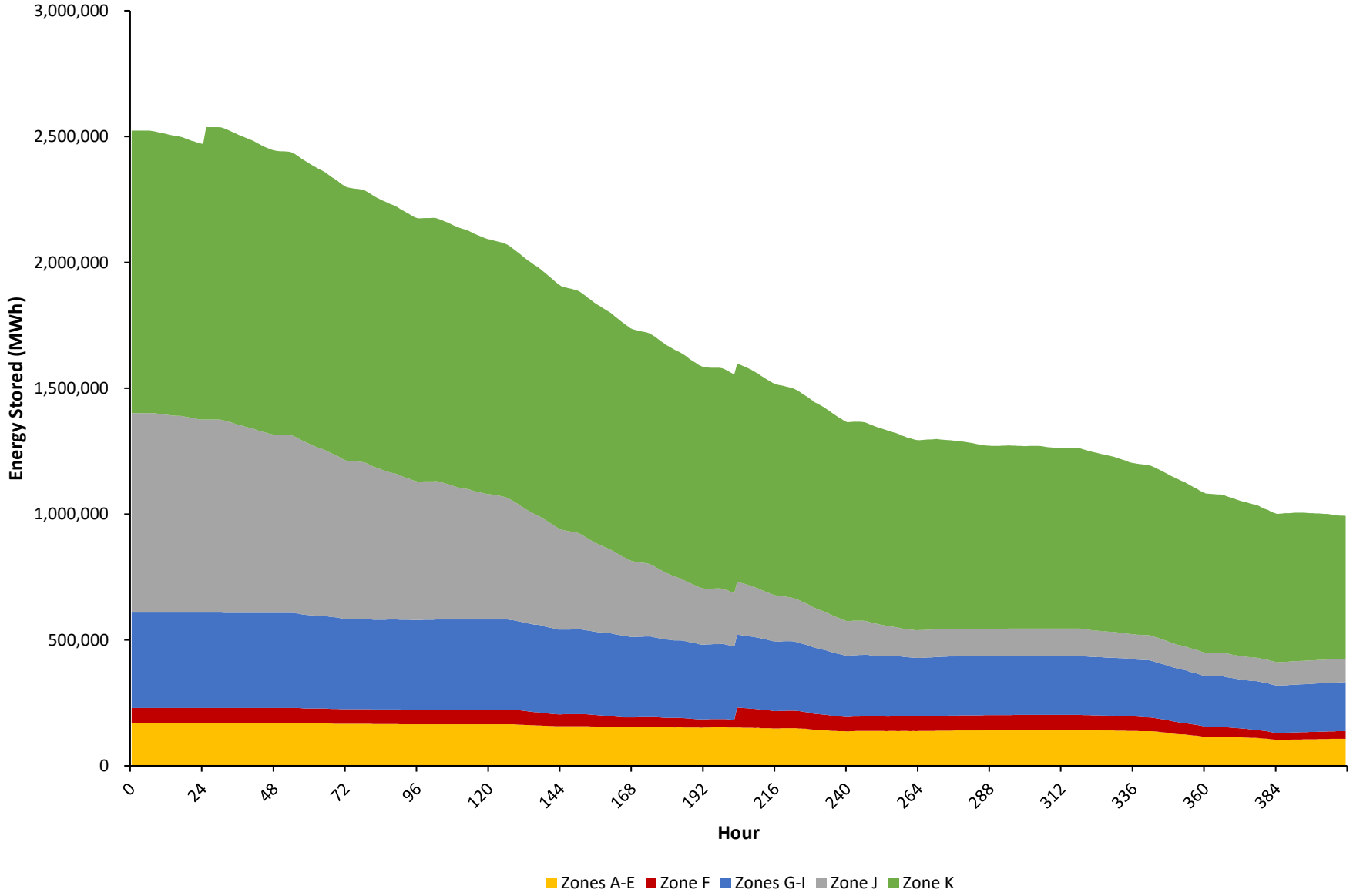
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 6 No Barge Refill



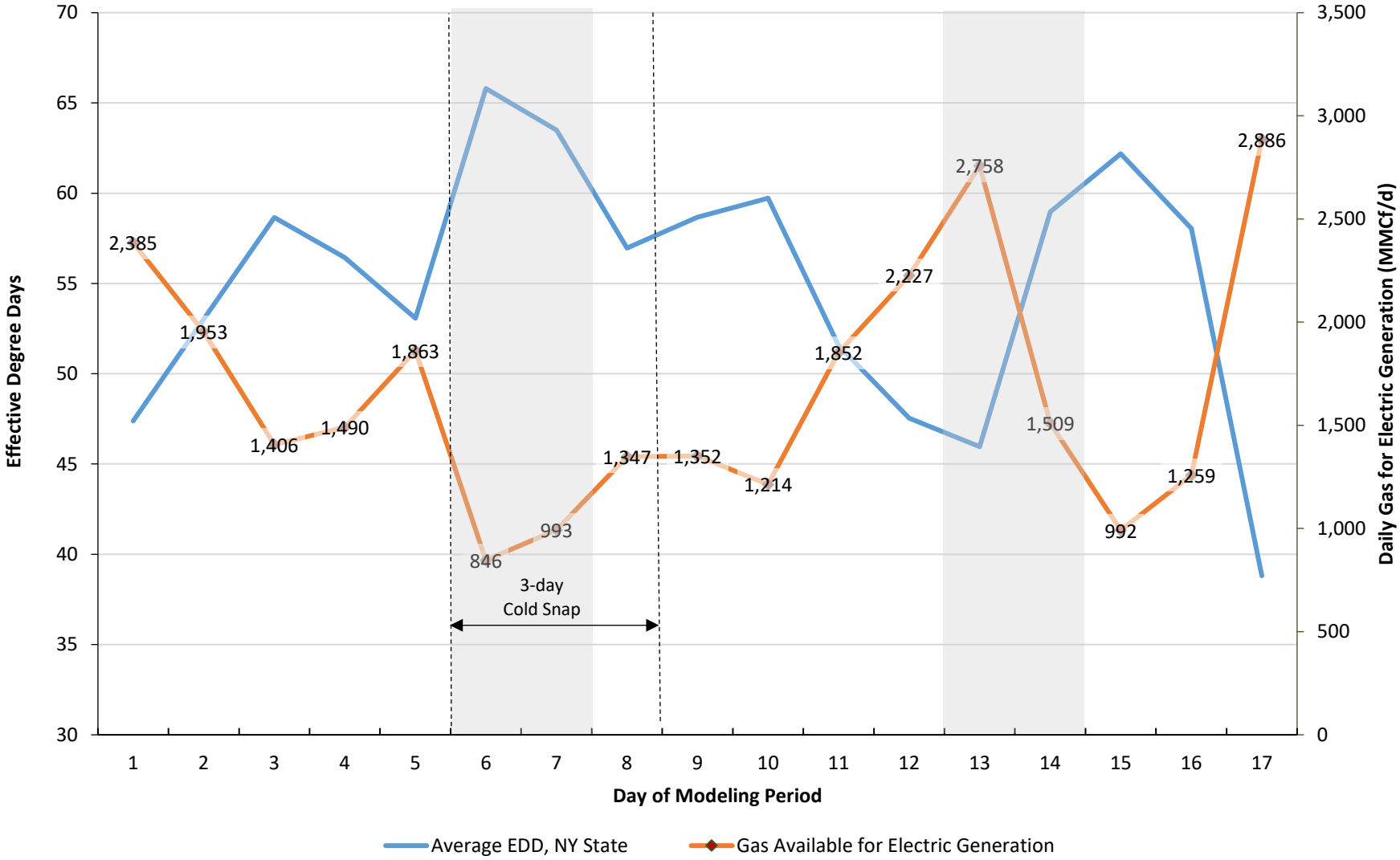
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

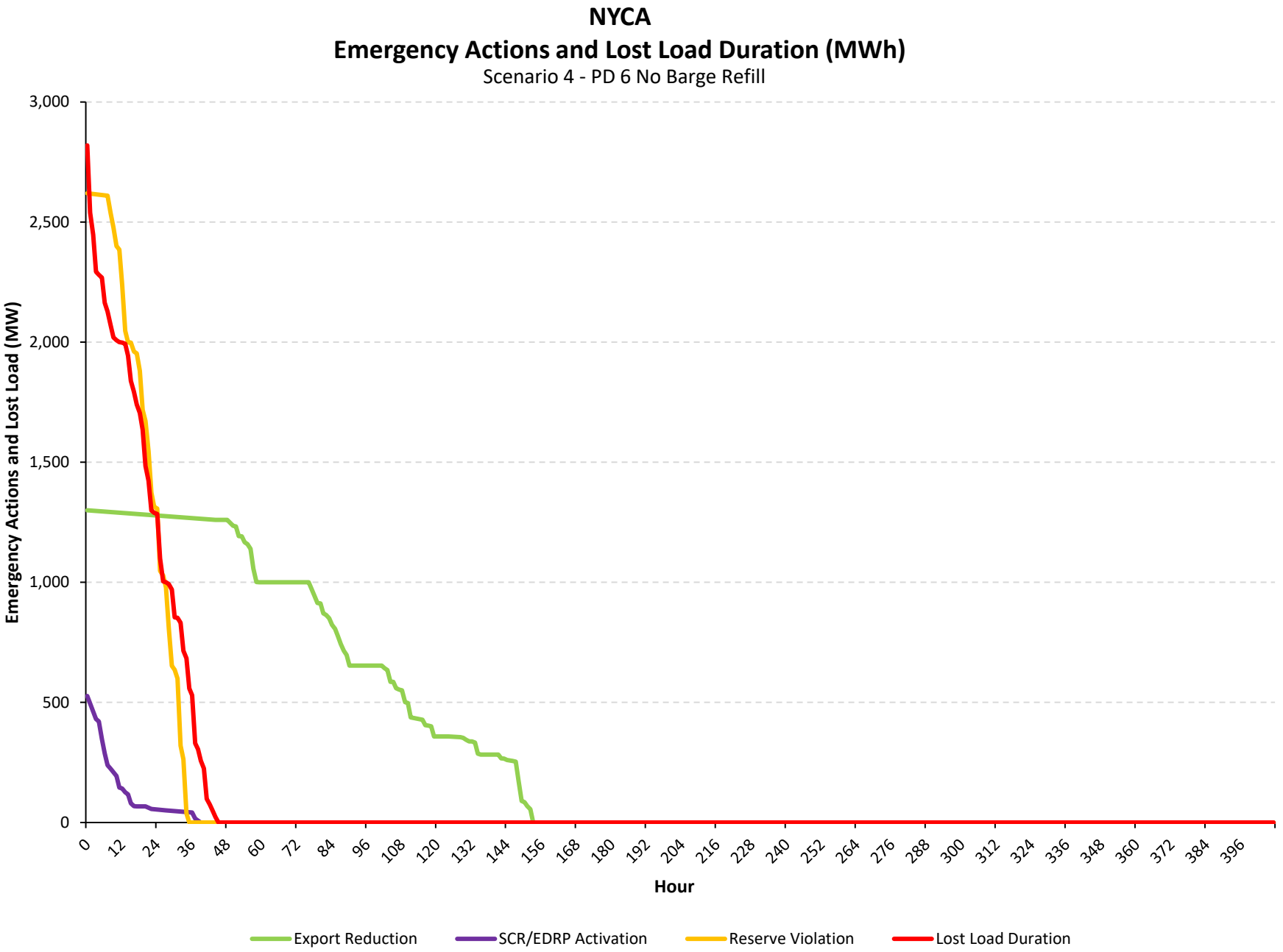
Scenario 4 - PD 6 No Barge Refill

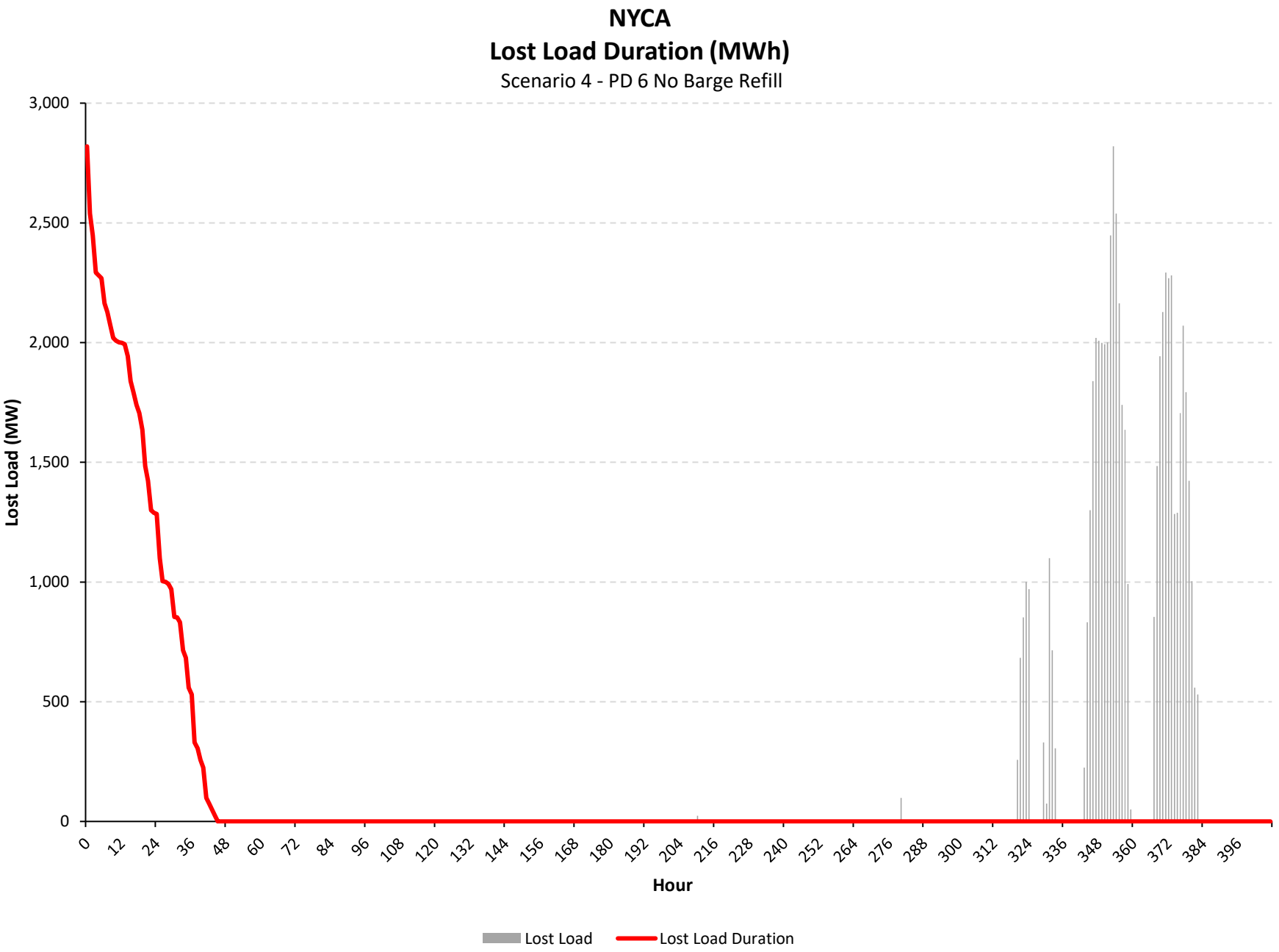


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 6 No Barge Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 6 No Barge Refill
Emergency Actions and Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 6 No Barge Refill
Lost Load (MW)
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

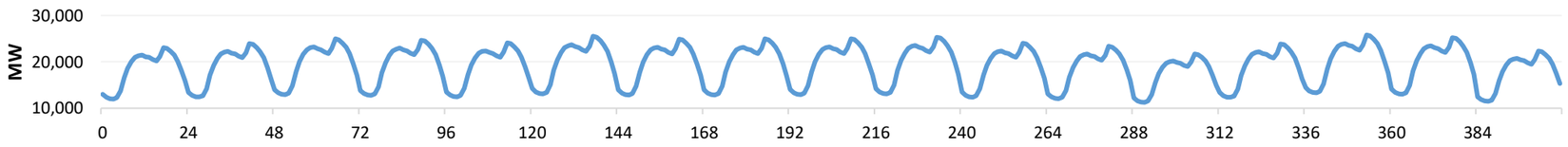
Case: Scenario 4 - PD 7 No Refill (Winter 2023/2024)

Hourly Results Summary

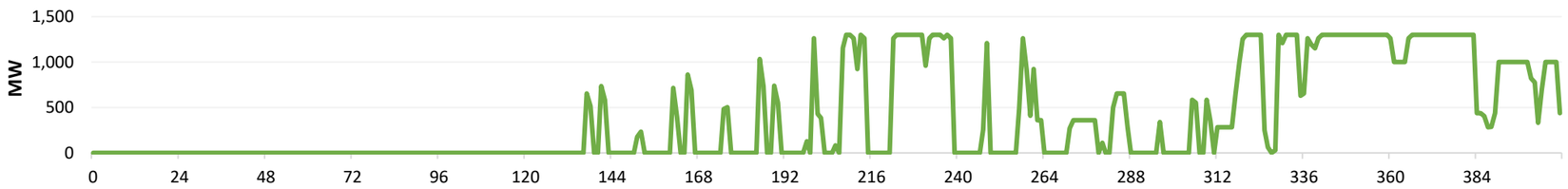
Case Name: Scenario 4 - PD 7 No Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

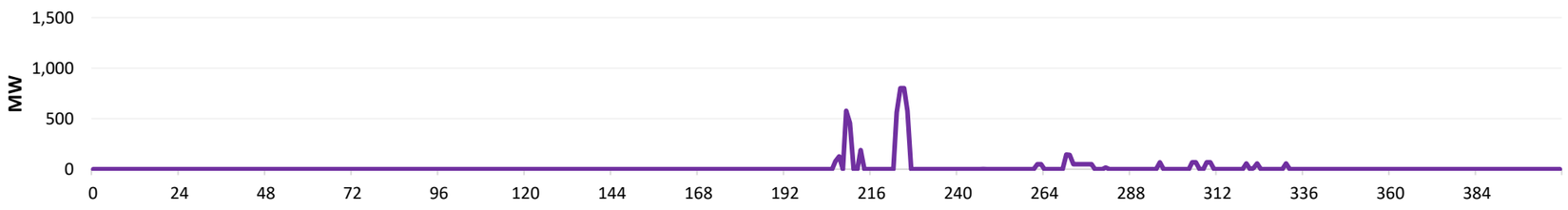


Export to ISO-NE Reduction During Modeling Period



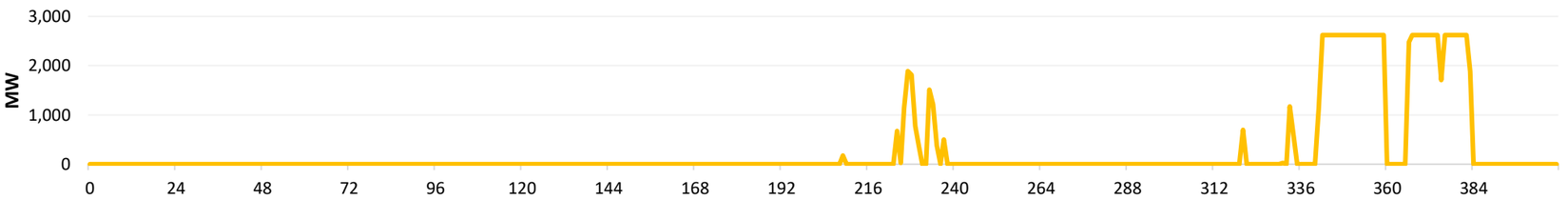
Export Reductions	
Total Hrs.	168
Total MWh	154,194
Avg. MW	377.9

SCR/EDRP Deployed During Modeling Period



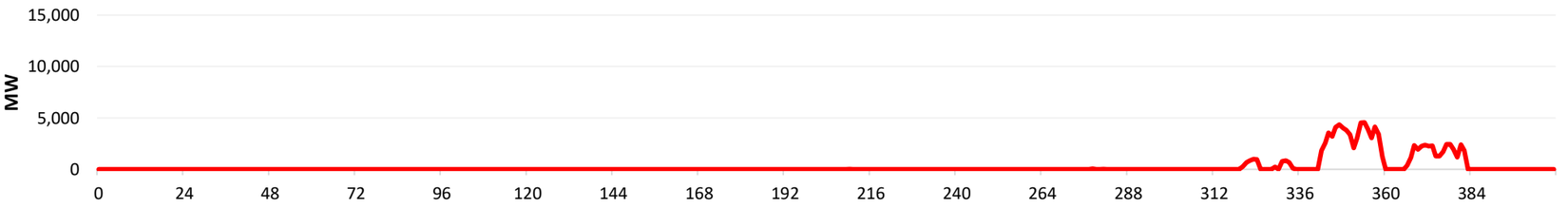
SCR Deployment	
Total Hrs.	29
Total MWh	5,392
Avg. MW	13.2

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	53
Total MWh	106,623
Avg. MW	261.3
First Hour with Viol.	208

Loss of Load During Modeling Period



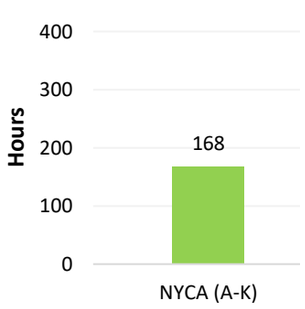
Loss of Load	
Total Hrs.	48
Total MWh	98,571
Avg. MW	241.6
First Hour with Losses	210

Full Period Results Summary

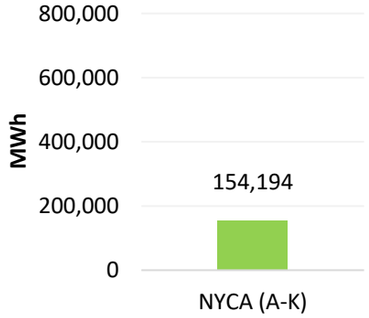
Case Name: Scenario 4 - PD 7 No Refill

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	No Refill
Loss of Gas Fired Gen.	Off
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

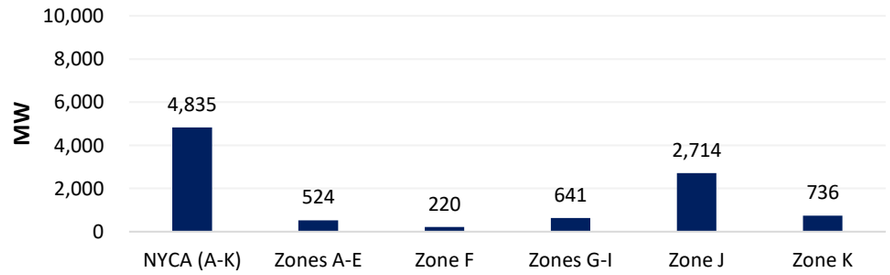
Hours Exports Reduced



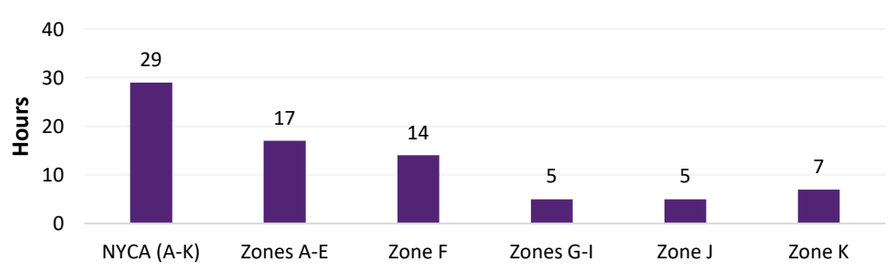
Total MWh of Exports Reduced



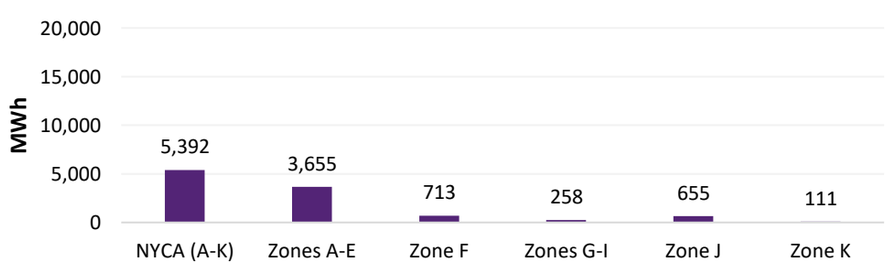
Average Capacity Not Available Due to Exhausted Fuel Inventory



