Queue S58
Collins
Feasibility Study Report

Option 1

The #S58 project was studied as a 2000 MW (400 MW of capacity) injection at two alternative interconnection points in the ComEd area. Under this option, it is proposed to interconnect S58 into the existing 765kV ring bus at Station 23. It has been assumed that all previous queue positions are connected at their primary point of interconnection for the purposes of this study, with the exception of S57, which is assumed to be connected onto the 765kV bus at Station 23 Collins (Option 2).

Network Impacts

The #S58 project was studied as a 2000 MW (400 MW of capacity) injection at two alternative interconnection points in the ComEd area. Option #1 connects into Collins 765 kV substation (STA 23). Project #S58 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Generator Deliverability
(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems were identified.

Multiple Facility Contingency
(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

No problems were identified.

Short Circuit
(Summary of impacted circuit breakers)

To be determined in the System Impact Study

Contribution to Previously Identified Overloads
(#S58 contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

1. Contribution of 39 MW further overloads the Conastone – Peachbottom 500kV line ckt#2 loads from 151.45% to 152.96% (DC power flow) of its emergency

rating (2598MVA) for the Conastone – Peachbottom 500 kV ckt#1 single line outage (PJM17). Previous project(s) S12, S17, S18, S23, S29, S32, S33, S52, S55, S56 and S57 contribute(s) to the loading by 131.4MW(5.06%), 35.8MW(1.37%), 198.9MW(7.66%), 78.1MW(3%), 144.4MW(5.55%), 83.6MW(3.21%), 47.9MW(1.85%), 79.8MW(3.07%), 76.9MW(2.96%), 57.2MW(2.2%) and 29.4MW(1.13%) respectively. It must be noted that the same thermal violation (DC power flow: 112.5%) already exists in the 2012 base case.

2. Contribution of 39 MW further overloads the Conastone – Peachbottom 500kV line ckt#1 loads from 151.45% to 152.96% (DC power flow) of its emergency rating (2598MVA) for the Conastone – Peachbottom 500 kV ckt#2 single line outage (PJM17_2). Previous project(s) S12, S17, S18, S23, S29, S32, S33, S52, S55, S56 and S57 contribute(s) to the loading by 131.4MW(5.06%), 35.8MW(1.37%), 198.9MW(7.66%), 78.1MW(3%), 144.4MW(5.55%), 83.6MW(3.21%), 47.9MW(1.85%), 79.8MW(3.07%), 76.9MW(2.96%), 57.2MW(2.2%) and 29.4MW(1.13%) respectively. It must be noted that the same thermal violation (DC power flow: 112.5%) already exists in the 2012 base case.

3. Contribution of 36 MW further overloads the Kemptown – North-North West 500 kV line from 186.39% to 188.10% (DC power flow) of its normal rating (2078MVA). Previous project(s) S12, S17, S18, S29, S52, S55, S56 and S57 contribute(s) to the loading by 120.5MW(5.79%), 25.2MW(1.22%), 140.3MW(6.75%), 96MW(4.62%), 78.4MW(3.77%), 69.7MW(3.35%), 53.6MW(2.58%) and 26.6MW(1.28%) respectively. It must be noted that the same thermal violation (DC power flow: 155.0%) already exists in the 2012 base case.

4. Contribution of 37 MW further overloads the Kemptown – North-North West 500 kV line from 152.24% to 153.51% (DC power flow) of its emergency rating (2901MVA) for the Hunterton – Conastone 500 kV single line outage (PJM67). Previous project(s) S12, S18, S29, S52, S55 and S56 contribute(s) to the loading by 125.2MW(4.32%), 130.3MW(4.49%), 88.5MW(3.05%), 77.1MW(2.66%), 72.7MW(2.5%) and 55MW(1.9%) respectively. It must be noted that the same thermal violation (DC power flow: 129.9%) already exists in the 2012 base case.

Steady-State Voltage Requirements

(Summary of VAR requirements based upon the results of the steady-state voltage studies.)