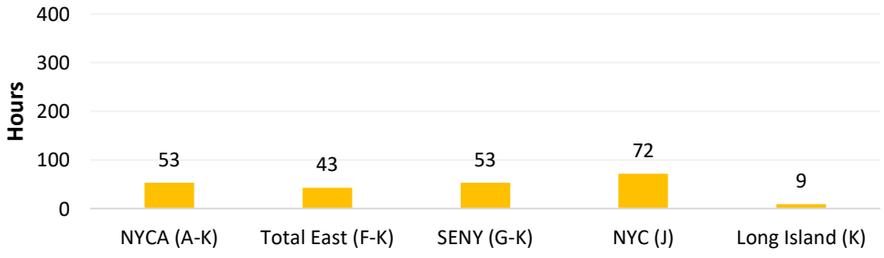
Hours SCR/EDRP Deployed



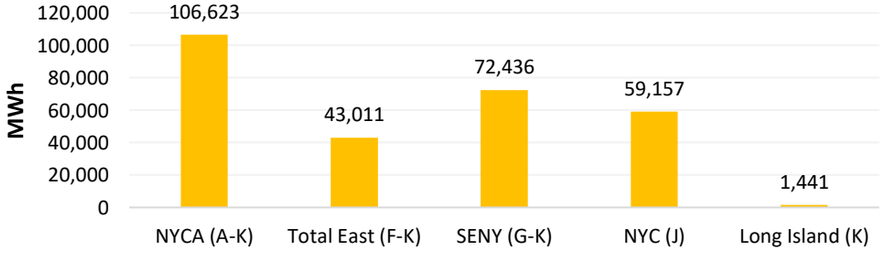
Total MWh SCR/EDRP Deployed



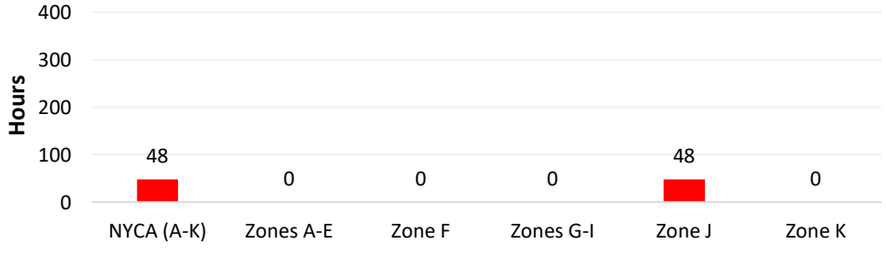
Hours with Reserve Violations



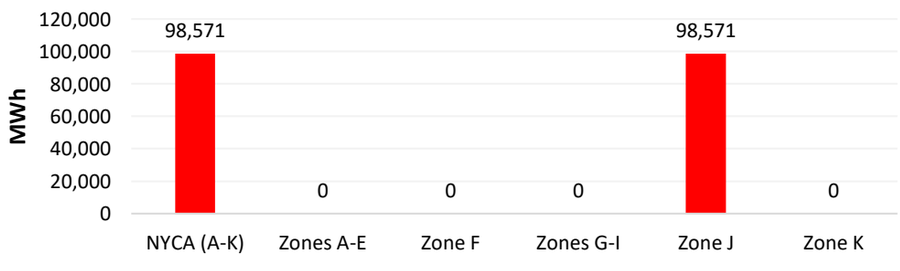
Total MWh of Reserve Violations

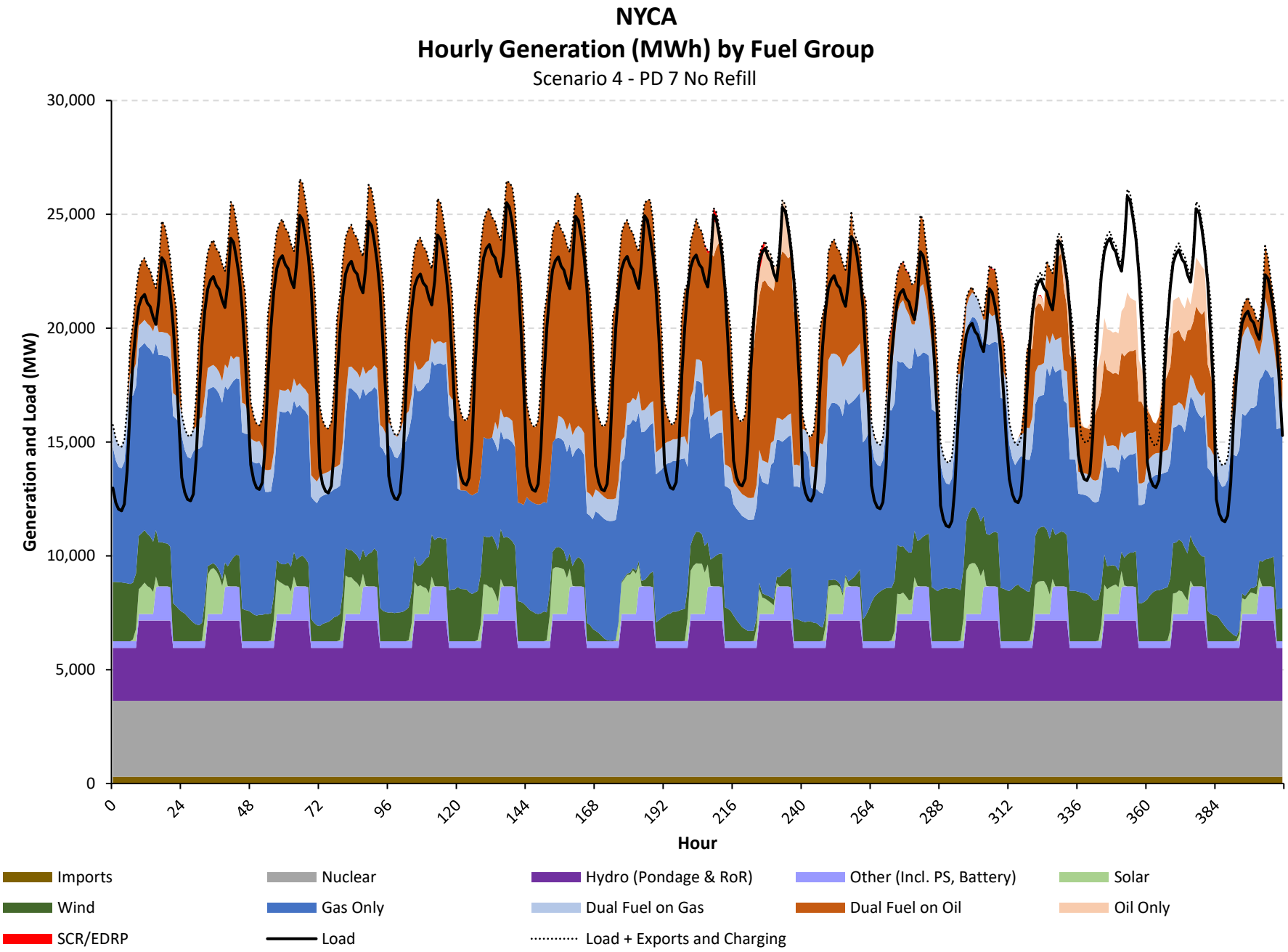


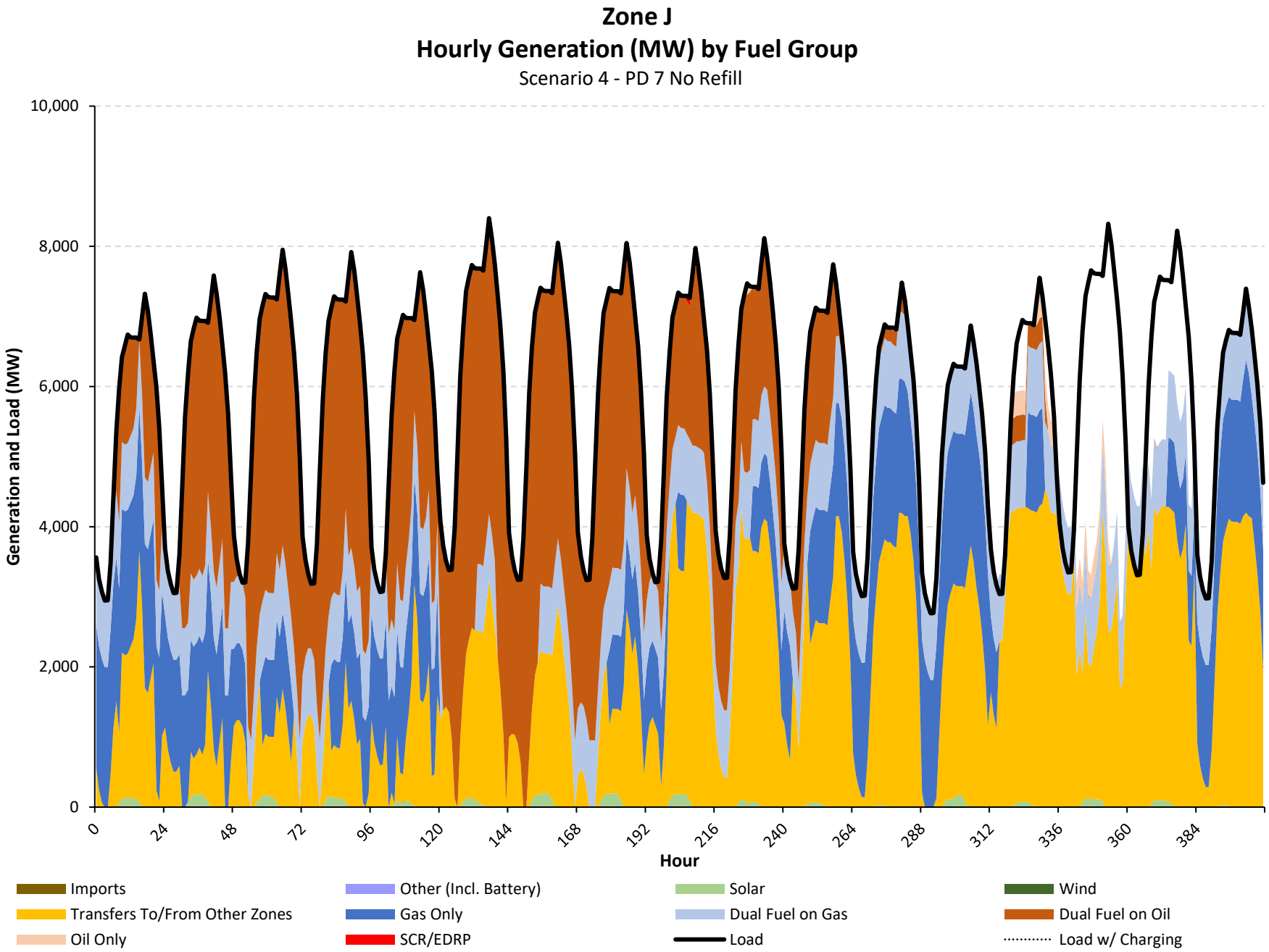
Hours with Loss of Load



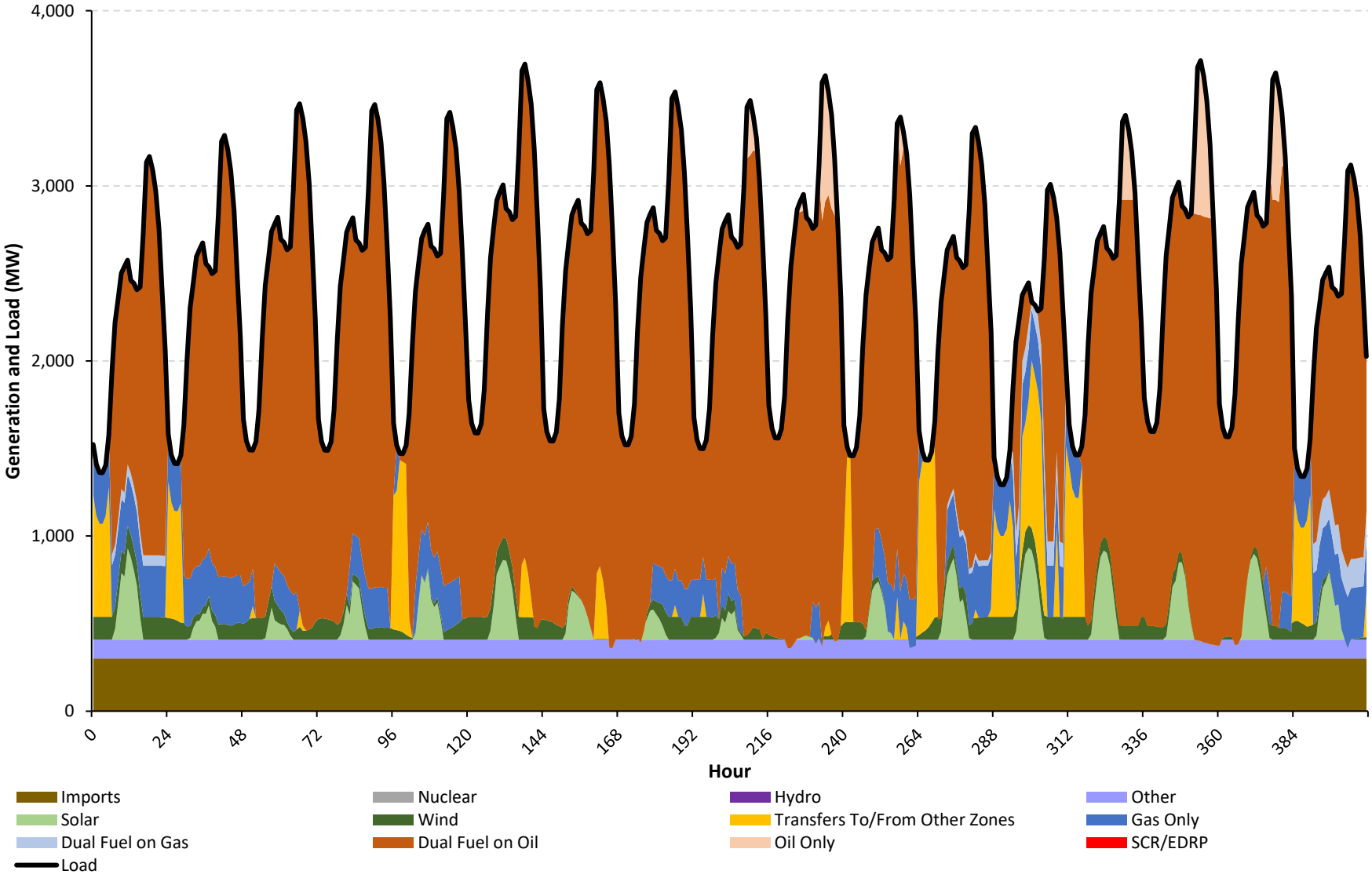
Total MWh of Lost Load




NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 7 No Refill
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging


Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 7 No Refill
Generation and Load (MW)
10,000
8,000
6,000
4,000
2,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Other (Incl. Battery)
Solar
Wind
Transfers To/From Other Zones
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load w/ Charging

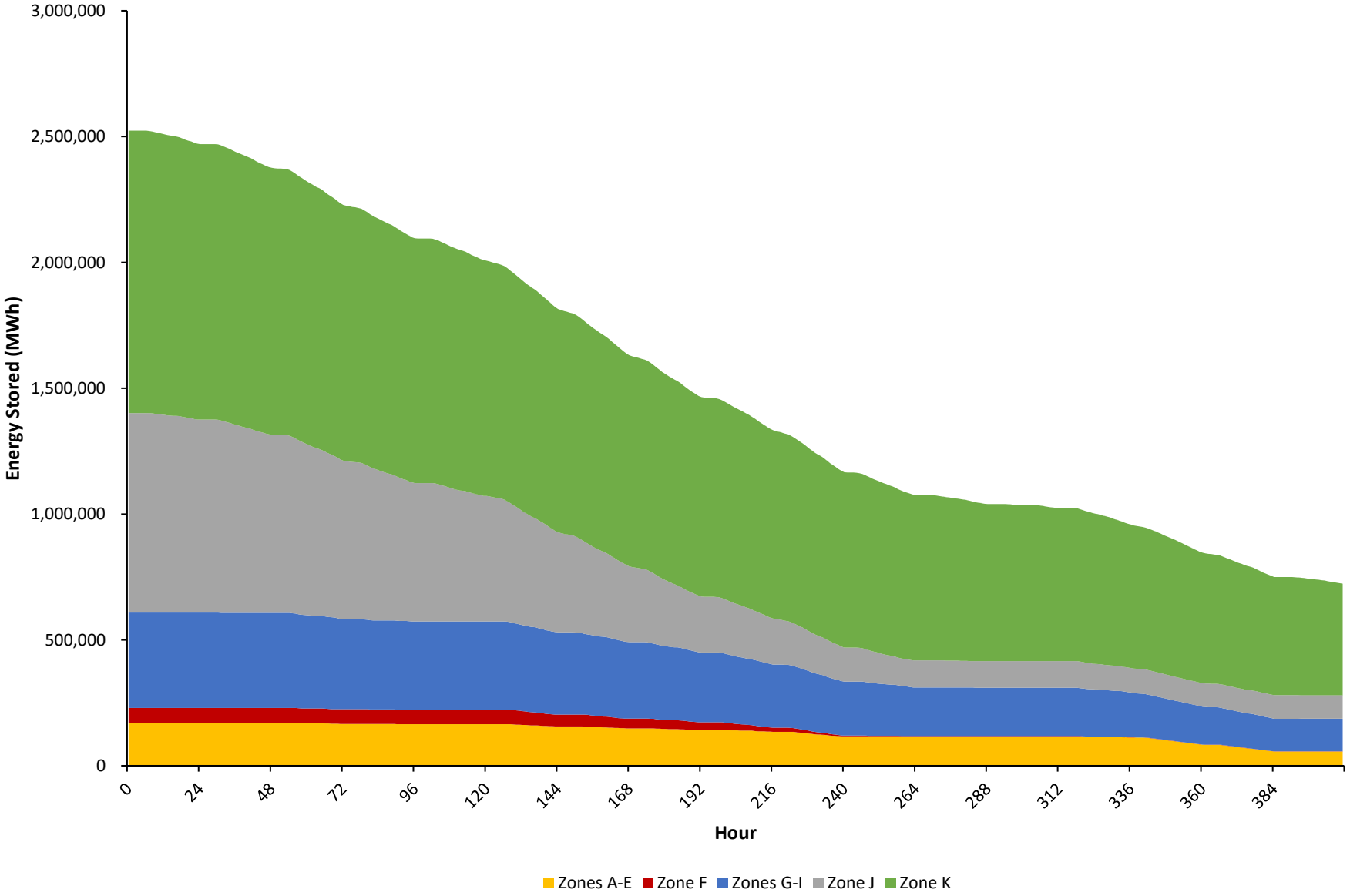
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 7 No Refill



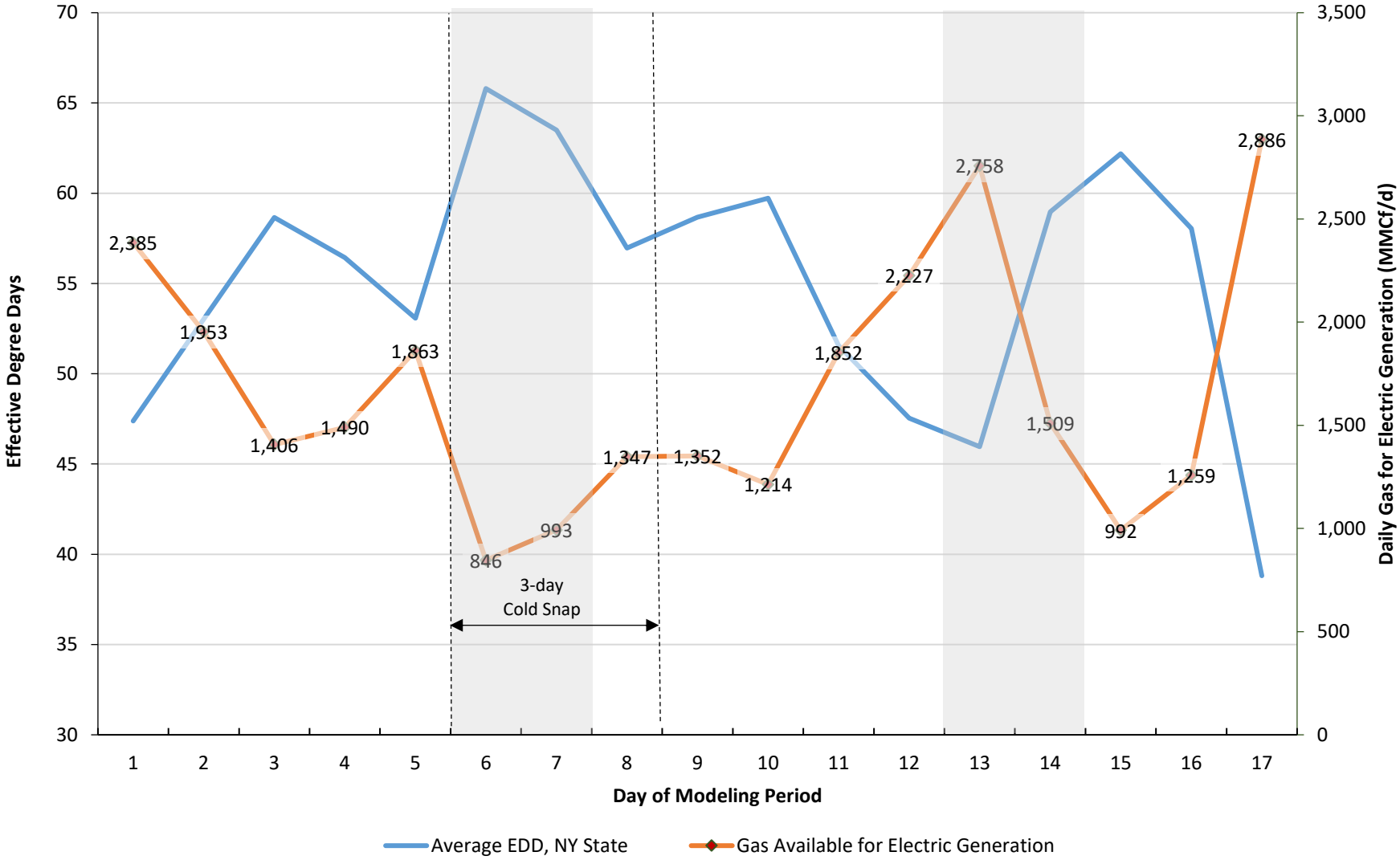
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

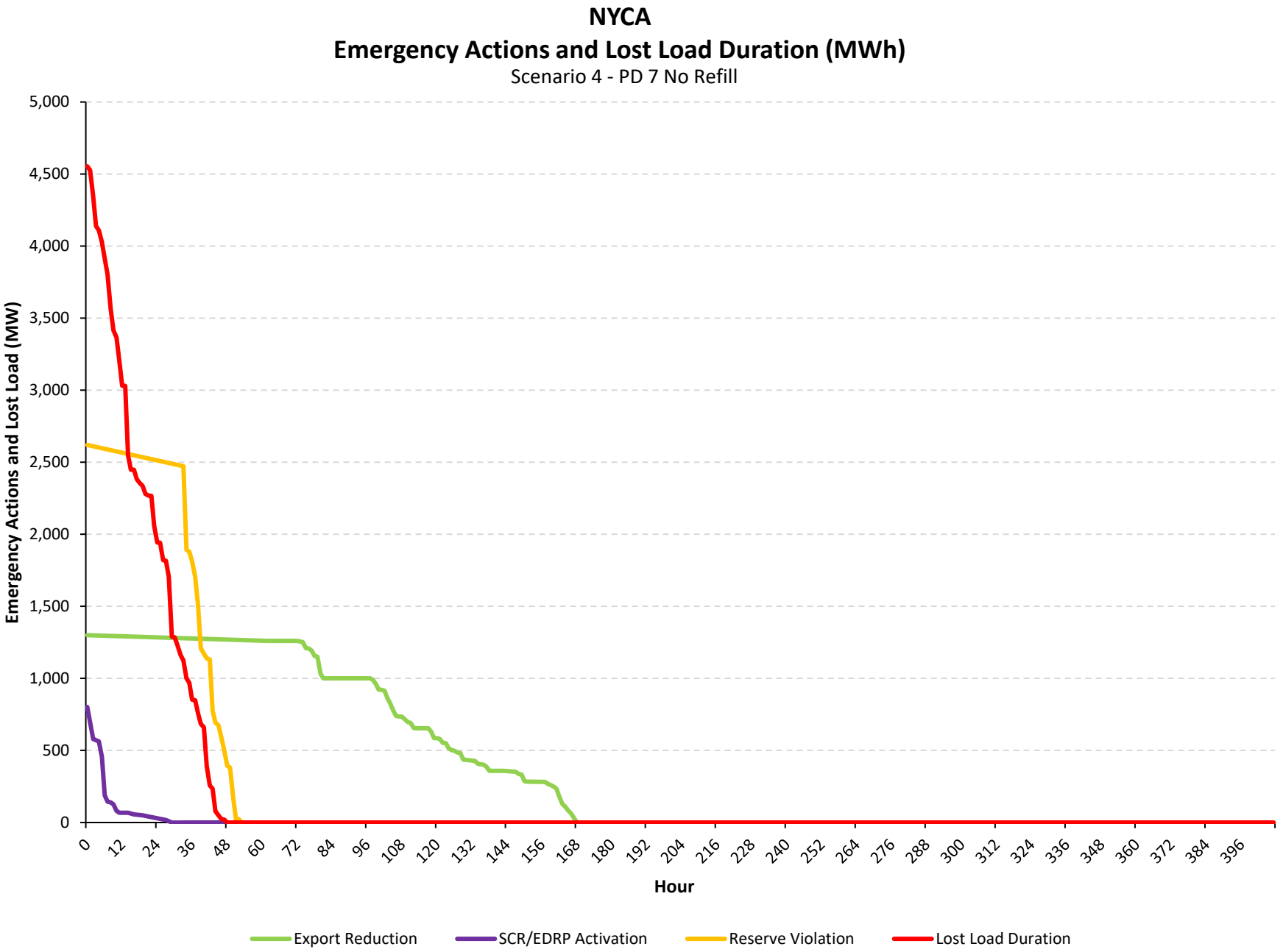
Scenario 4 - PD 7 No Refill

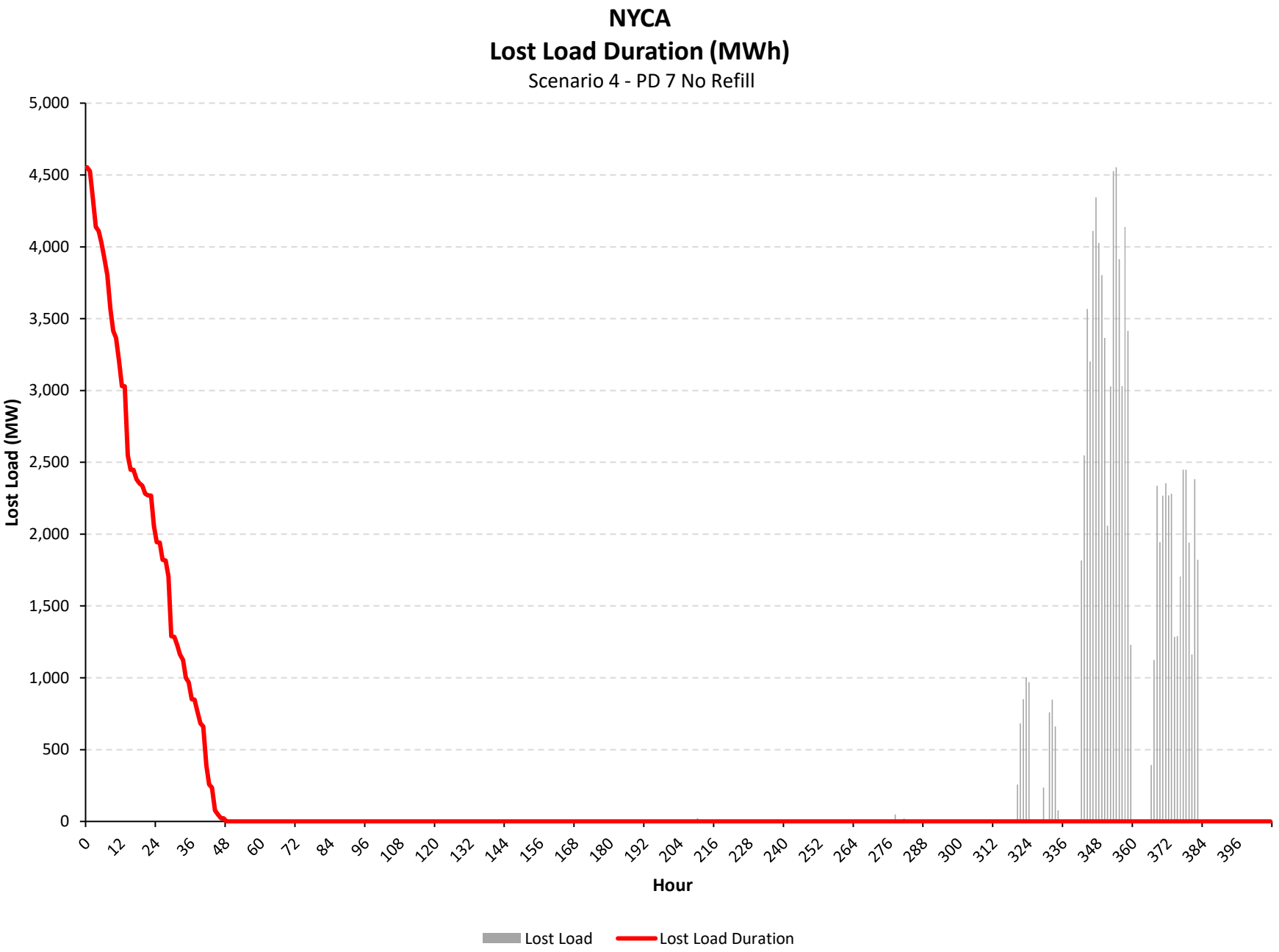


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 7 No Refill



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 7 No Refill
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 7 No Refill
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