To be determined in the System Impact Study

Stability and Reactive Power Requirements for Low Voltage Ride Through

(Summary of VAR requirements based upon the results of the dynamic studies.)

To be determined in the System Impact Study

New System Reinforcements
(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

None

Contribution to Previously Identified System Reinforcements
(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

To be determined in the System Impact Study

Potential Issues
The #S58 Option 1 project may impact stability at Dresden and/or Kendall County stations due to the interconnection into the existing Collins substation. Stability studies will be performed during the System Impact Study.

Impacts on the MISO member transmission systems are not included in this analysis, but they will be included in the Impact Study, which may reveal upgrades needed in the MISO system not identified in this Feasibility Study.

Delivery of Energy Portion of Interconnection Request
PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

As a result of the aggregate energy resources in the area, the following violations were identified:

1. Contribution of 196 MW further overloads the Conastone – Peachbottom 500kV line ckt#2 loads from 199.0% to 206.6% (DC power flow) of its emergency rating (2598 MVA) for the Conastone – Peachbottom 500kV ckt#1 single line outage (PJM17). Previous project(s) S06, S12, S14, S17, S18, S23, S26, S29, S31, S32, S33, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 20MW(.8%), 131.4MW(5.1%), 6.6MW(.3%), 35.8MW(1.4%), 198.9MW(7.7%), 78.1MW(3.0%), 7.4MW(.3%), 144.4MW(5.6%), 44.4MW(1.7%), 83.6MW(3.2%), 47.9MW(1.8%), 17.2MW(.7%), 17.2MW(.7%), 13.6MW(.5%), 19.5MW(.8%), 14.2MW(.5%), 86.5MW(3.3%), 14.3MW(.6%), 76.9MW(3.0%), 57.2MW(2.2%) and 147.2MW(5.7%) respectively. It must be noted that the same thermal violation (DC power flow: 149.8%) already exists in the 2012 base case.

2. Contribution of 196 MW further overloads the Conastone – Peachbottom 500kV ckt#1 from 199.0% to 206.6% (DC power flow) of its emergency rating (2598 MVA) for the Conastone – Peachbottom 500 kV ckt#2 single line outage (PJM17_2). Previous project(s) S06, S12, S14, S17, S18, S23, S26, S29, S31, S32, S33, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 20MW(.8%), 131.4MW(5.1%), 6.6MW(.3%), 35.8MW(1.4%), 198.9MW(7.7%), 78.1MW(3.0%), 7.4MW(.3%), 144.4MW(5.6%), 44.4MW(1.7%), 83.6MW(3.2%), 47.9MW(1.8%), 17.2MW(.7%), 17.2MW(.7%), 13.6MW(.5%), 19.5MW(.8%), 14.2MW(.5%), 86.5MW(3.3%), 14.3MW(.6%), 76.9MW(3.0%), 57.2MW(2.2%) and 147.2MW(5.7%) respectively. It must be noted that the same thermal violation (DC power flow: 149.8%) already exists in the 2012 base case.

3. Contribution of 129 MW further overloads the North-North West – Conastone 500 kV line from 118.2% to 124.4% (DC power flow) of its normal rating (2078 MVA). Previous project(s) S18, S29, S52, S54, S56 and S57 contribute(s) to the loading by 174.7MW(8.4%), 124.8MW(6.0%), 81.6MW(3.9%), 12.4MW(.6%), 49.2MW(2.4%) and 96.8MW(4.7%) respectively.

4. Contribution of 113 MW further overloads the South Bend – Keystone 500 kV line from 131.5% to 135.8% (DC power flow) of its emergency rating (2595 MVA) for the Kemptown – North-North West 500 kV single line outage (PJM13B_NNWEST_B). Previous project(s) S06, S12, S14, S31, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 11.4MW(.4%), 77MW(3.0%), 7.3MW(.3%), 25.4MW(1.0%), 9.8MW(.4%), 9.8MW(.4%), 8MW(.3%), 11.5MW(.4%), 8.2MW(.3%), 45.1MW(1.7%), 8.2MW(.3%), 43.9MW(1.7%), 33MW(1.3%) and 84.5MW(3.3%) respectively. It must be noted that the same thermal violation (DC power flow: 116.2%) already exists in the 2012 base case.

5. Contribution of 10 MW further overloads the Greene – Roxbury 138 kV line from 135.3% to 142.4% (DC power flow) of its emergency rating (142 MVA) for the Kemptown – North-North West 500 kV single line outage (PJM13B_NNWEST_B). Previous project(s) S12, S18, S29, S52 and S57 contribute(s) to the loading by 8.9MW(6.2%), 14MW(9.8%), 9.8MW(6.9%), 7.2MW(5.1%) and 7.6MW(5.3%) respectively. It must be noted that the same thermal violation (DC power flow: 101.9%) already exists in the 2012 base case.

6. Contribution of 178 MW further overloads the Kemptown – North-North West 500 kV line from 234.9% to 243.5% (DC power flow) of its normal rating (2078 MVA). Previous project(s) S06, S12, S14, S17, S18, S26, S29, S31, S36, S37, S45, S46, S52, S54, S55, S56 and S57 contribute(s) to the loading by 18.1MW(.9%), 120.5MW(5.8%), 6MW(.3%), 25.2MW(1.2%), 140.3MW(6.7%), 6.7MW(.3%), 96MW(4.6%), 40.3MW(1.9%), 15.6MW(.7%), 15.6MW(.8%), 12.2MW(.6%), 17.5MW(.8%), 84.9MW(4.1%), 13.5MW(.6%), 69.7MW(3.3%),

53.6MW(2.6%) and 133.1MW(6.4%) respectively. It must be noted that the same thermal violation (DC power flow: 192.5%) already exists in the 2012 base case.

7. Contribution of 811 MW overloads the 765 kV - 345kV Transformer 92 at Collins (STA 23) from 42.2% to 101.0% (DC power flow) of its emergency rating (1380 MVA) for the outage of Collins to Wilton Center 765kV line #11216.

8. Contribution of 141 MW further overloads the Plano to Electric Junction 345 line #16704 from 113.7% to 124.2% (DC power flow) of its emergency rating (1341 MVA) for the outage of the Plano to Electric Junction 345kV line #16703. Previous project S57 Option #2 contributes to the loading by 105.5 MW (7.9%). It must be noted that the same thermal violation (DC power flow: 105.9%) already exists in the 2012 base case.

9. Contribution of 112.5 MW overloads the Plano to Electric Junction 345kV line #16704 from 97.4% to 106.5% (DC power flow) of its normal rating (1245MVA).

10. Contribution of 111 MW overloads the Plano to Electric Junction 345kV line #16703 from 92.9% to 101.1% (DC power flow) of its normal rating (1339MVA).

Option 2

The #S58 project was studied as a 2000 MW (400 MW of capacity) injection at two alternative interconnection points in the ComEd area. Under this option, it is proposed to interconnect S58 into the existing 345kV Bus at Station 23 Collins (Interconnection Substation. It has been assumed that all previous queue positions are connected at their primary point of interconnection for the purposes of this study, with the exception of S57, which is assumed to be connected onto the 765kV bus at Station 23 Collins (Option 2).

Network Impacts

The #S58 project was studied as a 2000 MW (400 MW of capacity) injection at two alternative interconnection points in the ComEd area. Option #2 connects into Collins 345kV substation (STA 23). Project #S58 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Generator Deliverability
(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems were identified.

Multiple Facility Contingency
(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

1. Contribution of 2000 MW overloads the Collins 765/345kV transformer (TR92) from 0% to 109% of its applicable load dump rating (1841 MVA) for the Collins to Kendall County E.C. and Collins to Dresden 345kV tower line outage (#2310 & #2311).