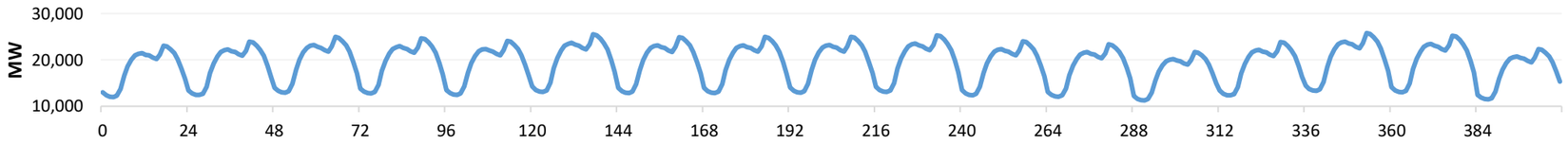
Case: Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K) (Winter 2023/2024)

Hourly Results Summary

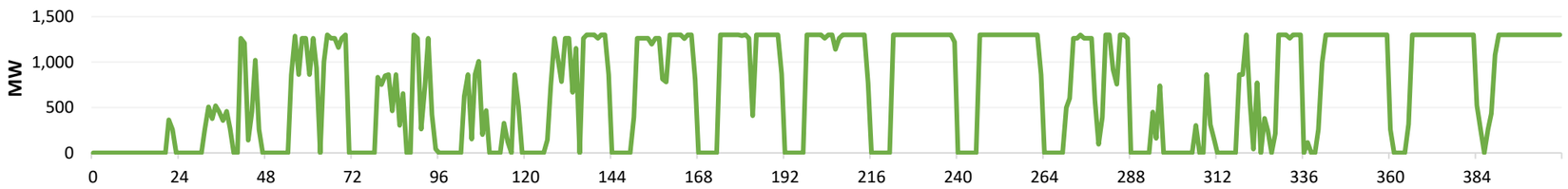
Case Name: Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

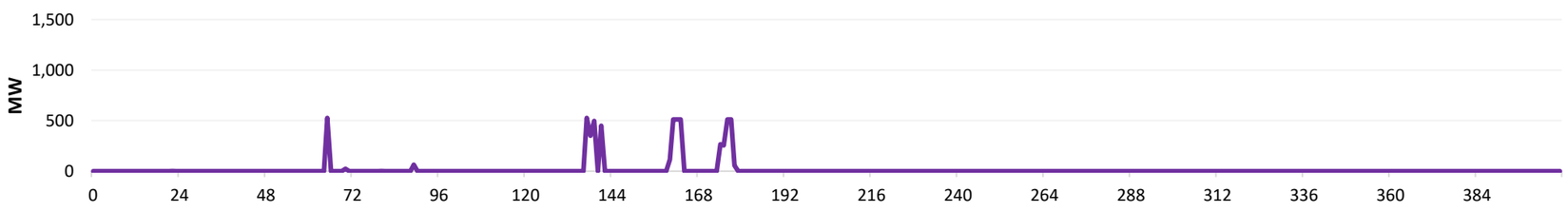


Export to ISO-NE Reduction During Modeling Period



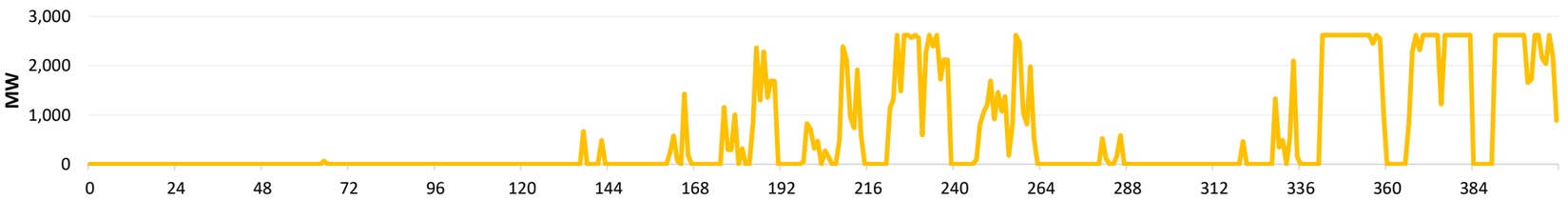
Export Reductions	
Total Hrs.	269
Total MWh	281,722
Avg. MW	690.5

SCR/EDRP Deployed During Modeling Period



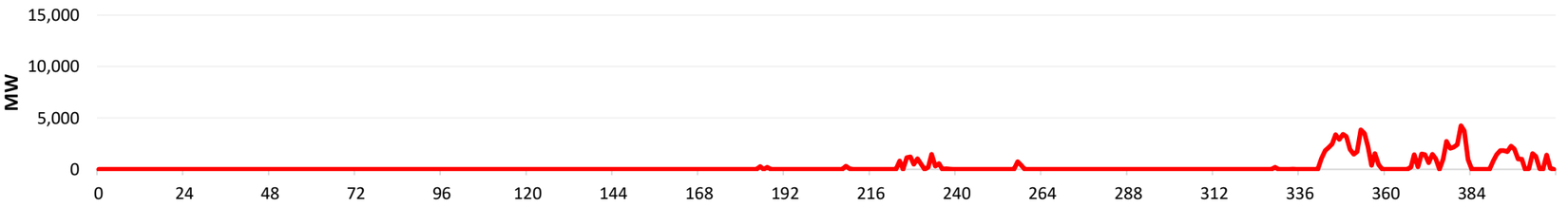
SCR Deployment	
Total Hrs.	16
Total MWh	5,676
Avg. MW	13.9

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	133
Total MWh	223,831
Avg. MW	548.6
First Hour with Viol.	65

Loss of Load During Modeling Period

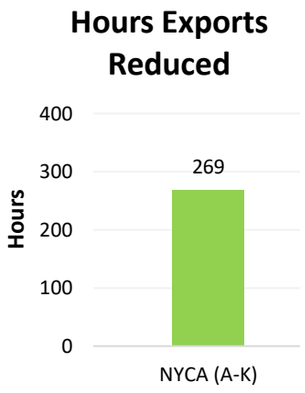


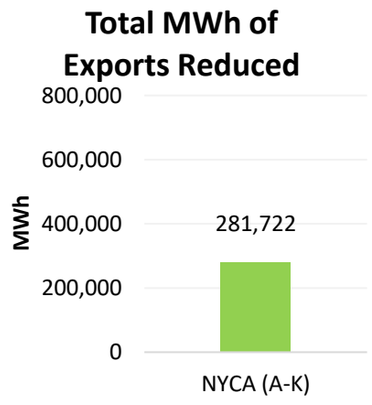
Loss of Load	
Total Hrs.	68
Total MWh	92,571
Avg. MW	226.9
First Hour with Losses	185

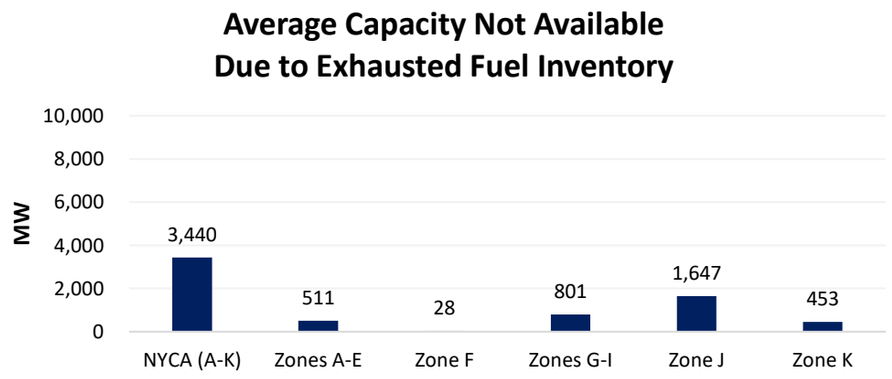
Full Period Results Summary

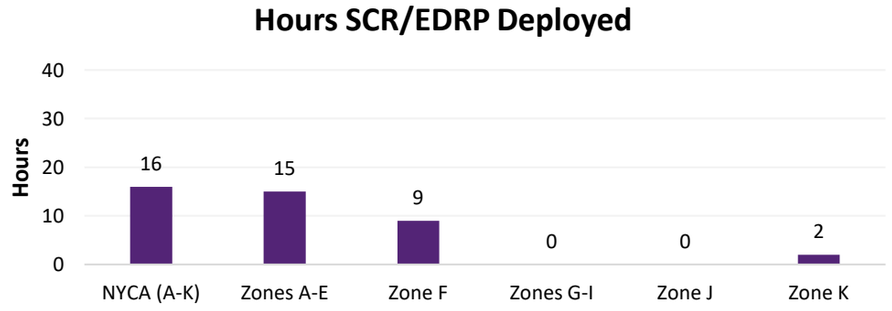
Case Name: Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)

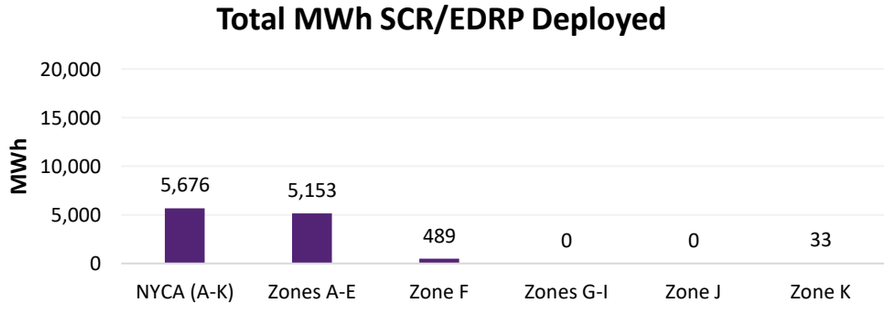
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	F-K
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

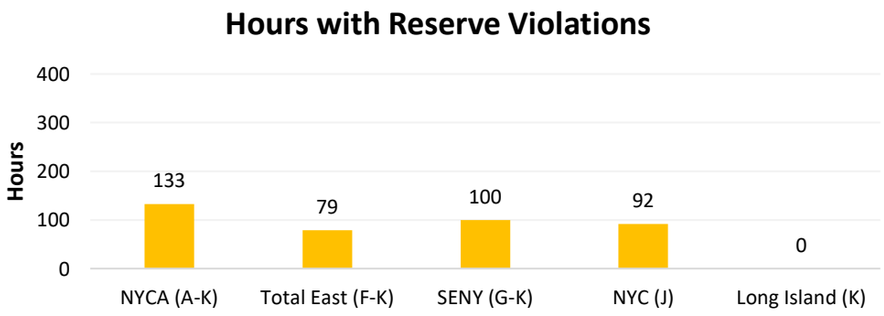


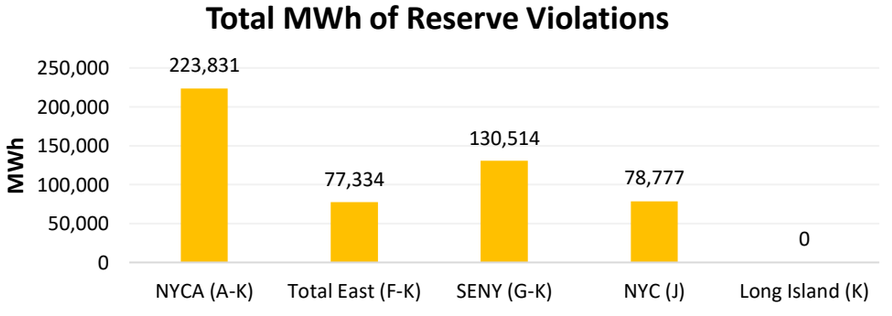


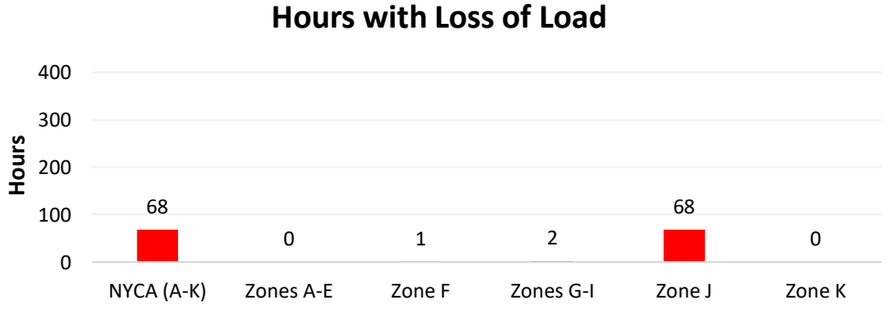


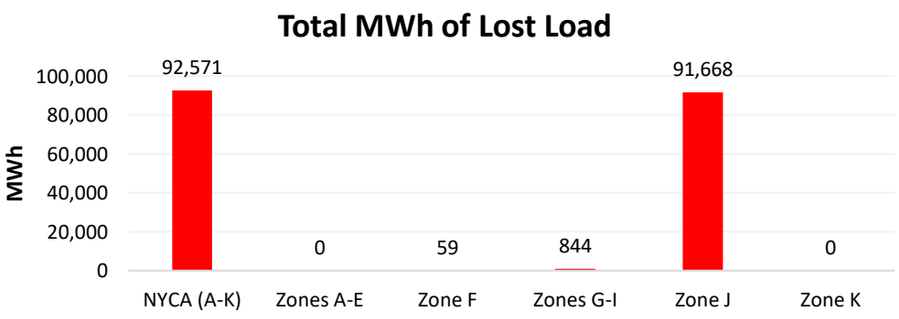


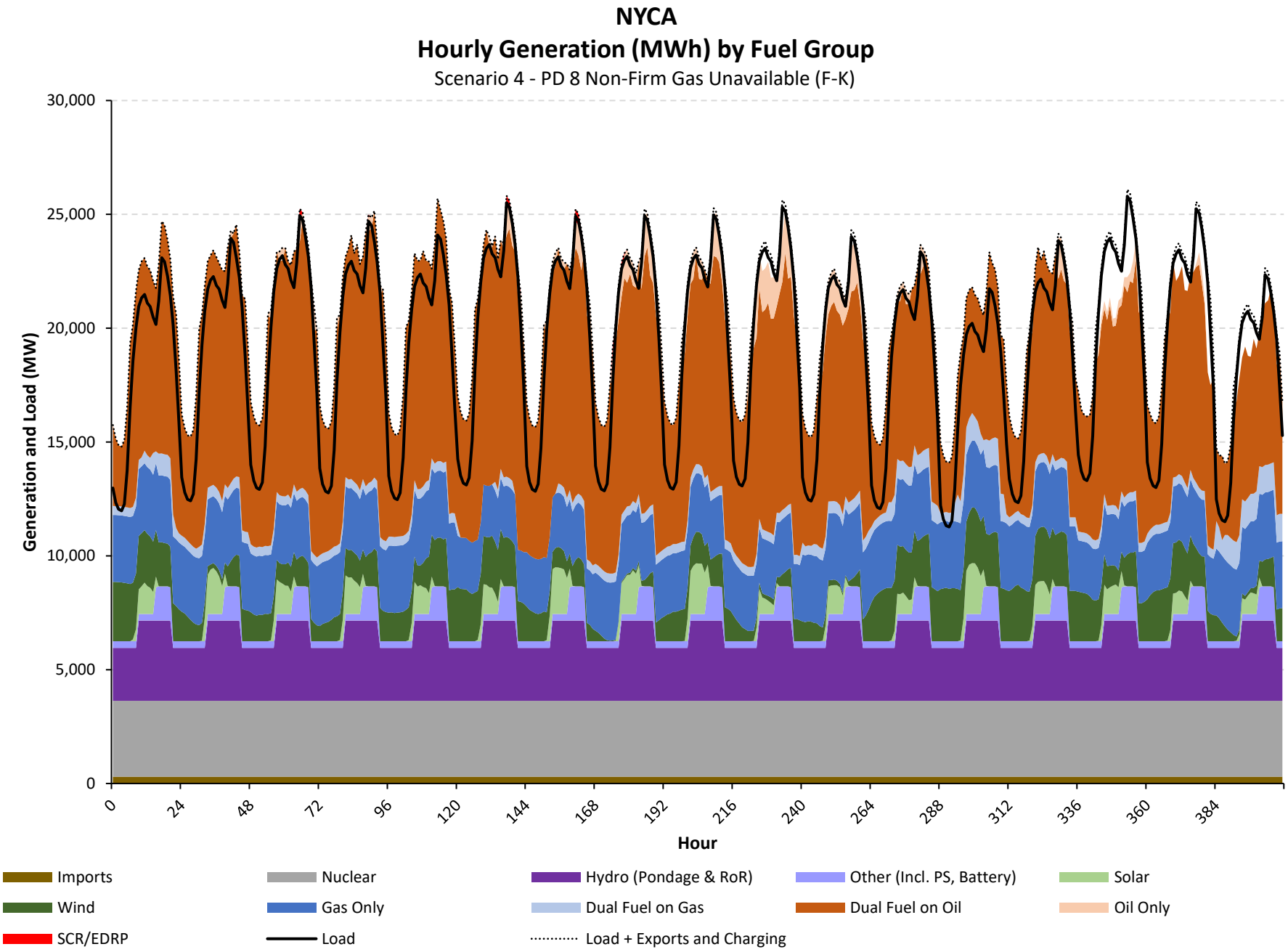




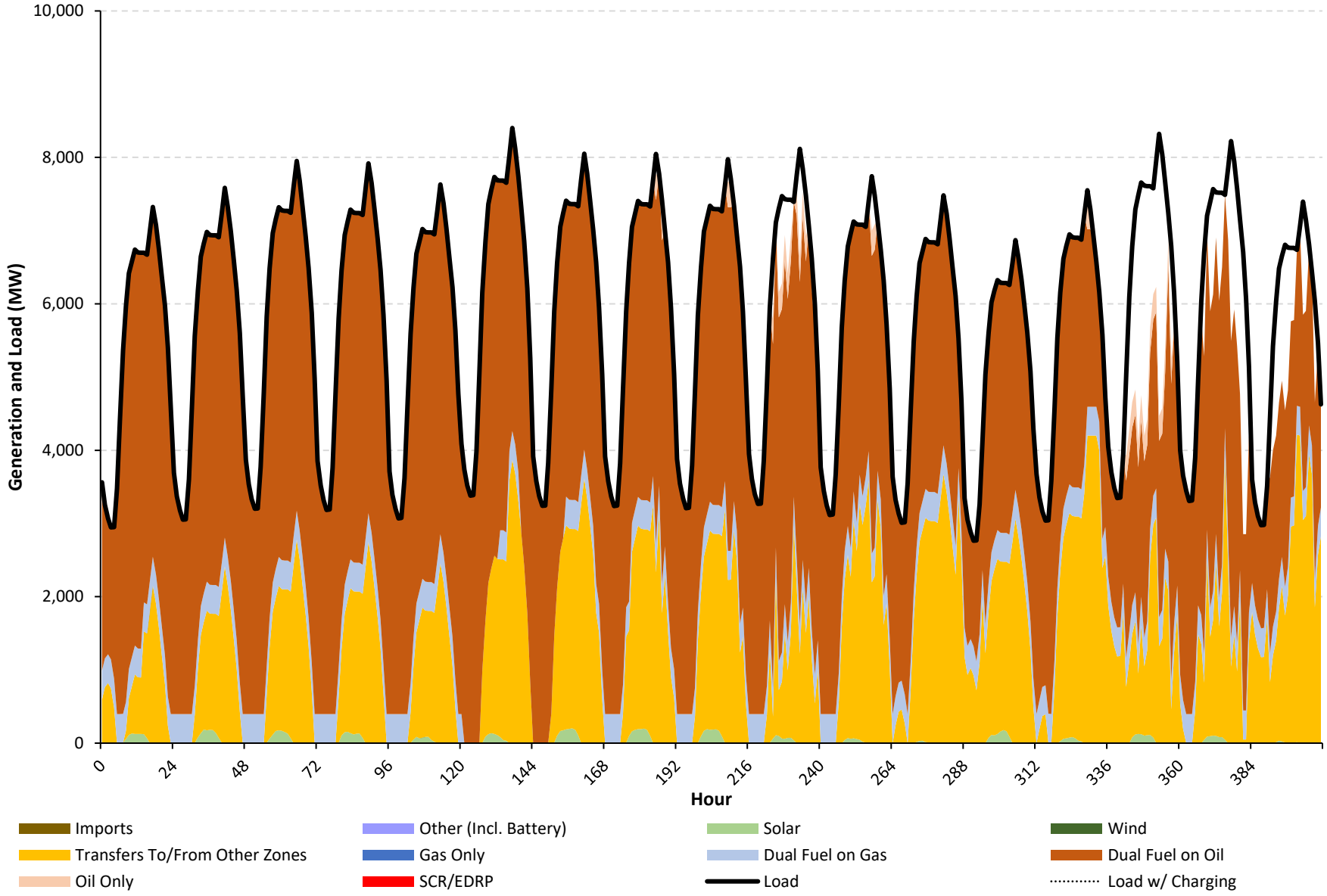




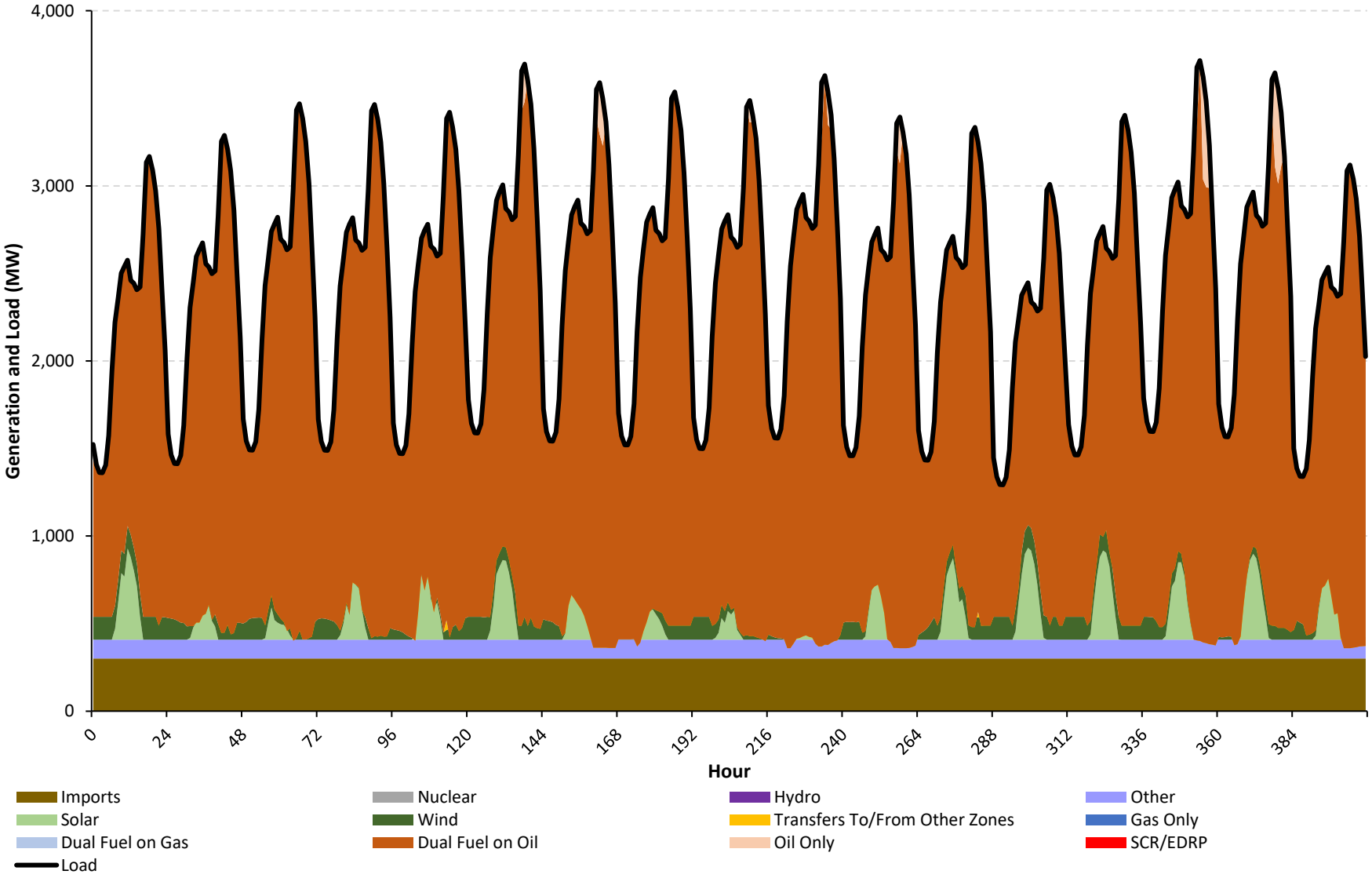



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)