2. Contribution of 39 MW overloads the Wolfs Crossing 345/138kV transformer (TR81) from 95% to 102% of its applicable load dump rating (610 MVA) for the Wolfs Crossing to Electric Junction 345kV tower line outage (#14321 & #14323).

3. Contribution of 38 MW overloads the Wolfs Crossing 345/138kV transformer (TR 83) from 96% to 102% of its applicable load dump rating (610 MVA) for the Wolfs Crossing to Electric Junction 345kV tower line outage (#14321 & #14323).

4. Contribution of 31 MW overloads the Wolfs Crossing to Frontenac 138kV line #11102 from 94.1% to 105.7% of its applicable load dump rating (265 MVA) for the Wolfs Crossing to Electric Junction 345kV tower line outage (#14321 & #14323).

Short Circuit

(Summary of impacted circuit breakers)

To be determined in the System Impact Study

Contribution to Previously Identified Overloads

(#S58 contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

1. Contribution of 39 MW further overloads the Conastone – Peachbottom 500 kV ckt#1 from 151.45% to 152.97% (DC power flow) of its emergency rating (2598MVA) for the Contasone – Peachbottom 500 kV ckt#2 single contingency outage (PJM17_2). Previous project(s) S12, S17, S18, S23, S29, S32, S33, S52, S55, S56 and S57 contribute(s) to the loading by 131.4MW(5.06%), 35.8MW(1.37%), 198.9MW(7.66%), 78.1MW(3%), 144.4MW(5.55%), 83.6MW(3.21%), 47.9MW(1.85%), 79.8MW(3.07%), 76.9MW(2.96%), 57.2MW(2.2%) and 29.4MW(1.13%) respectively. It must be noted that the same thermal violation (DC power flow: 112.5%) already exists in the 2012 base case.

2. Contribution of 39 MW further overloads the Conastone – Peachbottom 500 kV ckt#2 from 151.45% to 152.97% (DC power flow) of its emergency rating (2598MVA) for the Contasone – Peachbottom 500 kV ckt#1 single contingency outage (PJM17). Previous project(s) S12, S17, S18, S23, S29, S32, S33, S52, S55, S56 and S57 contribute(s) to the loading by 131.4MW(5.06%), 35.8MW(1.37%), 198.9MW(7.66%), 78.1MW(3%), 144.4MW(5.55%), 83.6MW(3.21%), 47.9MW(1.85%), 79.8MW(3.07%), 76.9MW(2.96%),

57.2MW(2.2%) and 29.4MW(1.13%) respectively. It must be noted that the same thermal violation (DC power flow: 112.5%) already exists in the 2012 base case.

3. Contribution of 36 MW further overloads the Kemptown – North-North West 500 kV line from 186.39% to 188.10% (DC power flow) of its normal rating (2078MVA). Previous project(s) S12, S17, S18, S29, S52, S55, S56 and S57 contribute(s) to the loading by 120.5MW(5.79%), 25.2MW(1.22%), 140.3MW(6.75%), 96MW(4.62%), 78.4MW(3.77%), 69.7MW(3.35%), 53.6MW(2.58%) and 26.6MW(1.28%) respectively. It must be noted that the same thermal violation (DC power flow: 155.0%) already exists in the 2012 base case.

4. Contribution of 37 MW further overloads the Kemptown – North-North West 500 kV line from 152.24% to 153.52% (DC power flow) of its emergency rating (2901 MVA) for the Huntertown – Conastone 500 kV line single contingency outage (PJM67). Previous project(s) S12, S18, S29, S52, S55 and S56 contribute(s) to the loading by 125.2MW(4.32%), 130.3MW(4.49%), 88.5MW(3.05%), 77.1MW(2.66%), 72.7MW(2.5%) and 55MW(1.9%) respectively. It must be noted that the same thermal violation (DC power flow: 129.9%) already exists in the 2012 base case.

Steady-State Voltage Requirements

(Summary of VAR requirements based upon the results of the steady-state voltage studies.)

To be determined in the System Impact Study

Stability and Reactive Power Requirements for Low Voltage Ride Through

(Summary of VAR requirements based upon the results of the dynamic studies.)

To be determined in the System Impact Study

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)

1. The overload of the ComEd-owned Collins 765/345kV transformers (TR92) can be relieved by installing one (1) new 765/345 kV transformer and the associated two (2) new 345kV circuit breakers, and one (1) new 765kV circuit breaker at Collins (STA 23). This has been roughly estimated to cost $ 15,000,000.

2. The overload of the two (2) ComEd-owned Wolfs Crossing 345/138kV transformers (TR81 & TR83) can be relieved by installing one (1) new 345/138 kV transformer, 138 kV reactor, four (4) 138 kV circuit breakers, and the associated 138kV switchyard facilities at Plano (TSS 167). This has been roughly estimated to cost $ 19,000,000.

3. The overload on the portion of 138kV line 11102 from Wolfs Crossing to Frontenac can be relieved by reconductoring approximately 2.6 miles of transmission line to achieve a higher rating. This has been roughly estimated to cost $ 1,000,000.

Contribution to Previously Identified System Reinforcements
(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)

To be determined in the System Impact Study

Potential Issues

The #S58 Option 2 project may impact stability at Dresden and/or Kendall County stations due to the interconnection into the existing Collins substation. Stability studies will be performed during the System Impact Study.

Impacts on the MISO member transmission systems are not included in this analysis, but they will be included in the Impact Study, which may reveal upgrades needed in the MISO system not identified in this Feasibility Study.

Contribution of 13 MW further overloads the ComEd to Ameren/IP (PJM to MISO) tie described as the Oglesby Tap to the Ameren/IP Oglesby Substation portion of 138kV line #7713 from 119% to 128% of its emergency rating (143MVA) for the outage of the Kewanee to Crescent Ridge 138 kV line #7413. The overloaded facilities are owned by Ameren (a MISO member) and any required upgrades will be included in the Impact Study.

Delivery of Energy Portion of Interconnection Request
PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.
As a result of the aggregate energy resources in the area, the following violations were identified:

1. Contribution of 197 MW further overloads the Conastone – Peachbottom 500 kV ckt#1 from 199.0% to 206.6% (DC power flow) of its emergency rating (2598MVA) for the Conastone – Peachbottom 500 kV ckt#2 single contingency outage (PJM17_2). This project contributes approximately 196.7MW to the thermal congestion. Previous project(s) S06, S12, S14, S17, S18, S23, S26, S29, S31, S32, S33, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 20MW(.8%), 131.4MW(5.1%), 6.6MW(.3%), 35.8MW(1.4%), 198.9MW(7.7%), 78.1MW(3.0%), 7.4MW(.3%), 144.4MW(5.6%), 44.4MW(1.7%), 83.6MW(3.2%), 47.9MW(1.8%),

17.2MW(.7%), 17.2MW(.7%), 13.6MW(.5%), 19.5MW(.8%), 14.2MW(.5%), 86.5MW(3.3%), 14.3MW(.6%), 76.9MW(3.0%), 57.2MW(2.2%) and 147.2MW(5.7%) respectively. It must be noted that the same thermal violation (DC power flow: 149.8%) already exists in the 2012 base case.

2. Contribution of 197 MW further overloads the Conastone – Peachbottom 500 kV ckt#2 from 199.0% to 206.6% (DC power flow) of its emergency rating (2598MVA) for the Conastone – Peachbottom 500 kV ckt#1 single contingency outage (PJM17). Previous project(s) S06, S12, S14, S17, S18, S23, S26, S29, S31, S32, S33, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 20MW(.8%), 131.4MW(5.1%), 6.6MW(.3%), 35.8MW(1.4%), 198.9MW(7.7%), 78.1MW(3.0%), 7.4MW(.3%), 144.4MW(5.6%), 44.4MW(1.7%), 83.6MW(3.2%), 47.9MW(1.8%), 17.2MW(.7%), 17.2MW(.7%), 13.6MW(.5%), 19.5MW(.8%), 14.2MW(.5%), 86.5MW(3.3%), 14.3MW(.6%), 76.9MW(3.0%), 57.2MW(2.2%) and 147.2MW(5.7%) respectively. It must be noted that the same thermal violation (DC power flow: 149.8%) already exists in the 2012 base case.