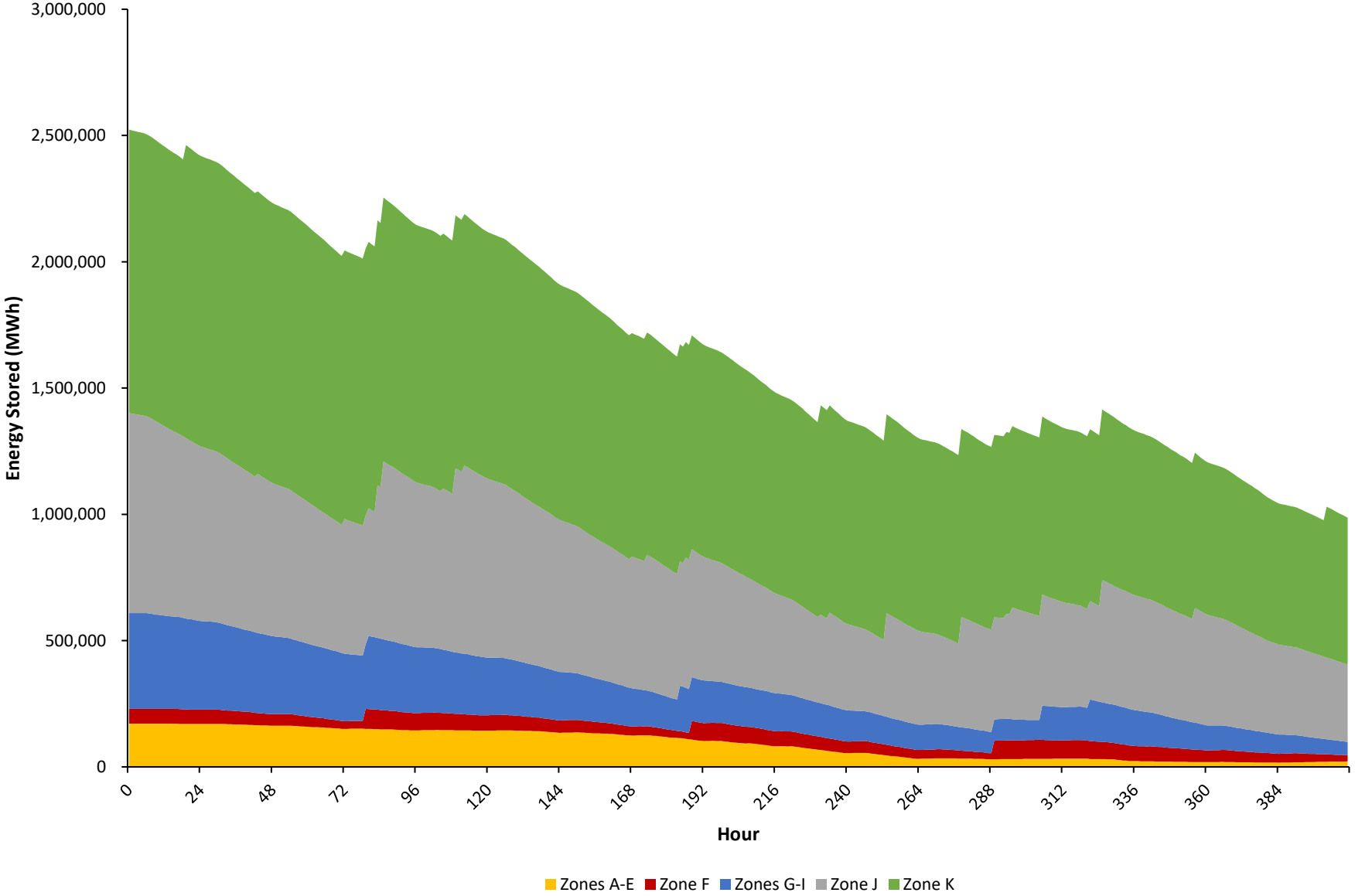
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)



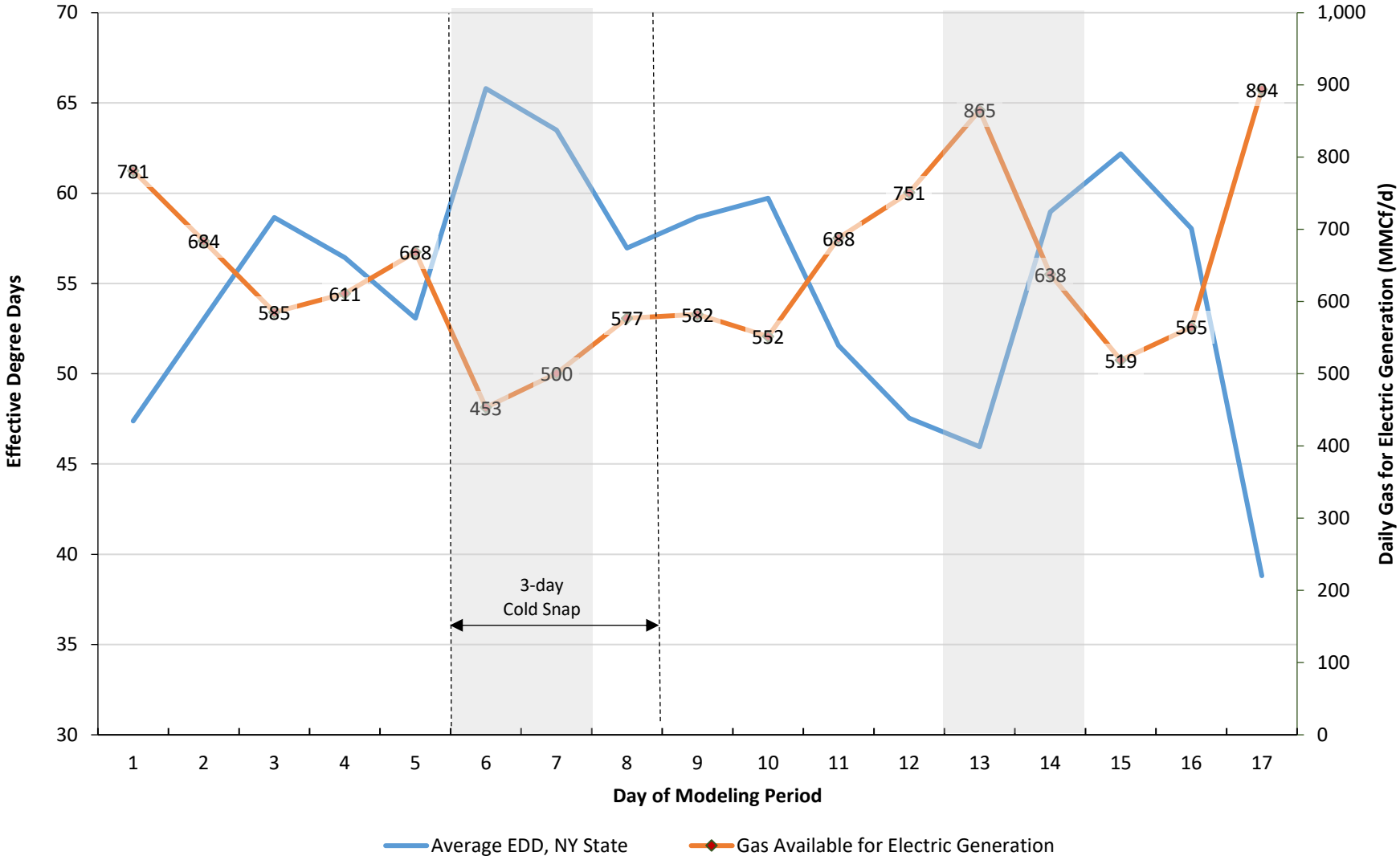
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

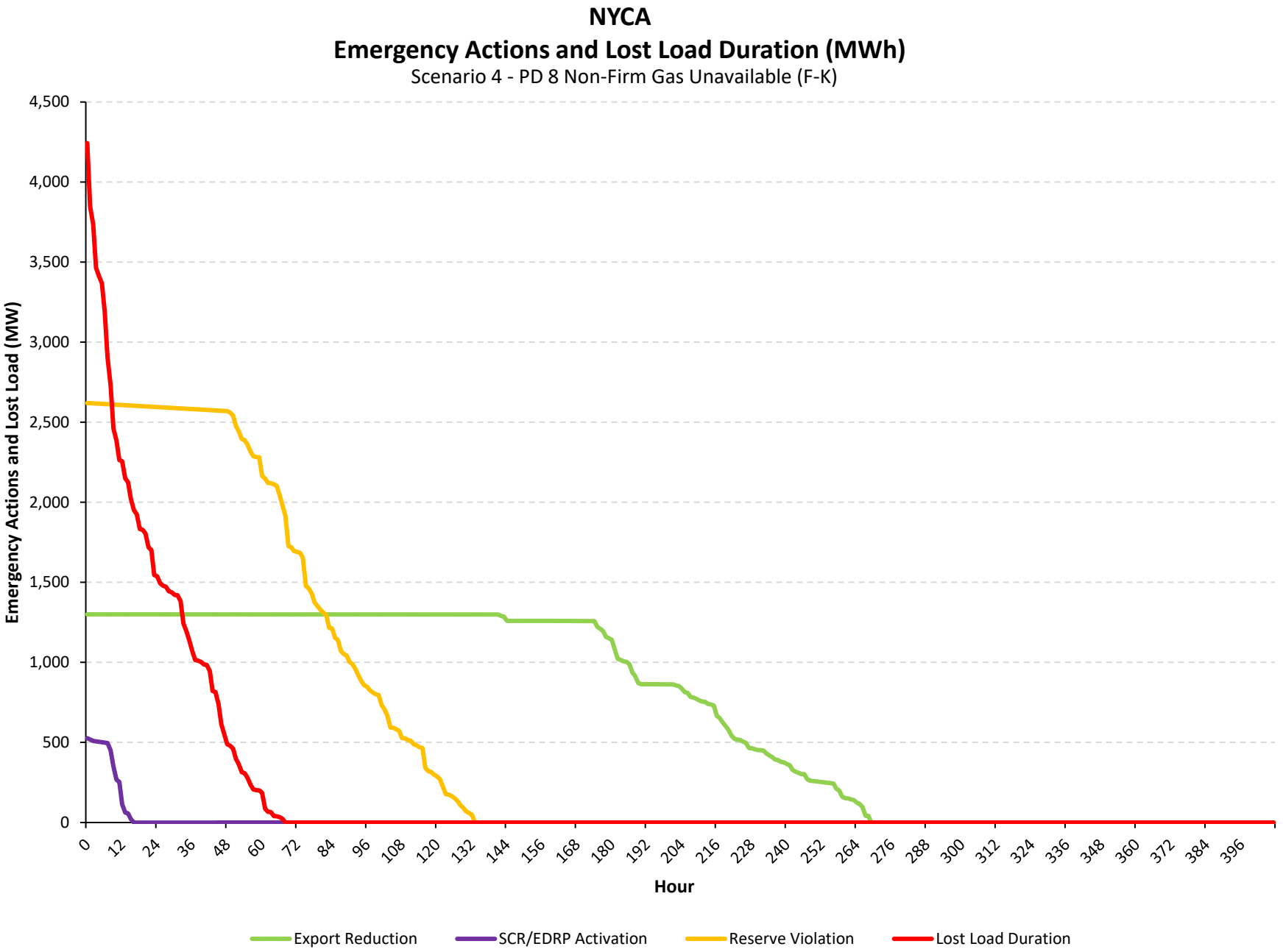
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)

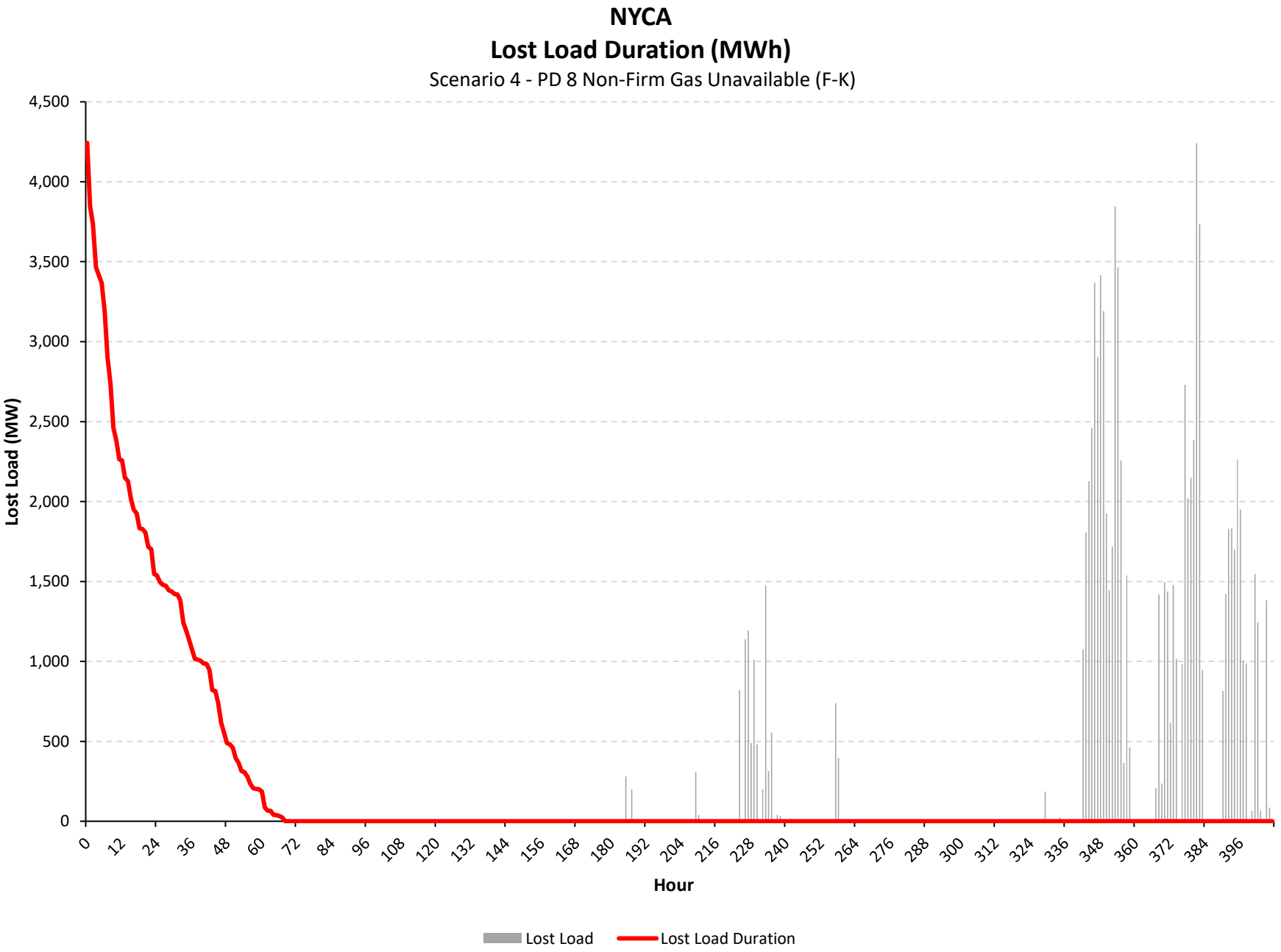


NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)
Emergency Actions and Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 8 Non-Firm Gas Unavailable (F-K)
Lost Load (MW)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

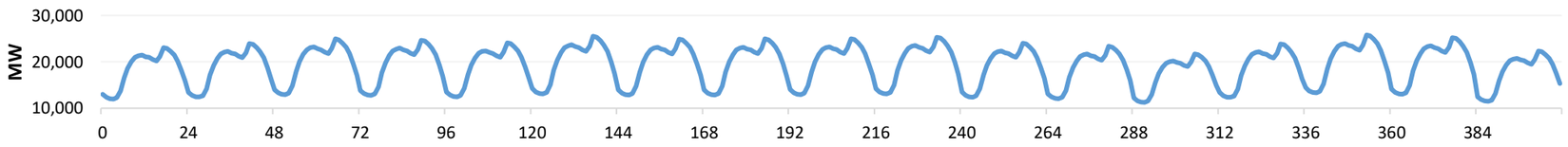
Case: Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA) (Winter 2023/2024)

Hourly Results Summary

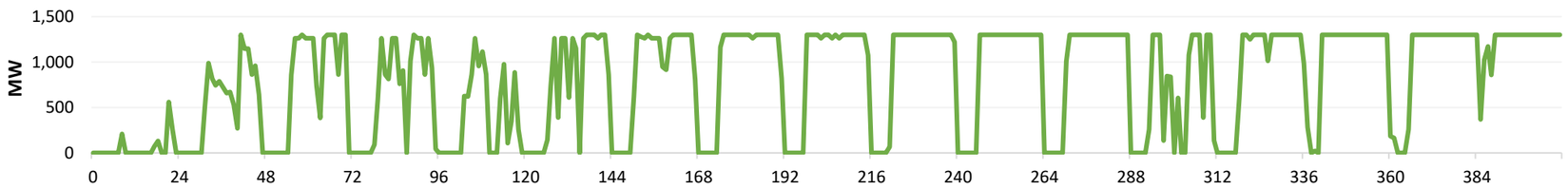
Case Name: Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

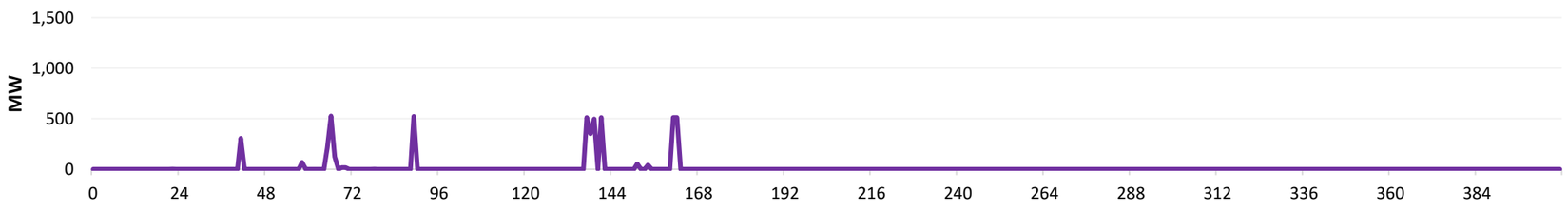


Export to ISO-NE Reduction During Modeling Period



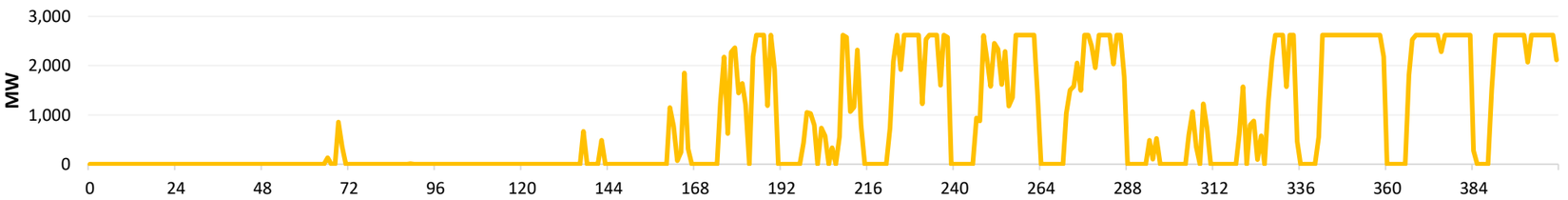
Export Reductions	
Total Hrs.	294
Total MWh	328,801
Avg. MW	805.9

SCR/EDRP Deployed During Modeling Period



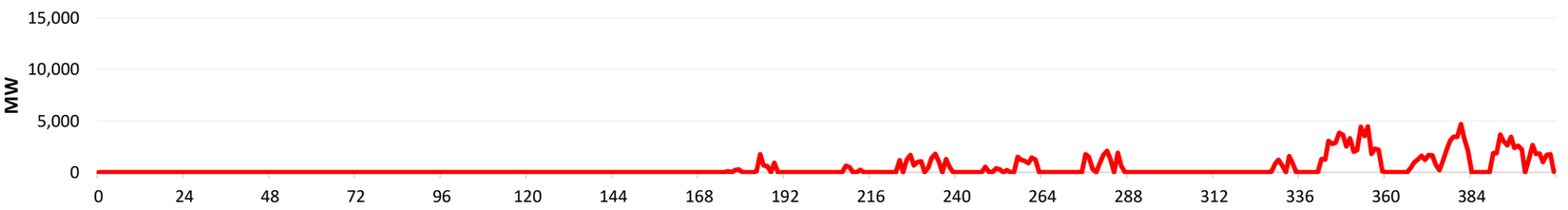
SCR Deployment	
Total Hrs.	16
Total MWh	4,772
Avg. MW	11.7

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	174
Total MWh	332,914
Avg. MW	816.0
First Hour with Viol.	66

Loss of Load During Modeling Period

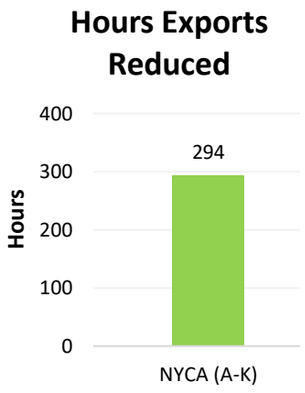


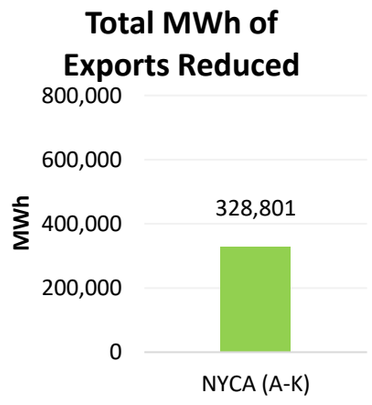
Loss of Load	
Total Hrs.	102
Total MWh	160,922
Avg. MW	394.4
First Hour with Losses	176

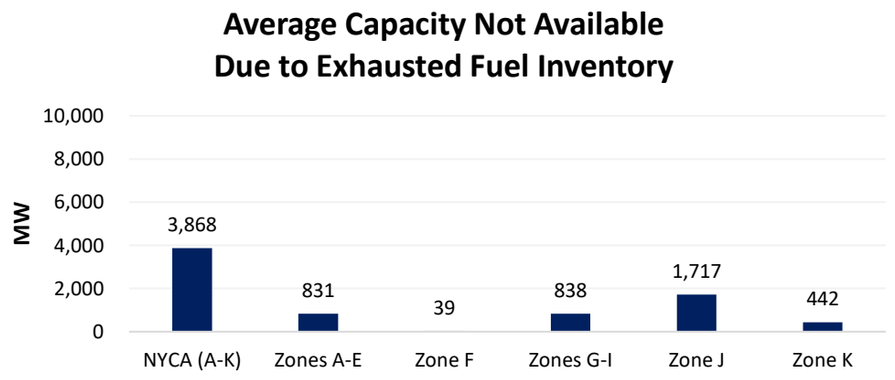
Full Period Results Summary

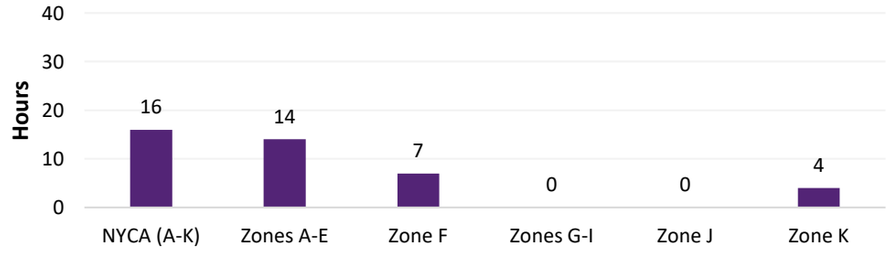
Case Name: Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)

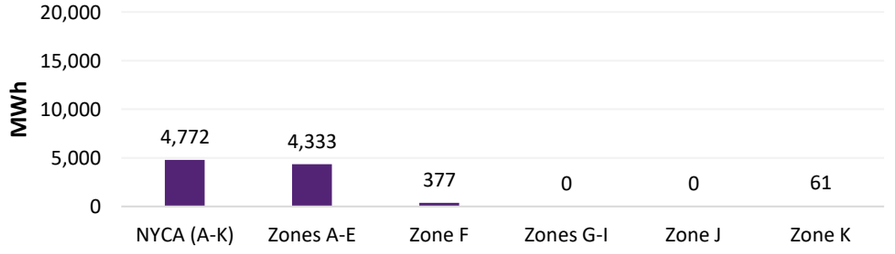
Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	NYISO
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