3. Contribution of 130 MW further overloads the North-North West – Conastone 500 kV line from 118.2% to 124.5% (DC power flow) of its normal rating (2078MVA). Previous project(s) S18, S29, S52, S54, S56 and S57 contribute(s) to the loading by 174.7MW(8.4%), 124.8MW(6.0%), 81.6MW(3.9%), 12.4MW(.6%), 49.2MW(2.4%) and 96.8MW(4.7%) respectively.

4. Contribution of 113 MW further overloads the South Bend – Keystone 500 kV line from 131.5% to 135.8% (DC power flow) of its emergency rating (2595MVA) for the Kemptown – North-North West 500 kV line single contingency outage (PJM13B_NNWEST_B). This project contributes approximately 112.6MW to the thermal congestion. Previous project(s) S06, S12, S14, S31, S36, S37, S45, S46, S51, S52, S54, S55, S56 and S57 contribute(s) to the loading by 11.4MW(.4%), 77MW(3.0%), 7.3MW(.3%), 25.4MW(1.0%), 9.8MW(.4%), 9.8MW(.4%), 8MW(.3%), 11.5MW(.4%), 8.2MW(.3%), 45.1MW(1.7%), 8.2MW(.3%), 43.9MW(1.7%), 33MW(1.3%) and 84.5MW(3.3%) respectively. It must be noted that the same thermal violation (DC power flow: 116.2%) already exists in the 2012 base case.

5. Contribution of 10 MW further overloads the Greene – Roxbury 138 kV line from 135.3% to 142.4% (DC power flow) of its emergency rating (142MVA) for the Kemptown – North-North West 500 kV line single contingency outage (PJM13B_NNWEST_B). This project contributes approximately 10.1MW to the thermal congestion. Previous project(s) S12, S18, S29, S52 and S57 contribute(s) to the loading by 8.9MW(6.2%), 14MW(9.8%), 9.8MW(6.9%), 7.2MW(5.1%) and 7.6MW(5.3%) respectively. It must be noted that the same thermal violation (DC power flow: 101.9%) already exists in the 2012 base case.

6. Contribution of 178 MW further overloads the Kemptown – Conastone 500kV line from 234.9% to 243.5% (DC power flow) of its normal rating (2078MVA). Previous project(s) S06, S12, S14, S17, S18, S26, S29, S31, S36, S37, S45, S46, S52, S54, S55, S56 and S57 contribute(s) to the loading by 18.1MW(.9%), 120.5MW(5.8%), 6MW(.3%), 25.2MW(1.2%), 140.3MW(6.7%), 6.7MW(.3%), 96MW(4.6%), 40.3MW(1.9%), 15.6MW(.7%), 15.6MW(.8%), 12.2MW(.6%), 17.5MW(.8%), 84.9MW(4.1%), 13.5MW(.6%), 69.7MW(3.3%), 53.6MW(2.6%) and 133.1MW(6.4%) respectively. It must be noted that the same thermal violation (DC power flow: 192.5%) already exists in the 2012 base case.

7. Contribution of 1185 MW overloads the Collins to Dresden 345kV line #2311 from 48% to 124% of its emergency rating (1542 MVA) for the outage of the Kendall County E.C. to Lockport 345kV line #10806.

8. Contribution of 936 MW overloads the Kendall County E.C. to Lockport 345kV line #10806 from 60% to 114% of its emergency rating (1739 MVA) for the outage of the Collins to Dresden 345kV line #2311.