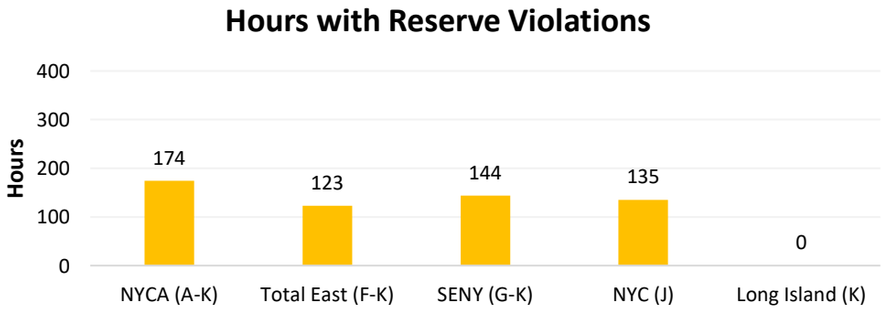


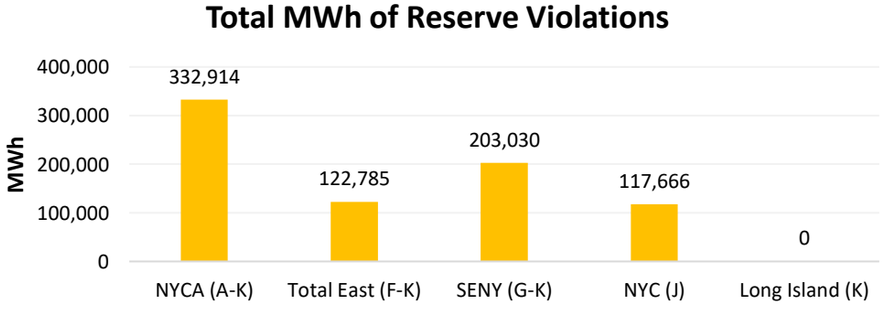


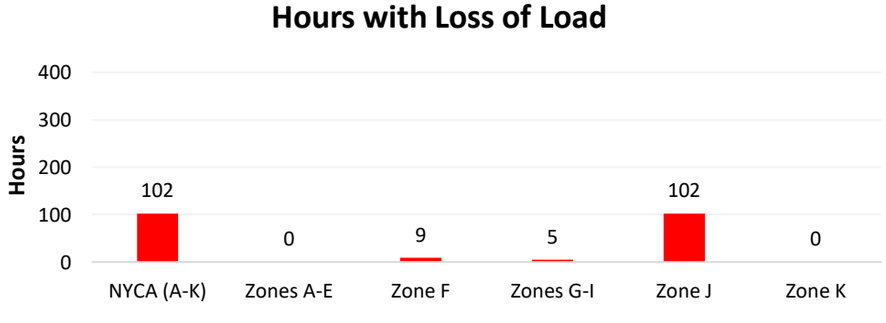


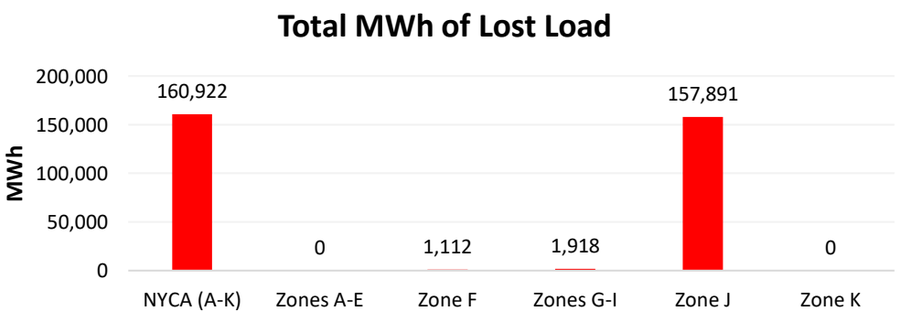


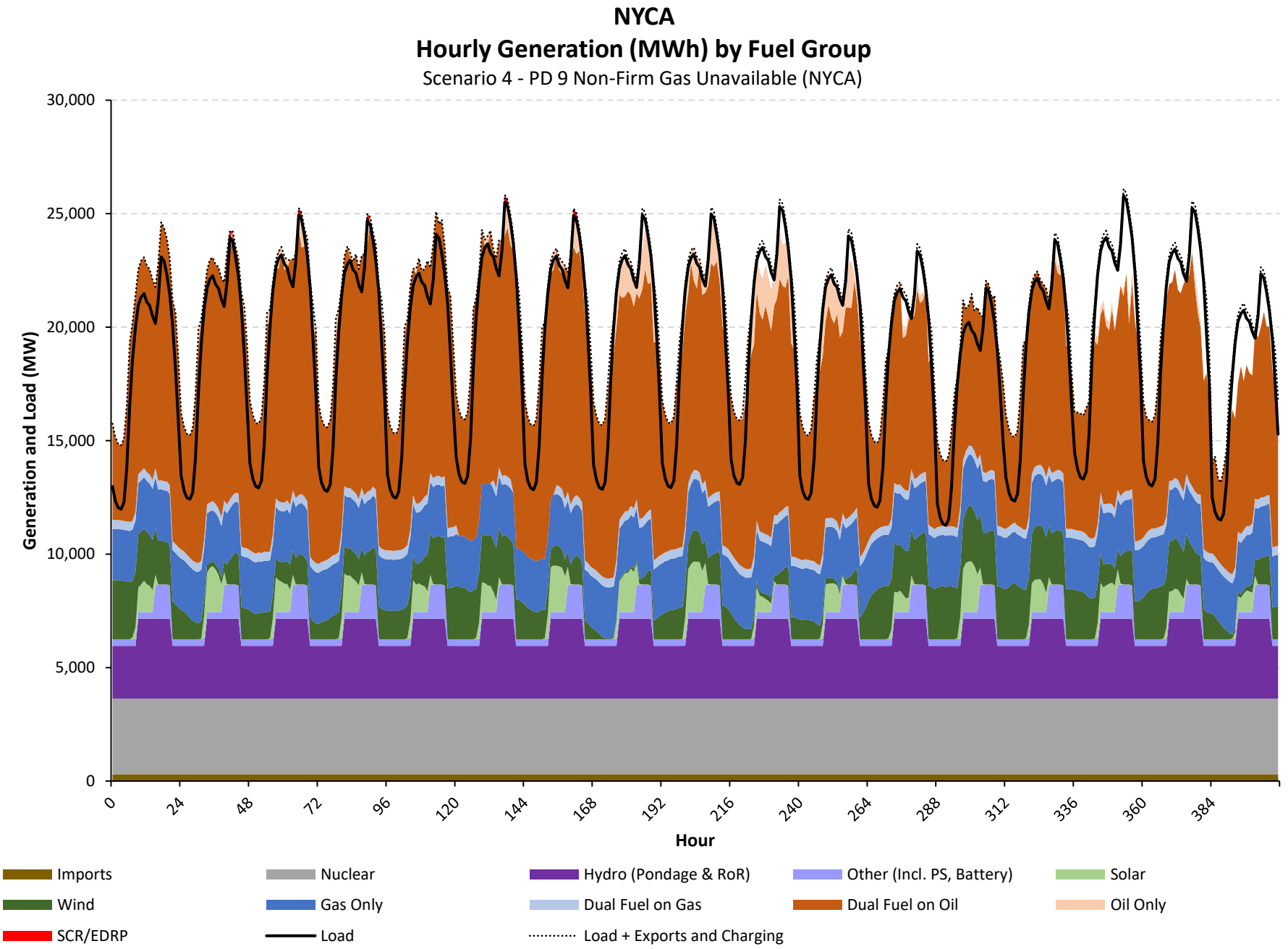




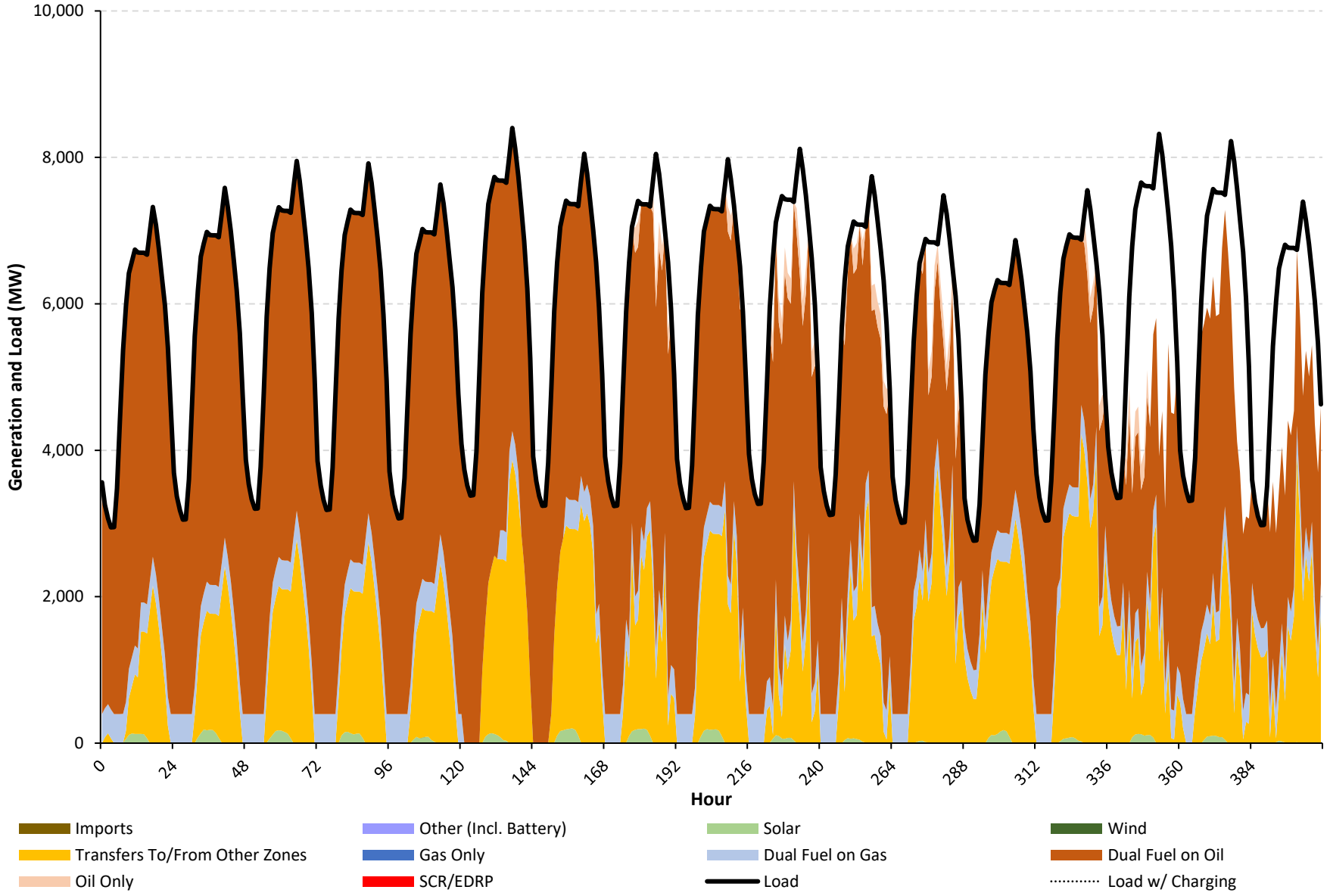




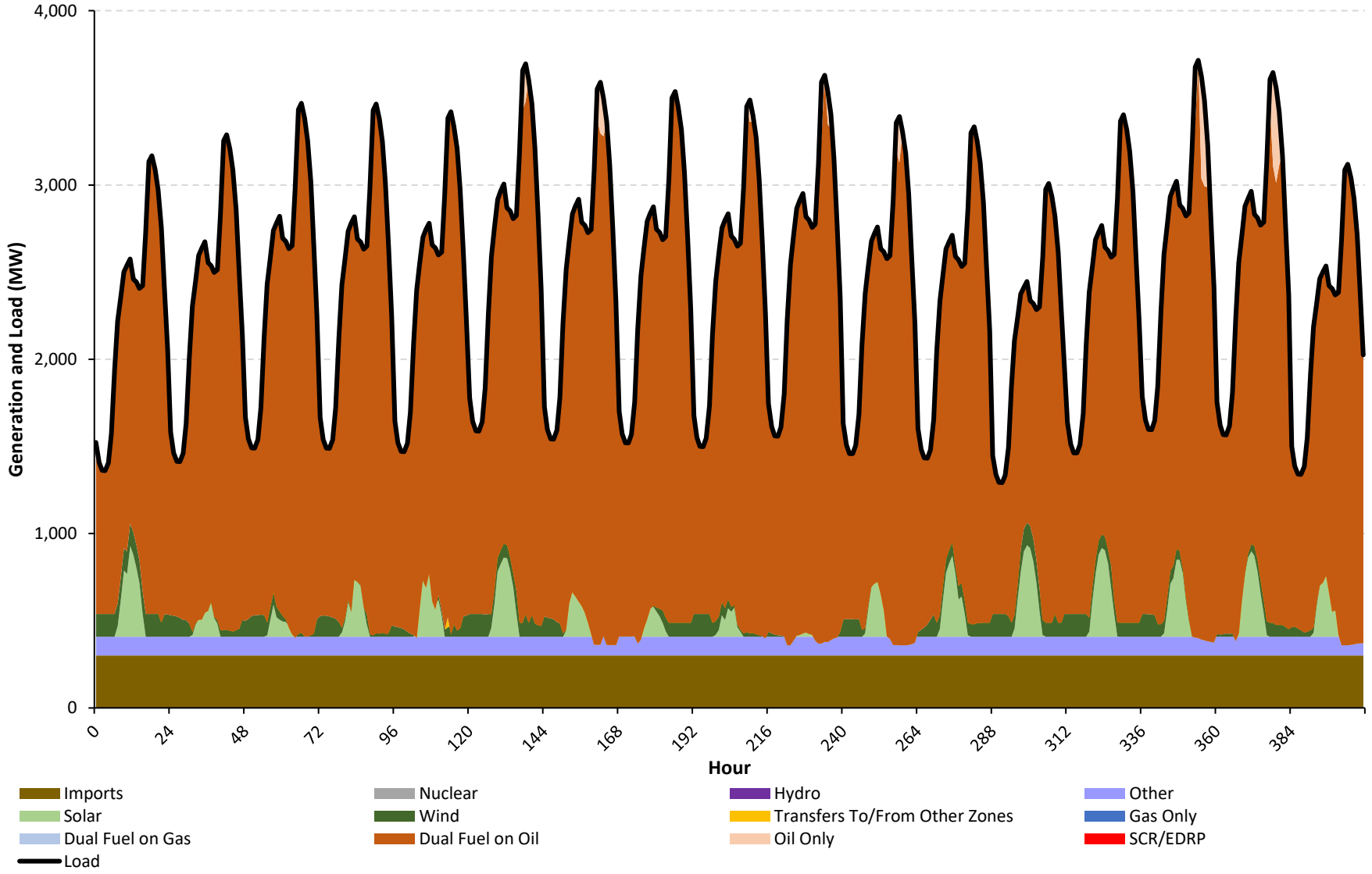


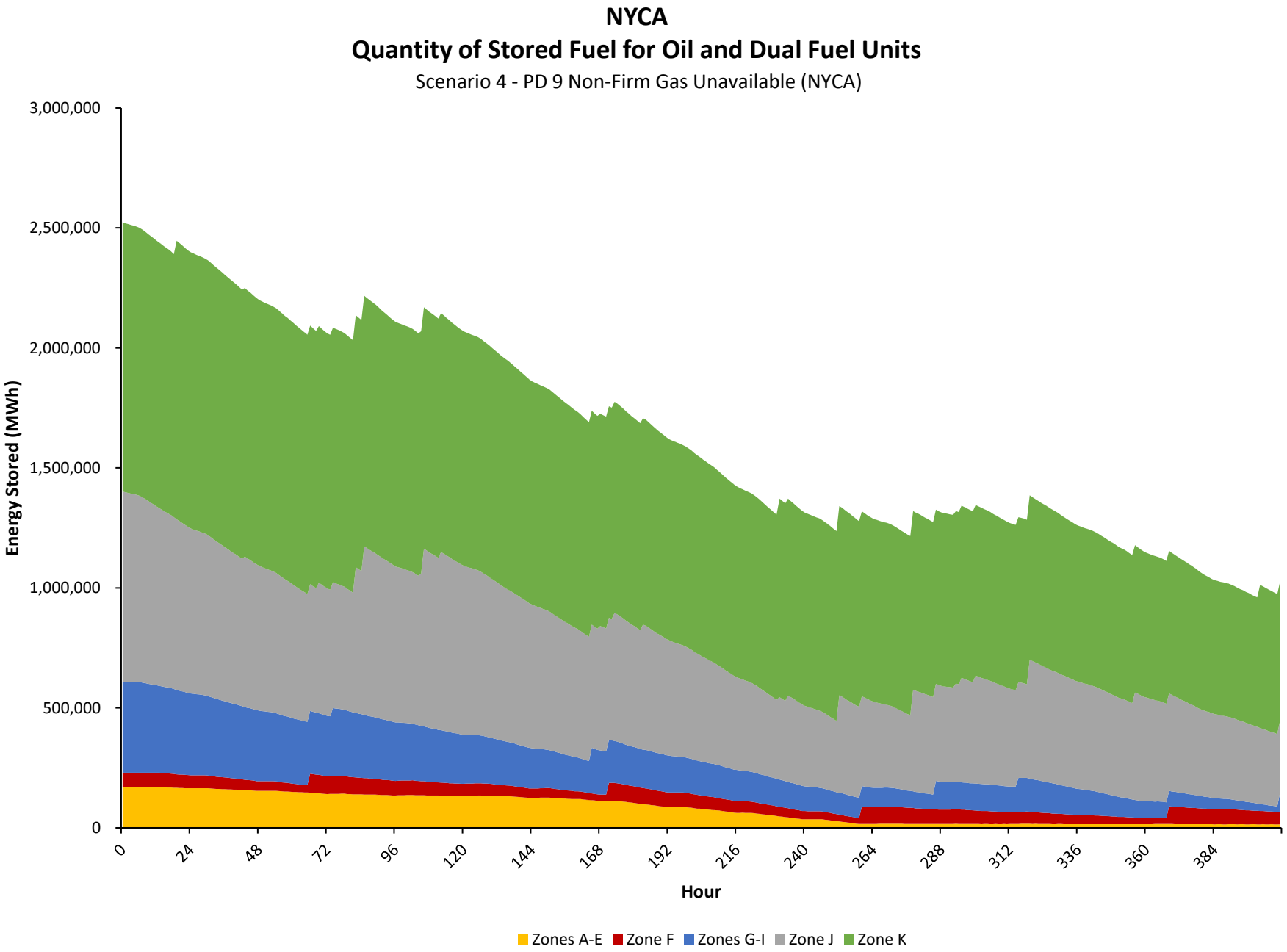

NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

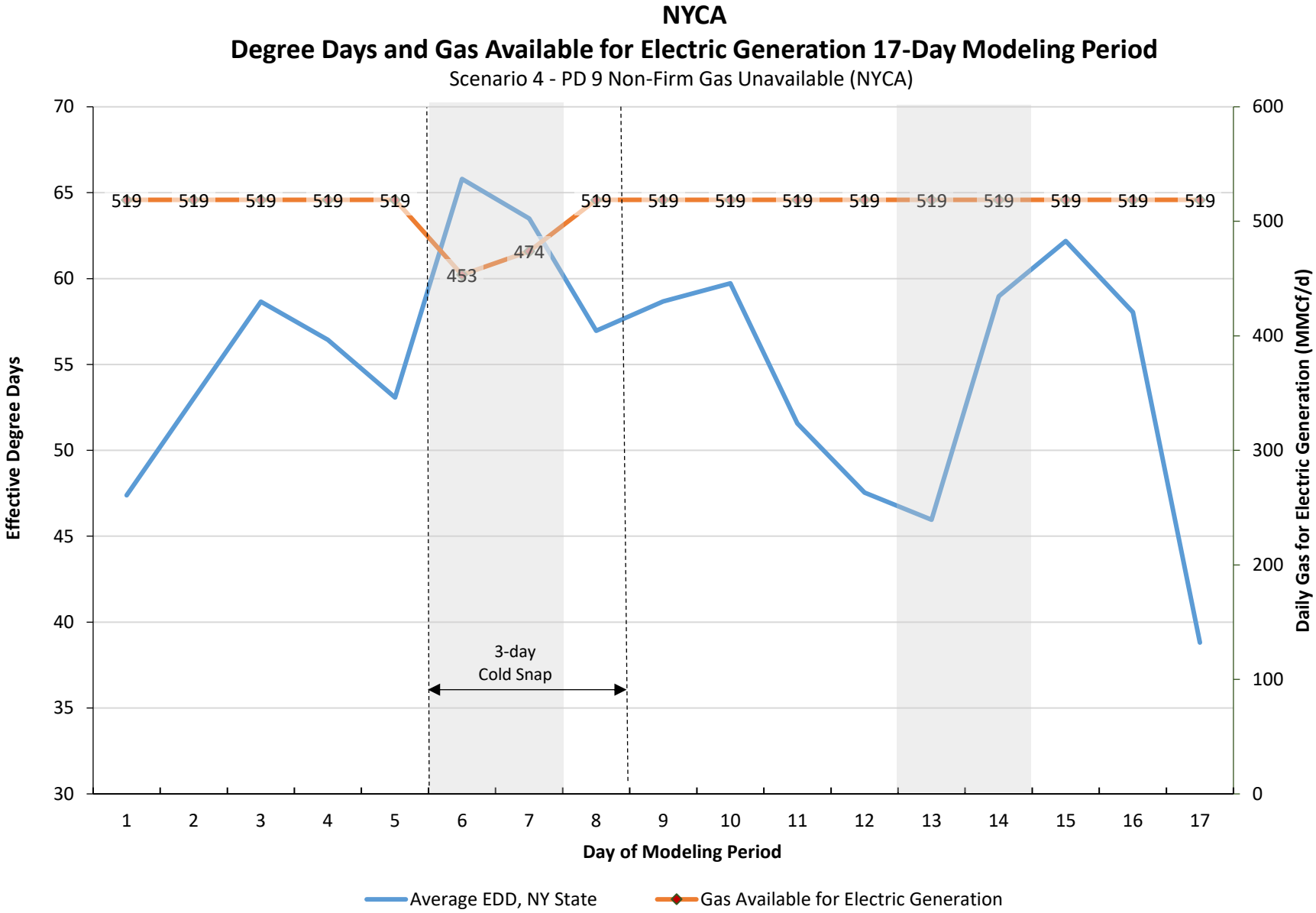
Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)



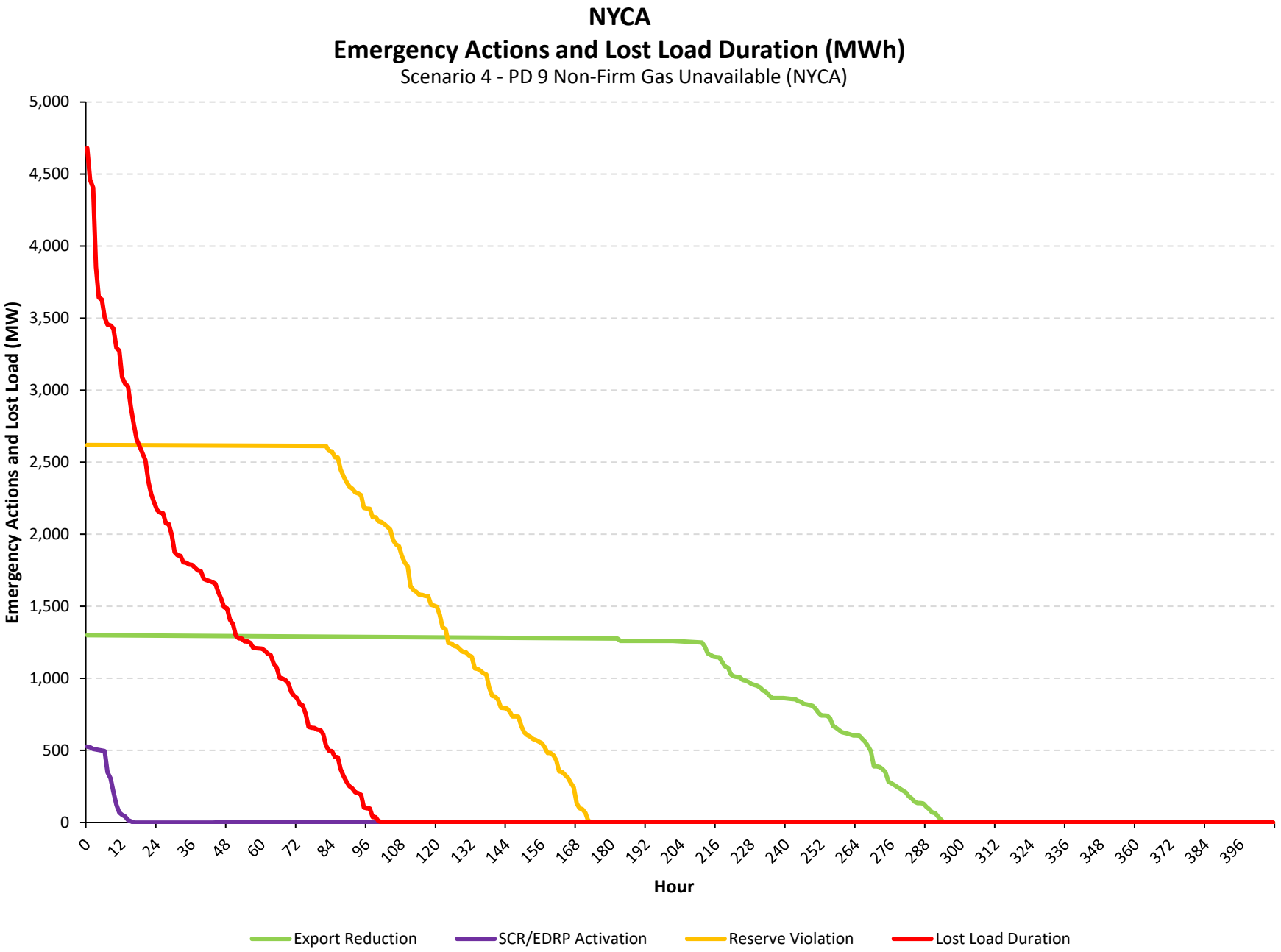
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)

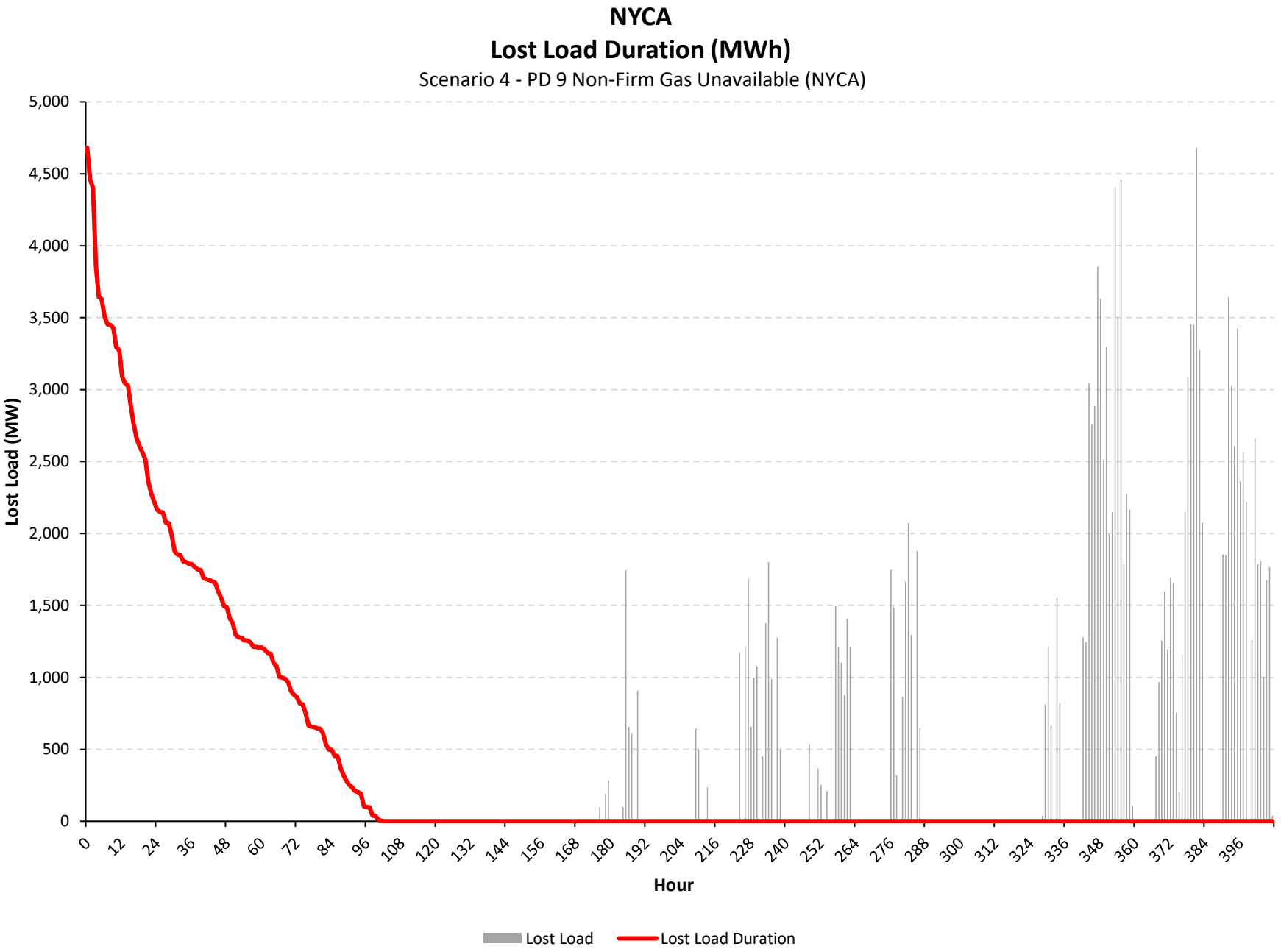



NYCA
Quantity of Stored Fuel for Oil and Dual Fuel Units
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)
Energy Stored (MWh)
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Zones A-E
Zone F
Zones G-I
Zone J
Zone K



Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)
Emergency Actions and Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 9 Non-Firm Gas Unavailable (NYCA)
Lost Load (MW)
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

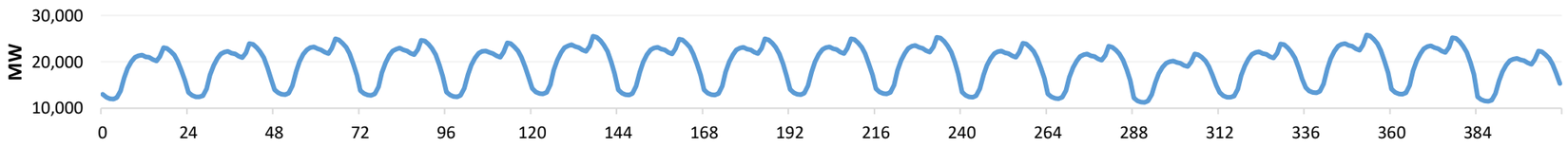
Case: Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days) (Winter 2023/2024)

Hourly Results Summary

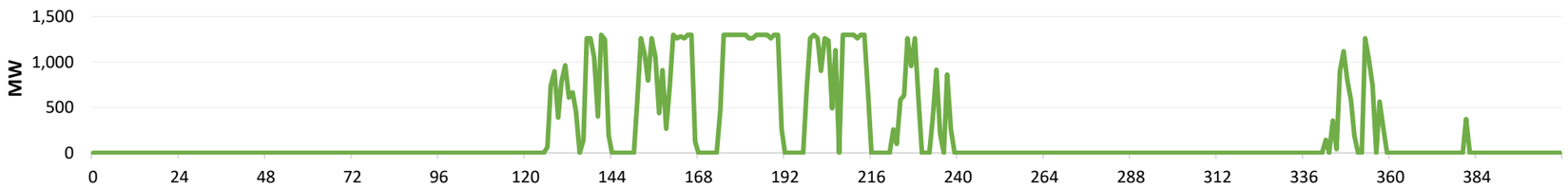
Case Name: Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Load During Modeling Period

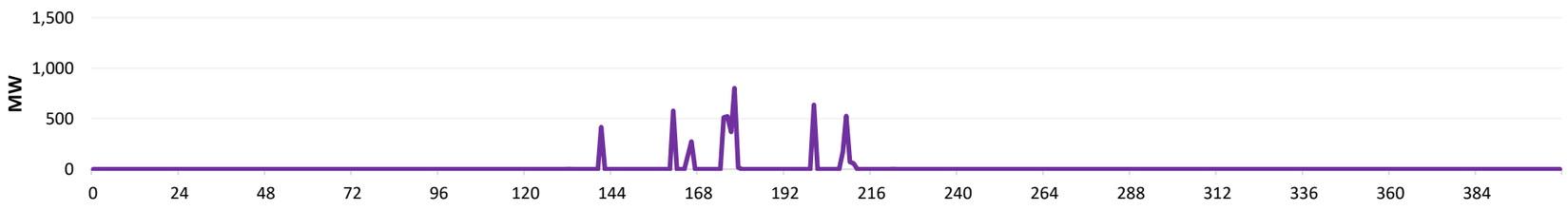


Export to ISO-NE Reduction During Modeling Period



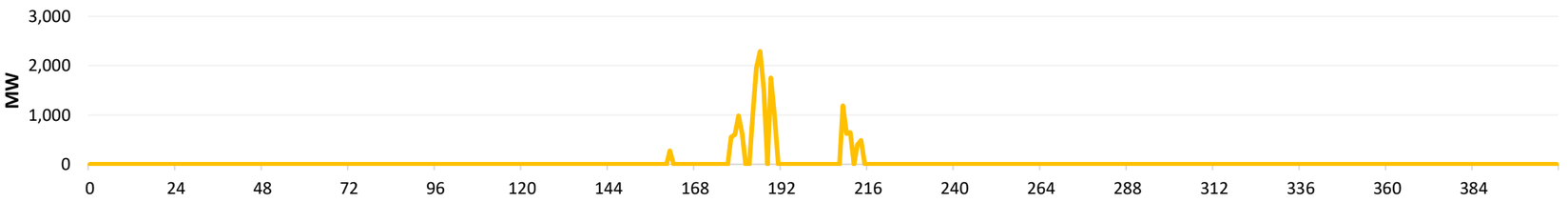
Export Reductions	
Total Hrs.	96
Total MWh	85,958
Avg. MW	210.7

SCR/EDRP Deployed During Modeling Period



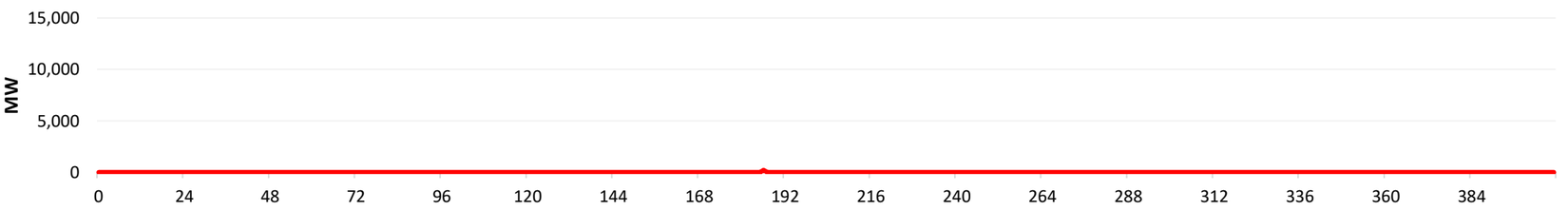
SCR Deployment	
Total Hrs.	14
Total MWh	5,085
Avg. MW	12.5

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	16
Total MWh	15,903
Avg. MW	39.0
First Hour with Viol.	161

Loss of Load During Modeling Period



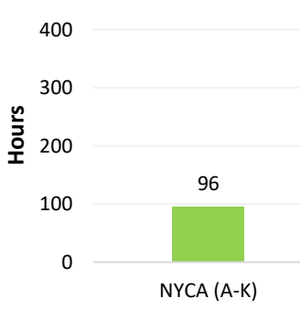
Loss of Load	
Total Hrs.	1
Total MWh	209
Avg. MW	0.5
First Hour with Losses	186

Full Period Results Summary

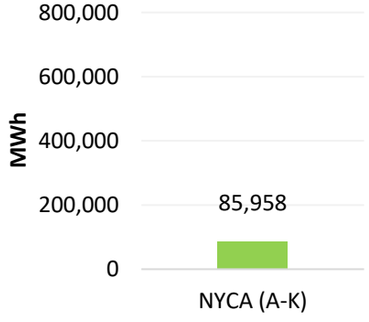
Case Name: Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)

Case Summary	
Derate (EFORd) Increase:	Off
Starting Storage:	High
Refill Contingency:	Off
Loss of Gas Fired Gen.	3-4 days
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

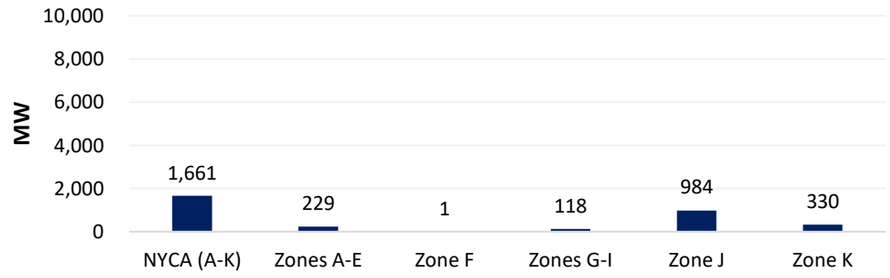
Hours Exports Reduced



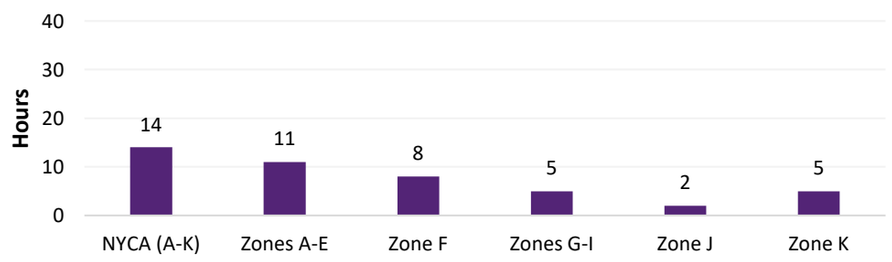
Total MWh of Exports Reduced



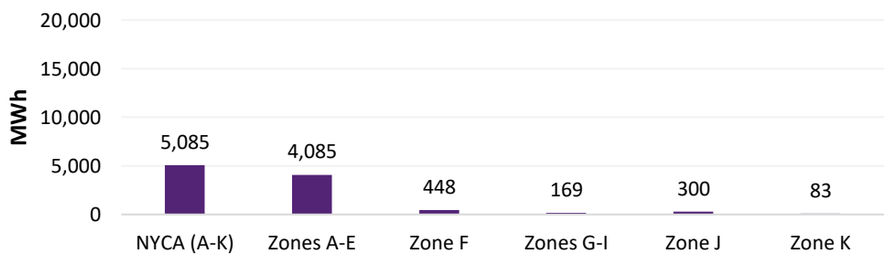
Average Capacity Not Available Due to Exhausted Fuel Inventory



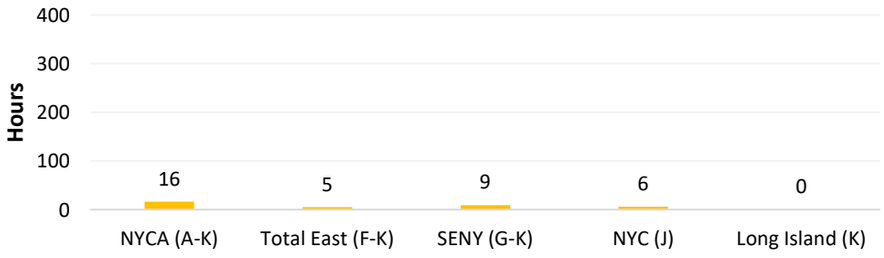
Hours SCR/EDRP Deployed



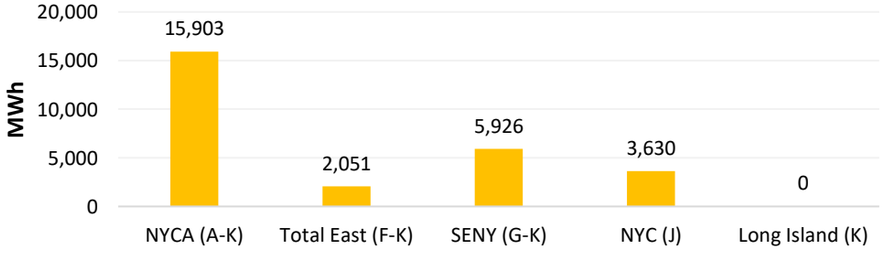
Total MWh SCR/EDRP Deployed



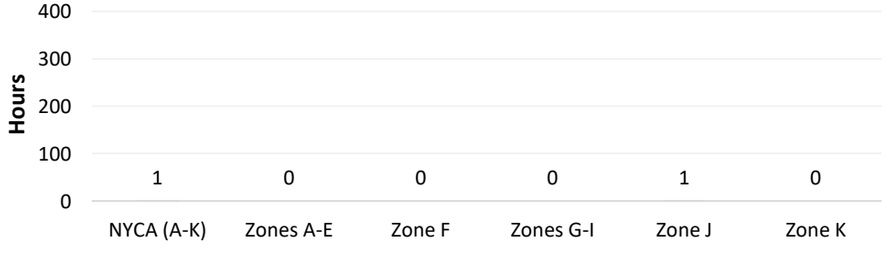
Hours with Reserve Violations



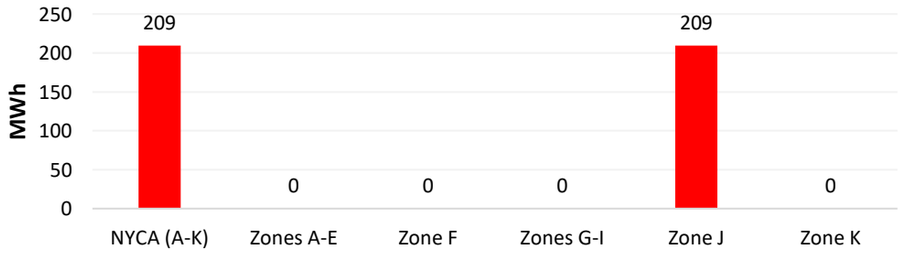
Total MWh of Reserve Violations

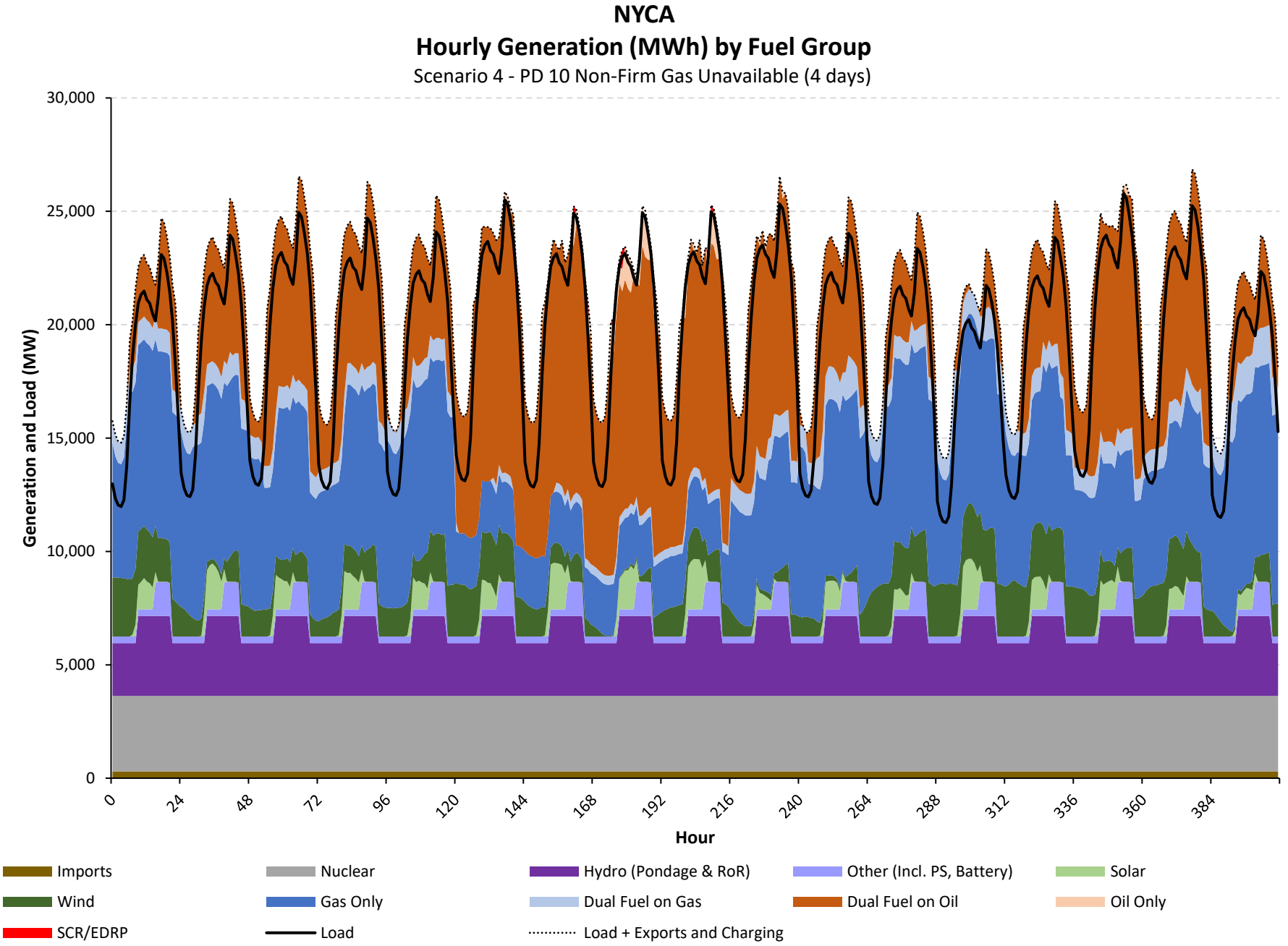


Hours with Loss of Load

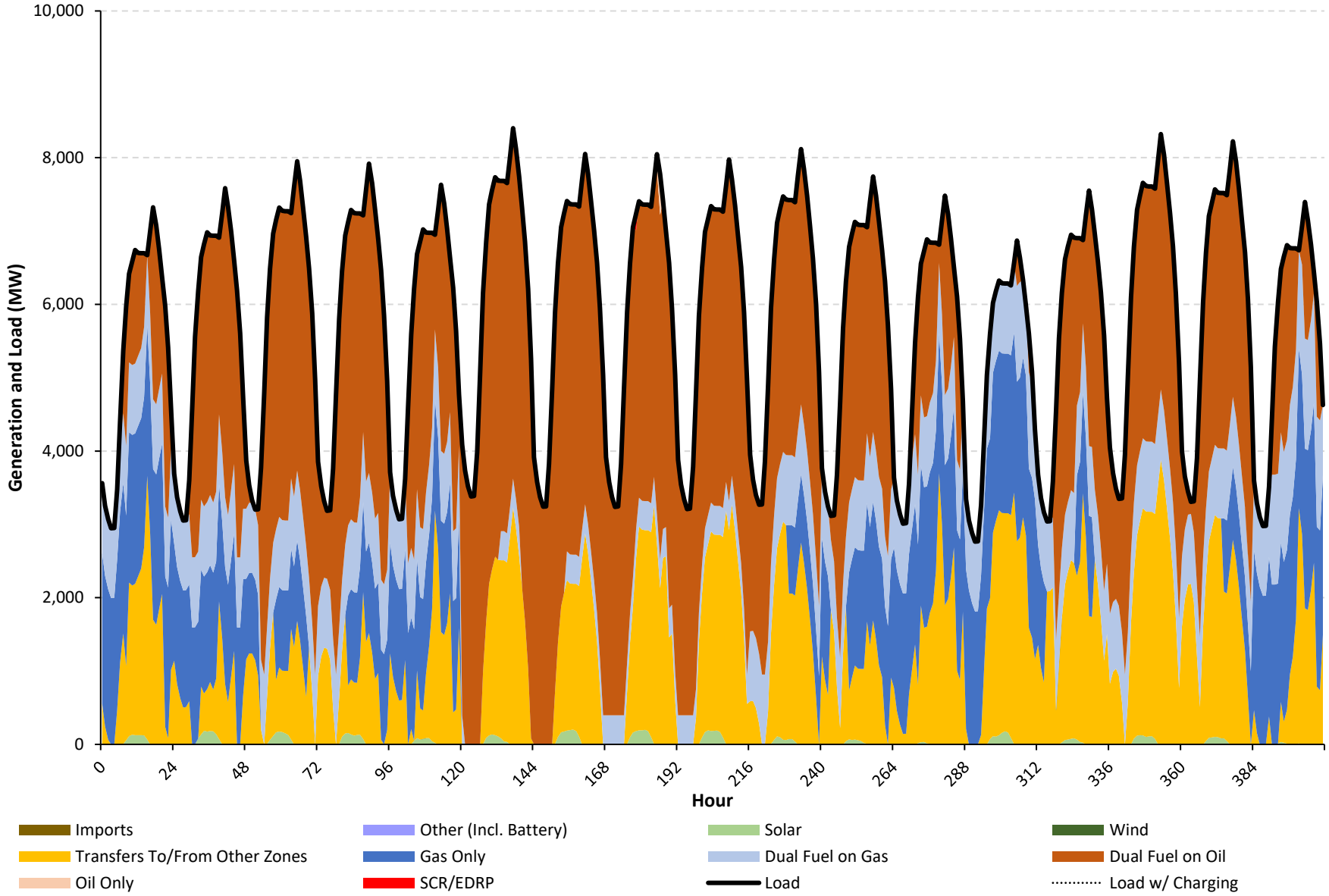


Total MWh of Lost Load

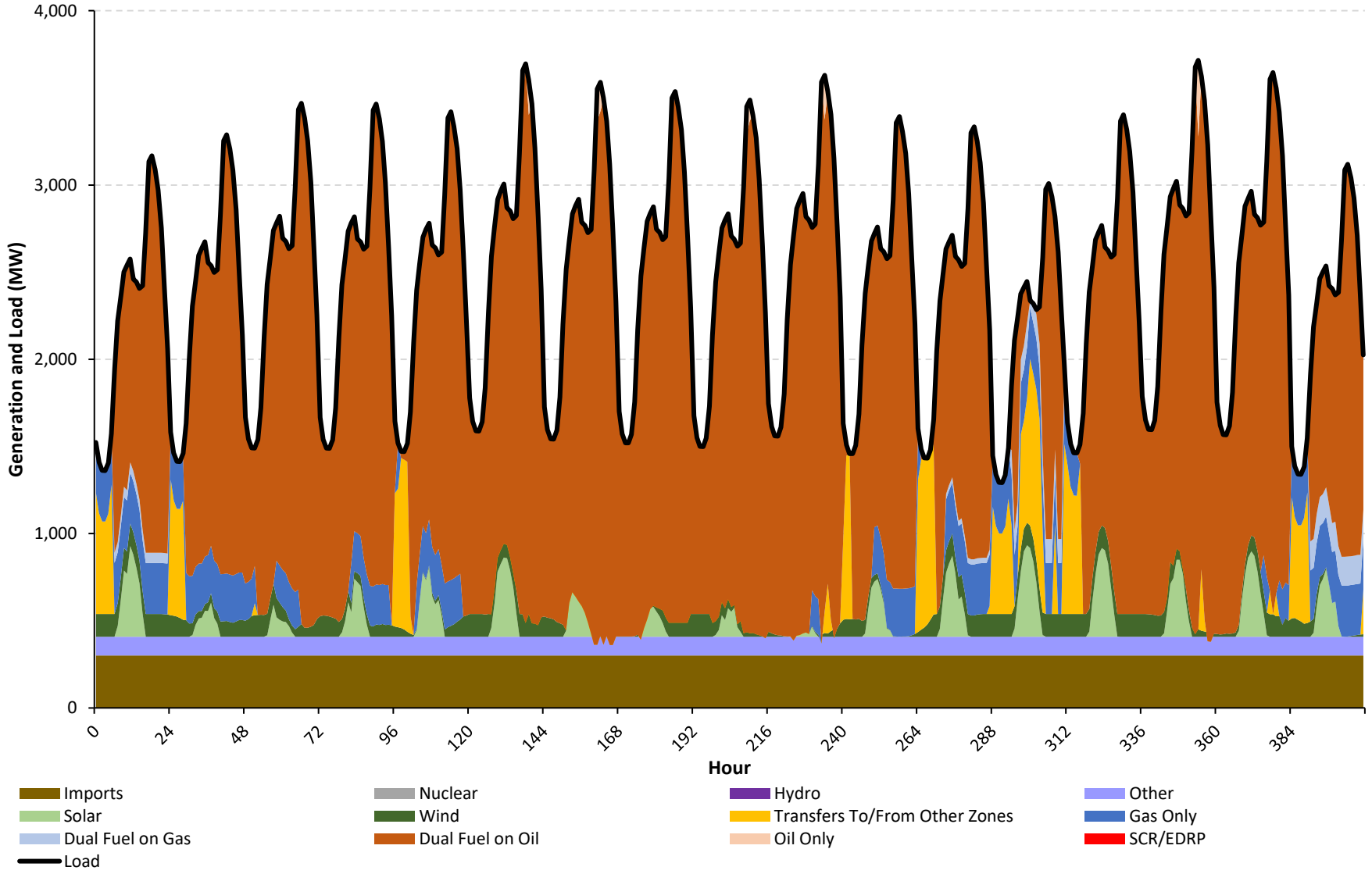



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)



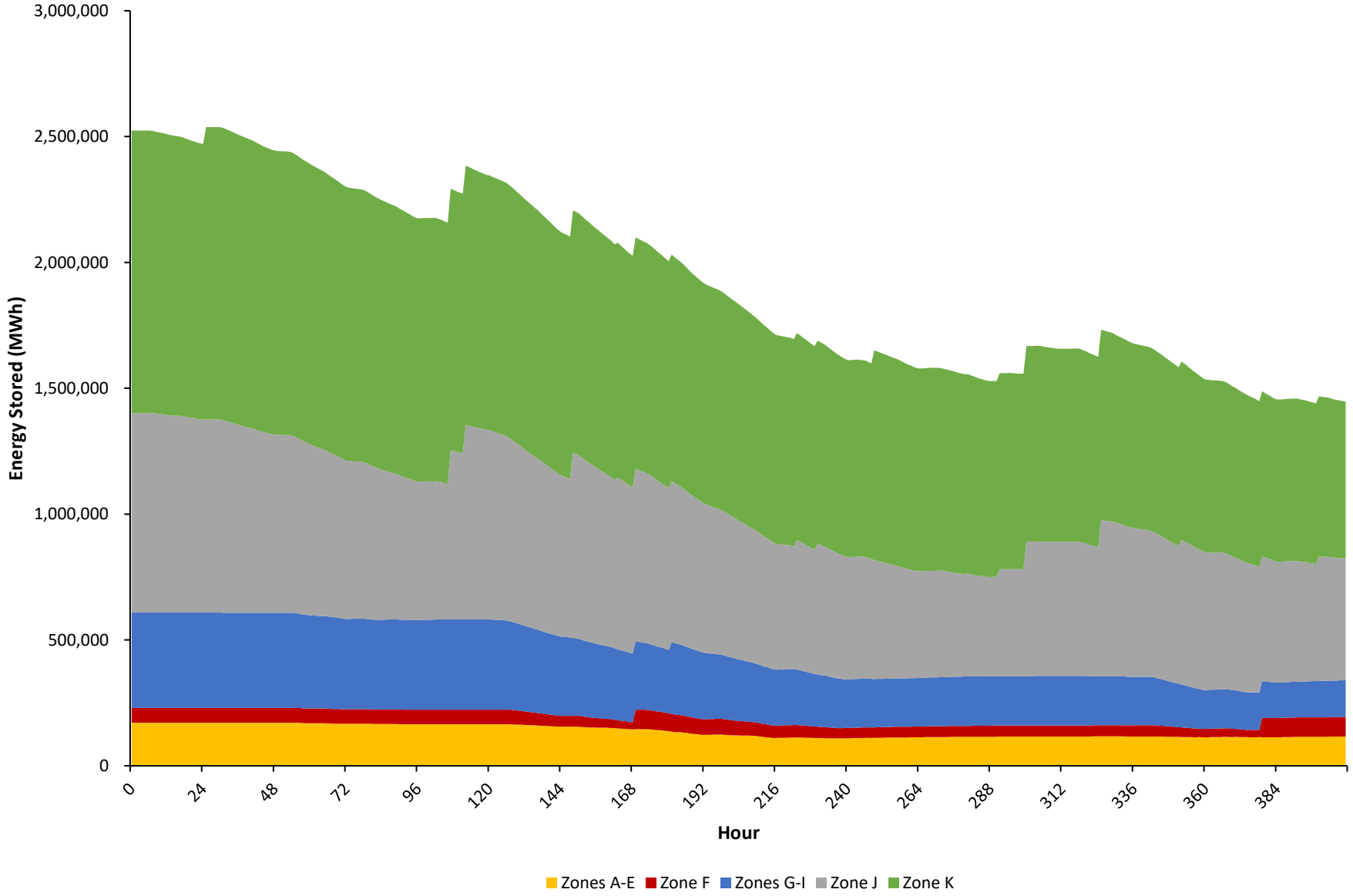
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)



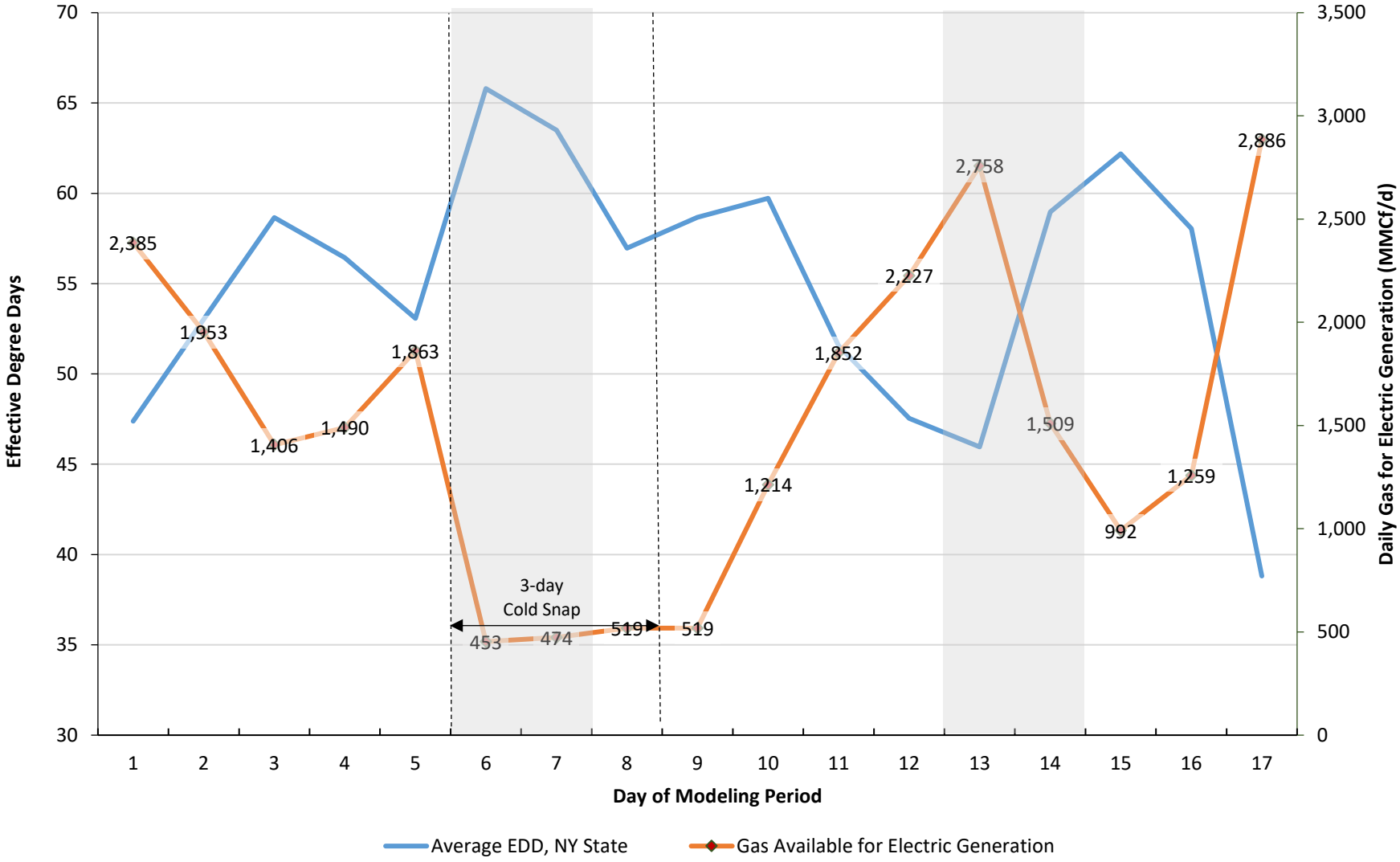
NYCA

Quantity of Stored Fuel for Oil and Dual Fuel Units

Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)



NYCA
Degree Days and Gas Available for Electric Generation 17-Day Modeling Period
Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)

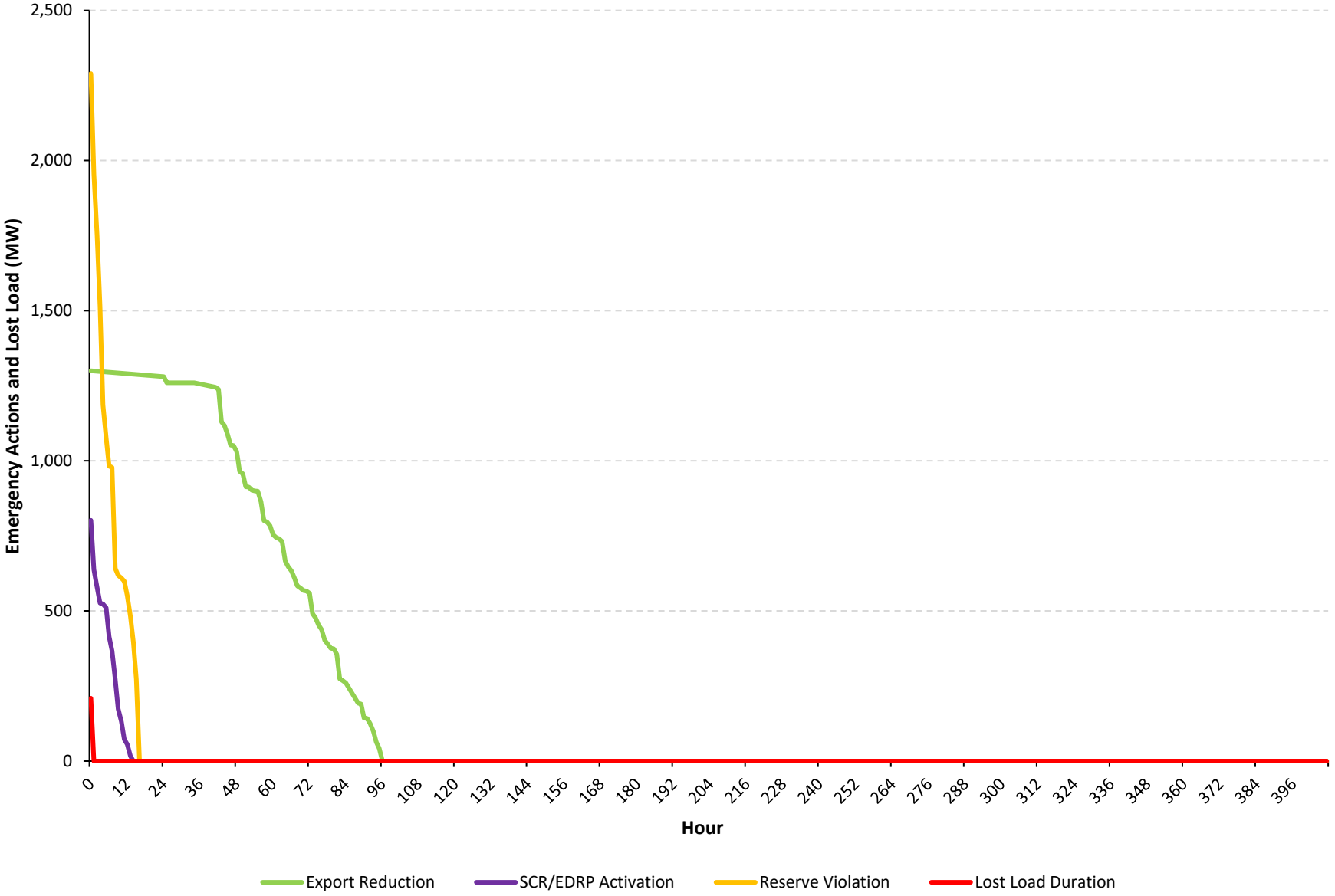


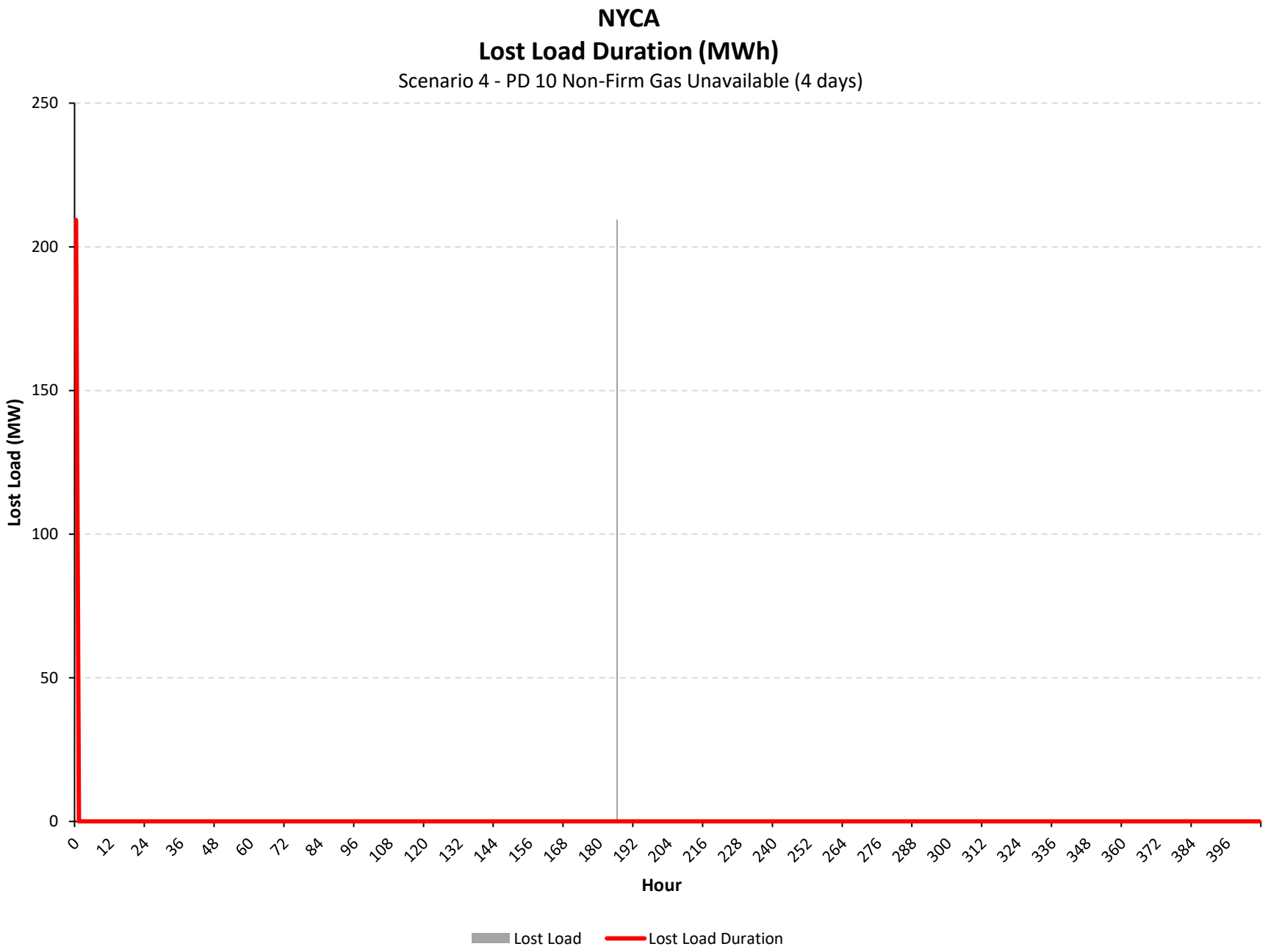
Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.

NYCA

Emergency Actions and Lost Load Duration (MWh)

Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)




NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 10 Non-Firm Gas Unavailable (4 days)
Lost Load (MW)
250
200
150
100
50
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration

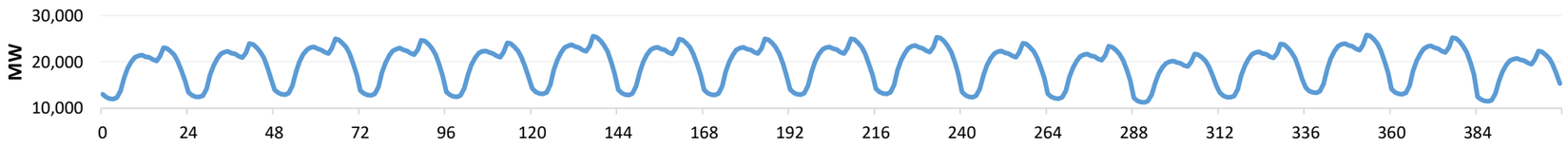
Appendix E. Diagnostic Charts for Cases with Identified Reliability Risks

Case: Scenario 4 - PD 11 Combination Disruption (Winter 2023/2024)

Hourly Results Summary

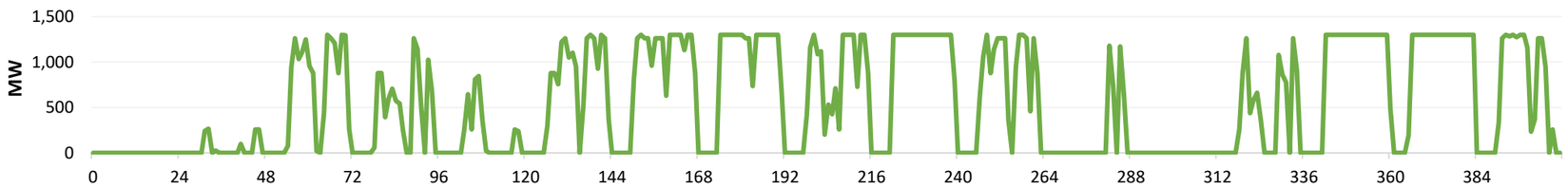
Case Name: Scenario 4 - PD 11 Combination Disruption

Load During Modeling Period



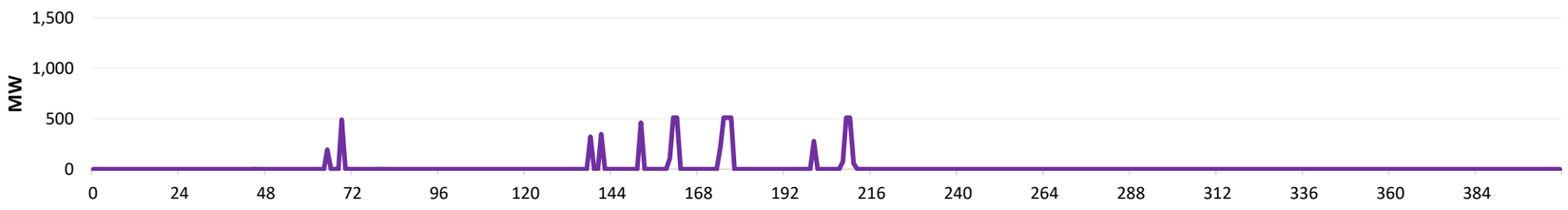
Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

Export to ISO-NE Reduction During Modeling Period



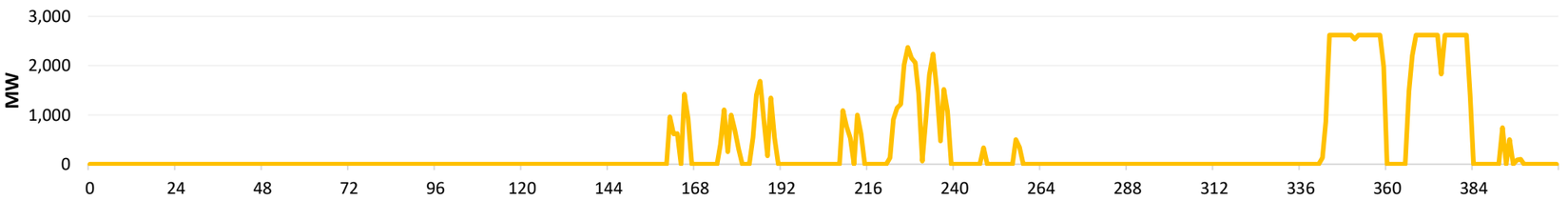
Export Reductions	
Total Hrs.	220
Total MWh	221,034
Avg. MW	541.7

SCR/EDRP Deployed During Modeling Period



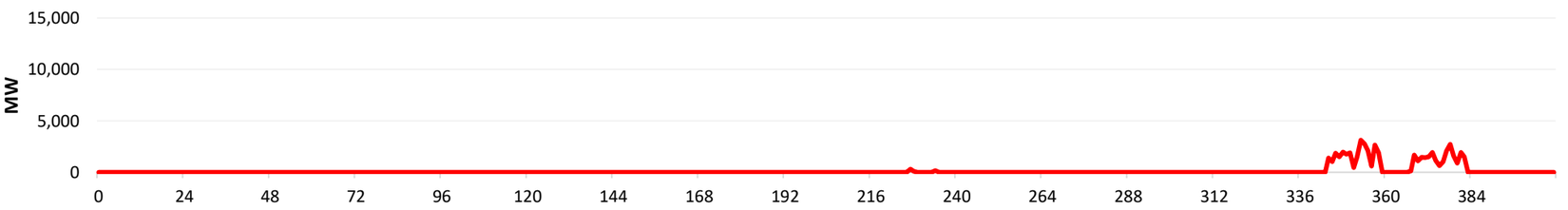
SCR Deployment	
Total Hrs.	17
Total MWh	6,118
Avg. MW	15.0

NYCA Reserve Violations During Modeling Period



Reserve Violations	
Total Hrs.	83
Total MWh	130,312
Avg. MW	319.4
First Hour with Viol.	161

Loss of Load During Modeling Period



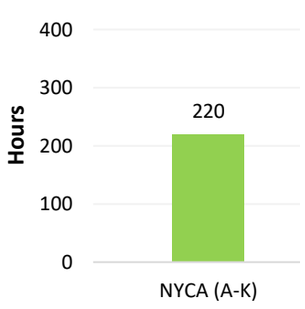
Loss of Load	
Total Hrs.	34
Total MWh	49,596
Avg. MW	121.6
First Hour with Losses	227

Full Period Results Summary

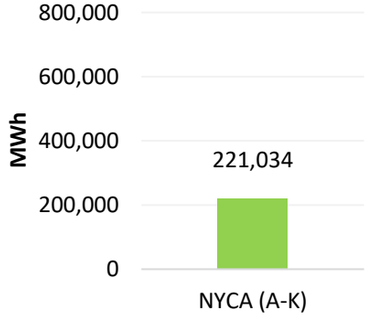
Case Name: Scenario 4 - PD 11 Combination Disruption

Case Summary	
Derate (EFORd) Increase:	High
Starting Storage:	High
Refill Contingency:	Reduced
Loss of Gas Fired Gen.	Reduced
Nuclear Contingency:	Off
Plant Outage:	None
Import Scenario:	Net Zero

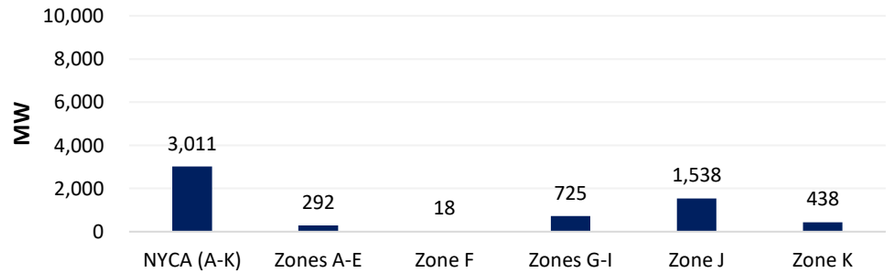
Hours Exports Reduced



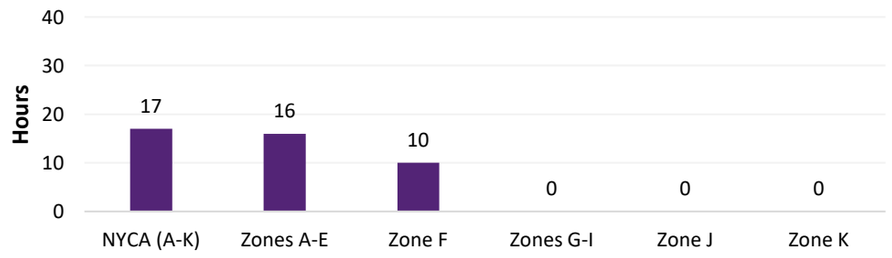
Total MWh of Exports Reduced



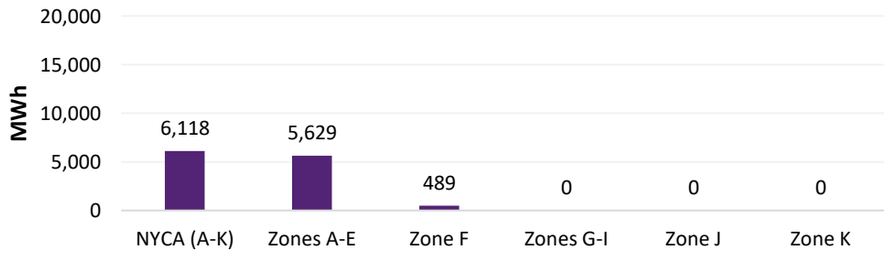
Average Capacity Not Available Due to Exhausted Fuel Inventory



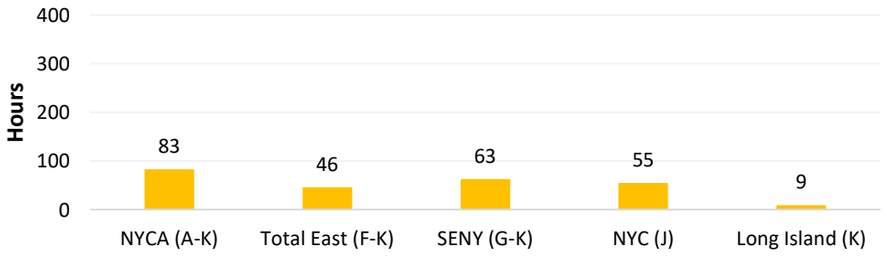
Hours SCR/EDRP Deployed



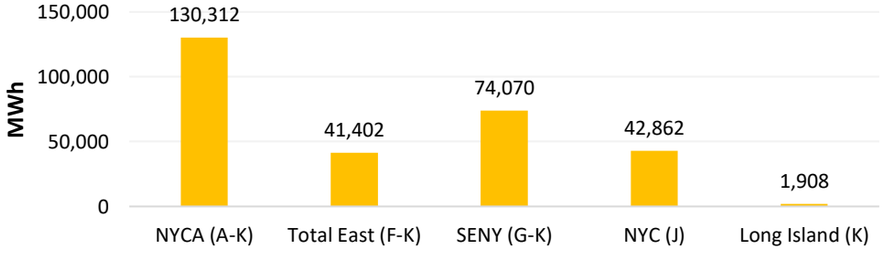
Total MWh SCR/EDRP Deployed



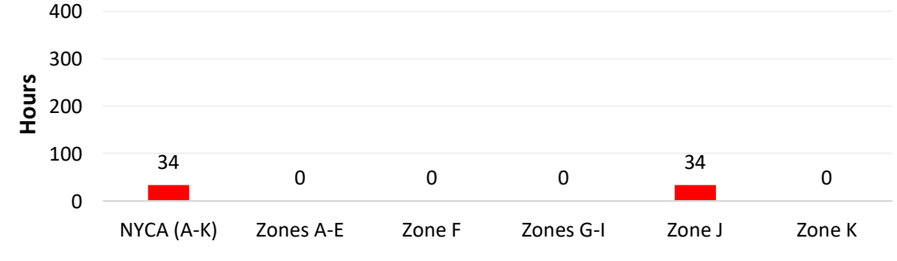
Hours with Reserve Violations



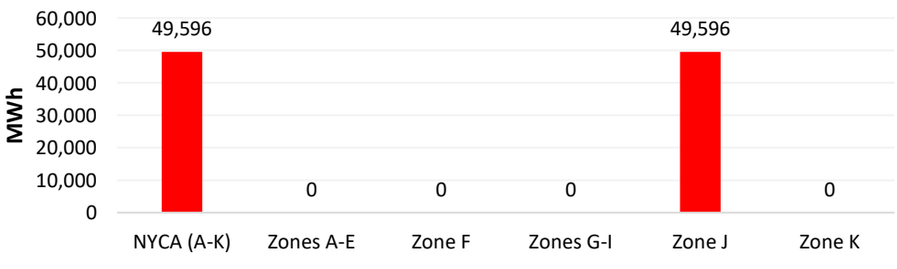
Total MWh of Reserve Violations

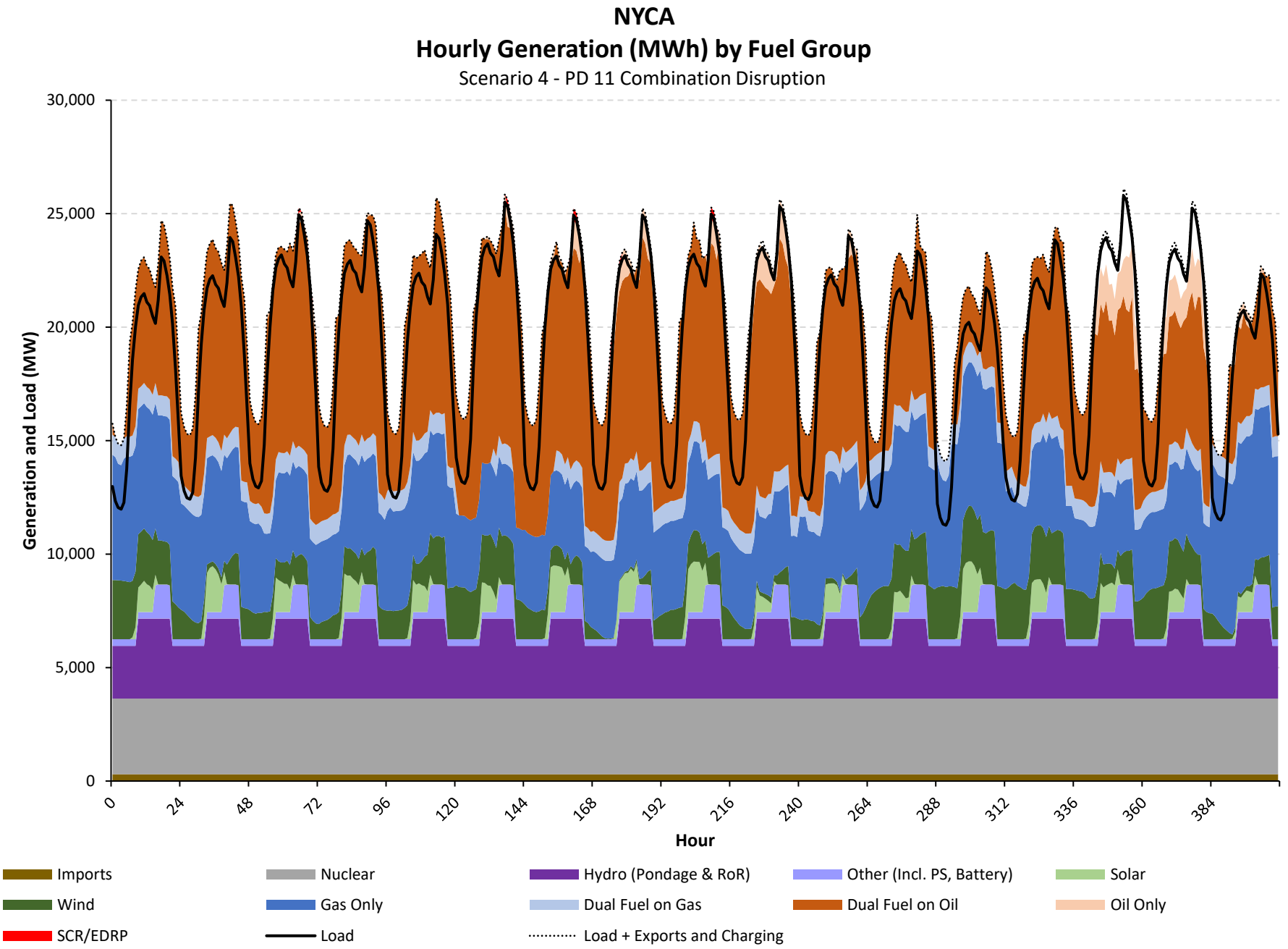


Hours with Loss of Load

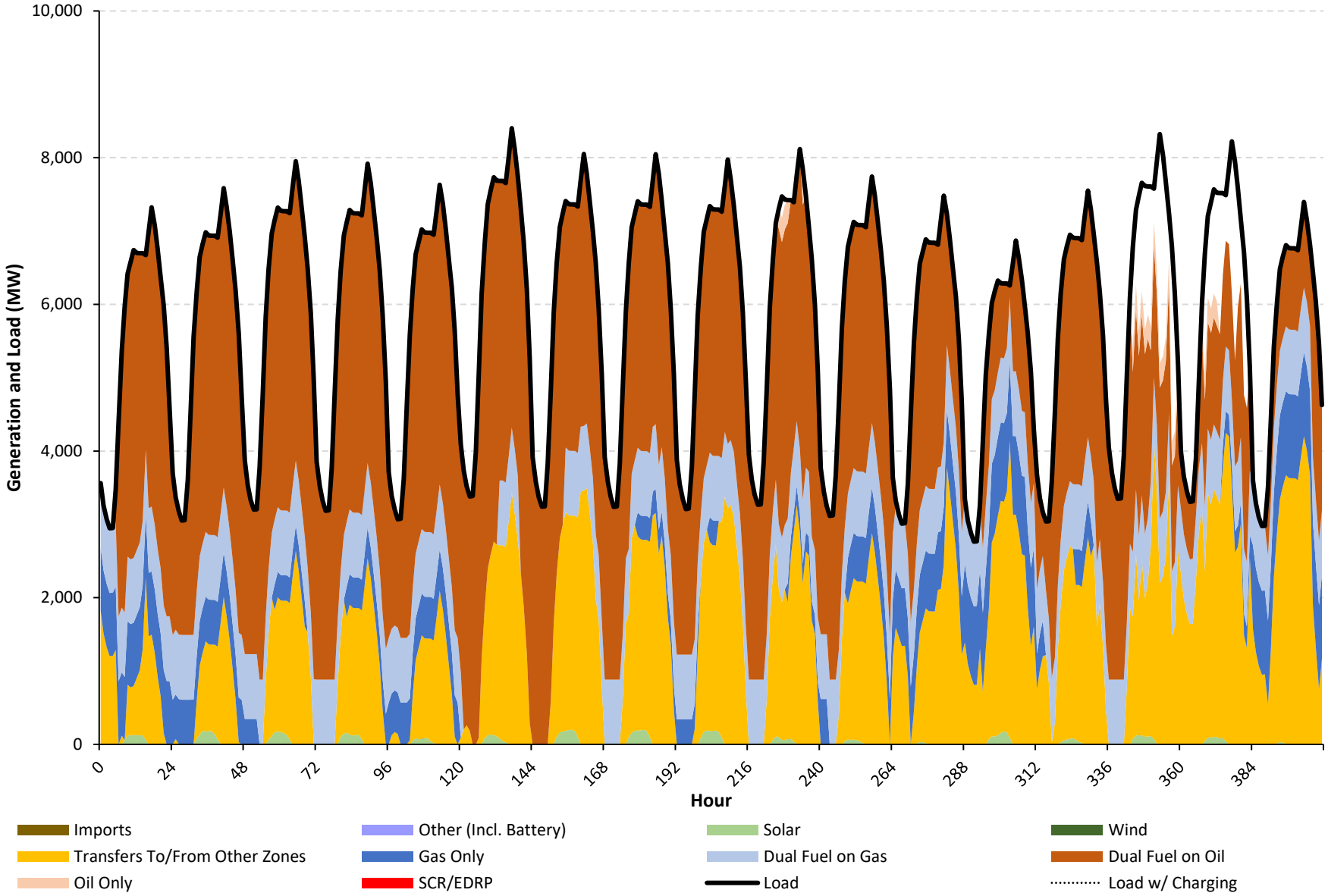


Total MWh of Lost Load

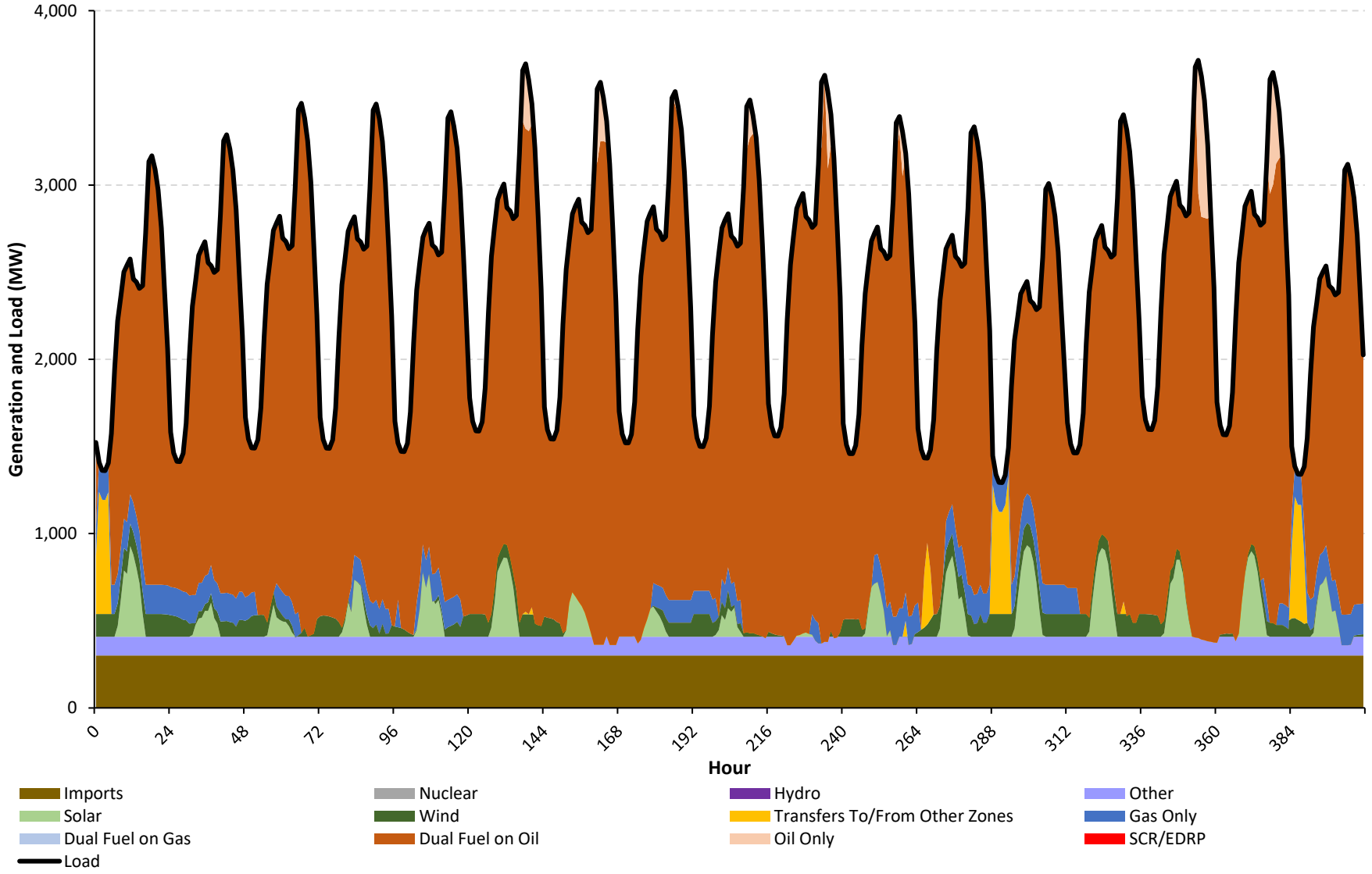



NYCA
Hourly Generation (MWh) by Fuel Group
Scenario 4 - PD 11 Combination Disruption
Generation and Load (MW)
30,000
25,000
20,000
15,000
10,000
5,000
0
0
24
48
72
96
120
144
168
192
216
240
264
288
312
336
360
384
Hour
Imports
Nuclear
Hydro (Pondage & RoR)
Other (Incl. PS, Battery)
Solar
Wind
Gas Only
Dual Fuel on Gas
Dual Fuel on Oil
Oil Only
SCR/EDRP
Load
Load + Exports and Charging

Zone J
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 11 Combination Disruption



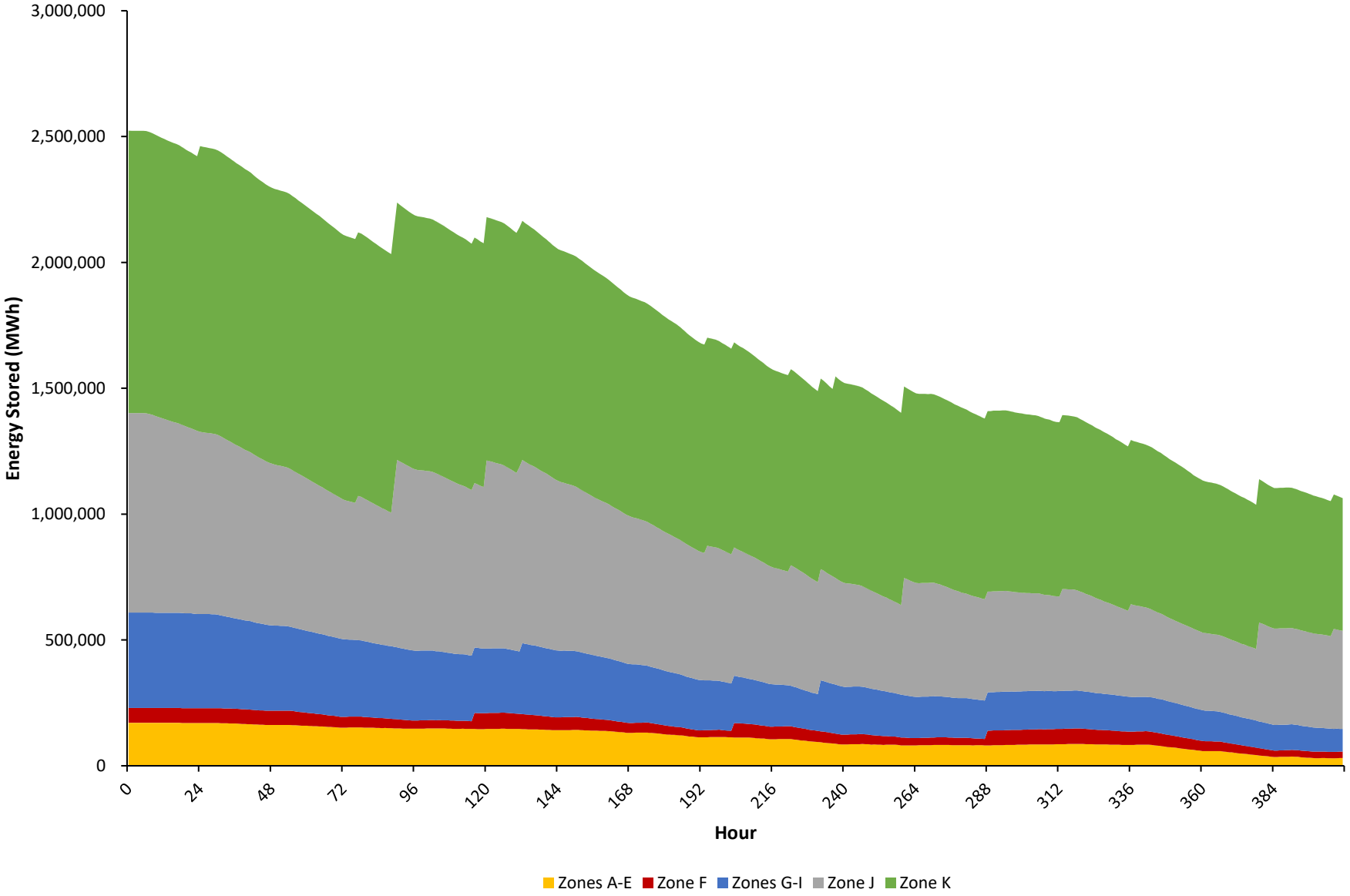
Zone K
Hourly Generation (MW) by Fuel Group
Scenario 4 - PD 11 Combination Disruption

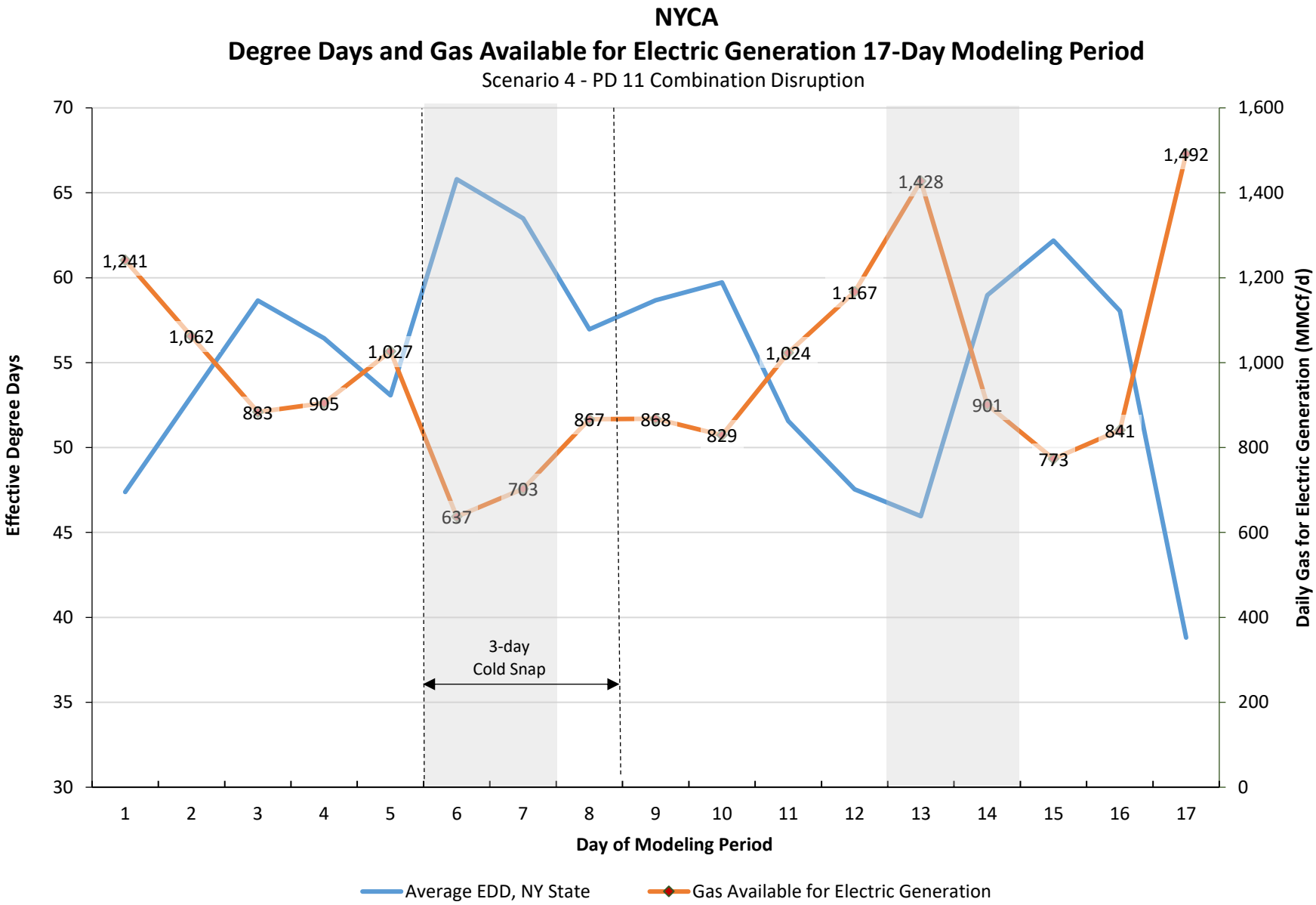


NYCA

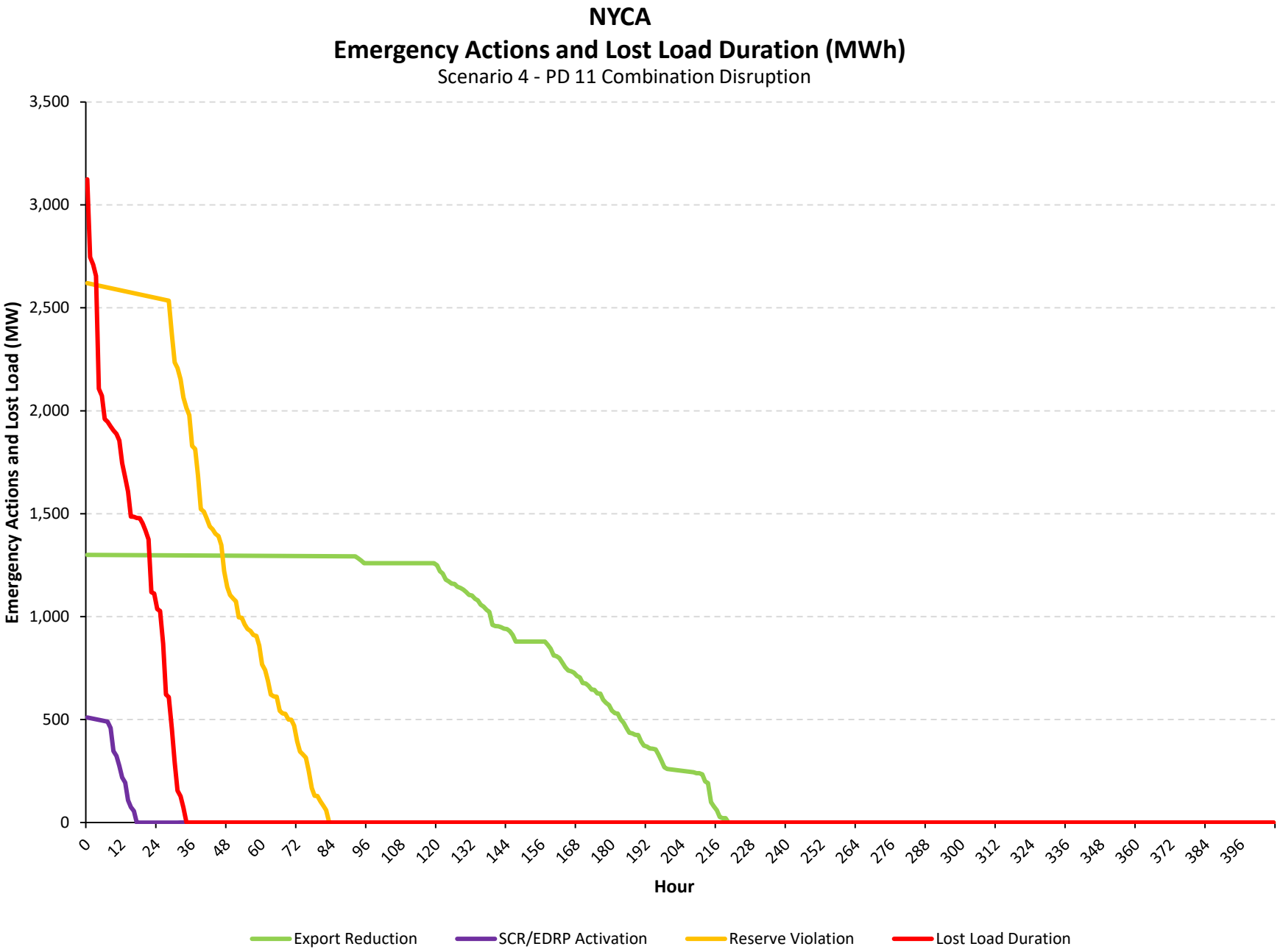
Quantity of Stored Fuel for Oil and Dual Fuel Units

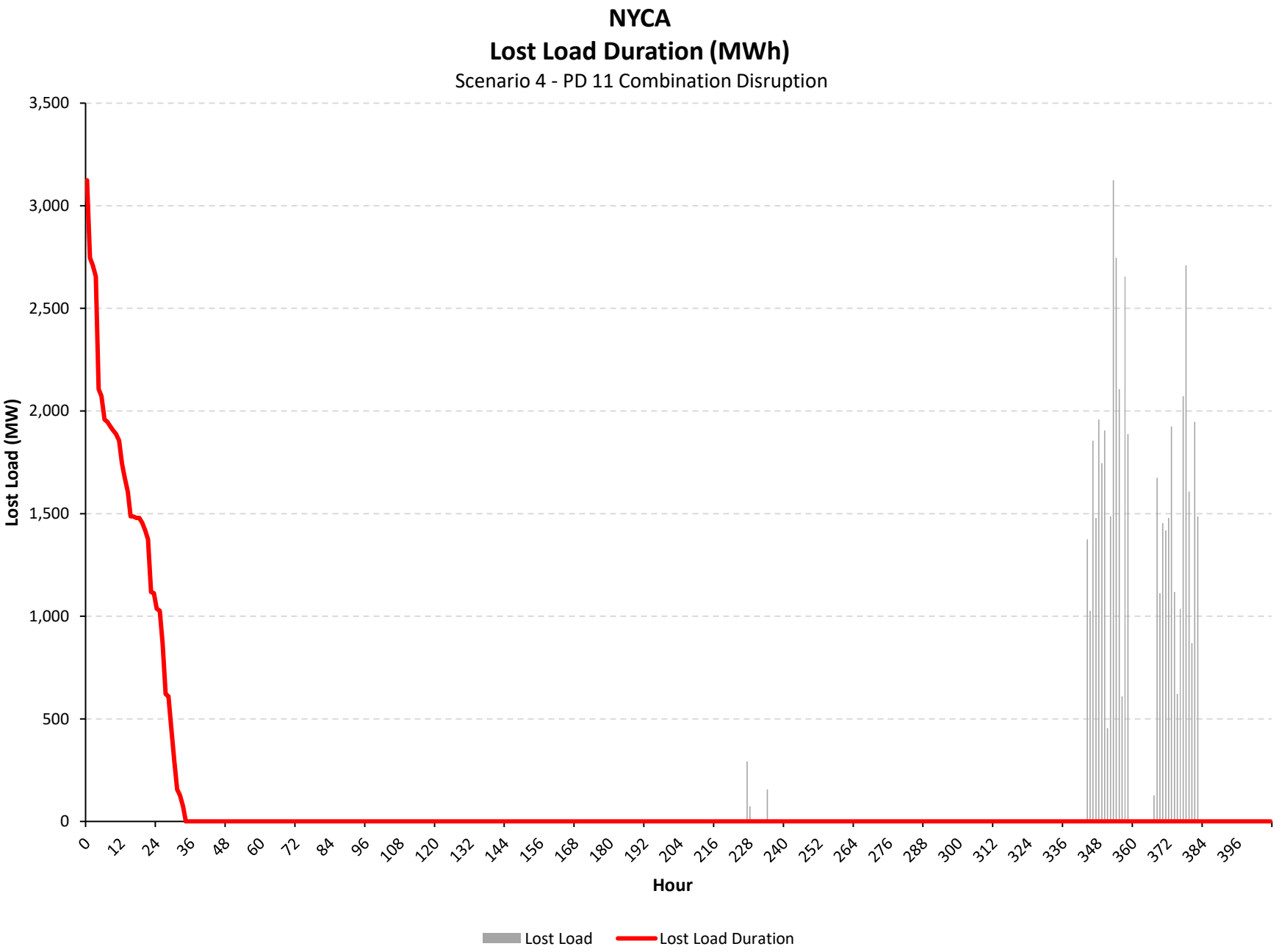
Scenario 4 - PD 11 Combination Disruption





Notes:
[1] Weekends are shaded in gray.
[2] Effective degree day is defined as 65 degrees F - Temperature.


NYCA
Emergency Actions and Lost Load Duration (MWh)
Scenario 4 - PD 11 Combination Disruption
Emergency Actions and Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Export Reduction
SCR/EDRP Activation
Reserve Violation
Lost Load Duration


NYCA
Lost Load Duration (MWh)
Scenario 4 - PD 11 Combination Disruption
Lost Load (MW)
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0 12 24 36 48 60 72 84 96 108 120 132 144 156 168 180 192 204 216 228 240 252 264 276 288 300 312 324 336 348 360 372 384 396
Hour
Lost Load
Lost Load Duration