

TO	ERO	SPS Name	Planning or Operational	Telem. (Y/N)	Year of Installation	Default Status
Description						
AE	RFC	Logan (Bridgeport) Runback	Operational	Y	1996	Disarmed
Initiates a 55MW runback on the Logan NUG (located off the Bridgeport 230kV station) 30 seconds after the flow on the Churchtown 230/69kV transformer exceeds its Summer Emergency rating.						
AE	RFC	Carlls Corner #2 CT SPS	Operational	N	1973	Armed
Automatically trips Carlls Corner #2 CT if the flow on the Carlls Corner – Sherman 0739 line exceeds 54 MVA.						
AEP	RFC	Rockport Fast Valving Scheme	Operational	N	2009	Armed
Fast Valving (FV) control reduces turbine mechanical power by 50% within one second following certain contingencies to prevent stability problems. Mechanical power is restored automatically within ten seconds.						
AEP	RFC	Rockport Emergency Unit Tripping	Operational	N	2009	Disarmed
Emergency Unit Trip (EUT), the intentional turbine trip of one unit to achieve rapid reduction in total output for any contingency on the Rockport-Jefferson 765 kV line, thus improving the voltage and stability performance of the Rockport area.						
AEP	RFC	Rockport Unit Special Protection System	Operational	N	2009	Armed
Both Rockport units fast valve and respond similarly when at the same MVA output levels; there is the potential that both units will trip simultaneously. This SPS is to prevent the tripping of both units by the imbedded safety operating limits systems.						
AP-FE	RFC	Belmont SPS	Operational	Y	2011	Disarmed
When armed trips the Oak Grove CTs, and a selected Pleasants Unit whenever two are online, during an outage to either the Belmont 765/500kV transformer or the Belmont – Harrison 500kV '528' line to prevent unit instability and the overloading of 138kV outlets.						
AP-FE	RFC	Black Oak 500/138kV #3 Transformer	Operational	Y	2010	Armed
Prevents overloads on the Black Oak #3 500/138kV transformer by opening the #3 138kV Low Side CB, BO-3, via relay upon the loss of the Black Oak –						

Hatfield 500kV line.						
ATSI-FE	RFC	Richland Substation	Operational	Y	2007	Armed
Trips one or more Richland CTs (Units 4, 5, 6) to control overloads on Richland 138kV CBs and station outlets given specific outage conditions.						
BC	RFC	Mays Chapel 115kV 110509 Line SPS	Planning	N	2011	Armed
Mitigates line overload concerns on the Mays Chapel – Windy Edge (110509) 115kV line for a bus fault and or single breaker failure at Northwest. If flow across the Mays Chapel B2 115kV CB exceeds the Summer Emergency rating for the 110509 section between Mays Chapel and Texas, the SPS will open the 110579-C 115kV CB at Mays Chapel. (NOTE: <i>Non-Operational due to being Bus Fault or Single Breaker Failure contingent.</i>)						
COMED	RFC	Aurora Bus Fault	Planning	N	2004	Armed
Trips one or two of the Aurora 5-10 CTs provided 5 or 6 of the units are online AND a multi-phase fault occurs upon the Aurora Energy Center 138kV bus AND the fault fails to clear the bus. (NOTE: <i>Non-Operational due to being Bus Fault contingent.</i>)						
COMED	RFC	Byron Unit Stability Trip Scheme	Operational	N	Pre-1995	Armed
Unit stability operating schemes in place at Byron to prevent instability of the Bryon units upon the loss of station outlets.						
COMED	RFC	Cordova (Quad Cities) Unit Stability Trip Scheme	Operational	N	2001	Armed
Unit trip scheme will intentionally trip Quad City Unit 2 for a specific multi-line outage scenario when Quad City Unit 1 is also in service to maintain stability of the Quad City units. Will also trip the Cordova units for the multi-line outage scenario provided at least one Quad City unit is in service.						
COMED	RFC	Crawford 345kV Bus Tie 1-8 Auto-Closing	Operational	N	2004	Armed
Scheme in place to auto-close the normally open 345kV '1-8' Bus Tie CB at 13 Crawford upon sensing the loss of the 345kV L1312, Crawford – Goodings Grove, line. This is required to maintain continuity of supply to 345/138kV TR 82 and TR 84.						
COMED	RFC	Davis Creek 345kV Bus Tie 2-3 Auto-Closing	Operational	N	2004	Armed
Scheme in place to auto-close the normally open 345kV '2-3' Bus Tie CB at 86 Davis Creek upon sensing the loss of the Braidwood – Davis Creek L2002 345kV line. This prevents overloads on the Davis Creek 345/138kV TR82.						
COMED	RFC	Dresden Unit 2 Trip Scheme	Operational	N	2004	Armed
To prevent Dresden Unit 2 from becoming isolated in to Dresden TR81, this scheme will trip Dresden Unit 2 anytime the 345kV '1-2' AND '6-7' are						

open for any reason.						
COMED	RFC	East Frankfort TR83 Trip Scheme	Operational	N	2006	Armed
To prevent overloads on the East Frankfort 345/138kV TR83 following the loss of the Goodings Grove – East Frankfort L11602 345kV line. With the line out of service, if the loading on TR83 exceeds its emergency rating for 10 seconds, the secondary 138kV CB will open.						
COMED	RFC	Electric Junction – North Aurora L11106 line	Operational	N	2006	Armed
Transfer Trip of CS 0605 at TSS North Aurora along 138kV line L11106 upon sensing an open breaker on the Electric Junction end of 138kV L11106. (Which can occur for a fault on the 138/34.5kV TR76 at Electric Junction.)						
COMED	RFC	Elgin Unit Stability Trip Scheme	Operational	N	2002	Armed
Upon sensing a multi-phase fault on either 138kV line L96001 or L96002 (Elgin – Spaulding lines) will isolate the Elgin units by tripping the remote end of the line (Spaulding) and initiating a transfer trip to Elgin Energy Center. If the 138kV '2-3' bus tie at 79 Spaulding is operated in the closed position, it is possible for all four Elgin EC units could be tripped for a multi-phase fault with delayed clearing.						
COMED	RFC	Grand Ridge Islanding Prevention Scheme	Operational	N	2010	Armed
Prevents islanding the Grand Ridge wind generation into the distribution system at TSS 61 Streator and Ameren's Marseilles TR3 via the use of a relay trip system at 105 Kickapoo Creek, 61 Streator and station 1 LaSalle which detects the islanded condition.						
COMED	RFC	Highland Park Transfer Trip	Operational	N	2007	Armed
Prevents extreme thermal overloads and low voltage conditions along 138kV lines 1605, 1606, 15912 and 15913 out of 48 Highland Park due to the source of Waukegan feeding radially to Northbrook from a distance of ~22 miles away. When the line CBs on 15912 or 15913 open at Northbrook, the SPS will initiate primary line transfer trip on the respective 138kV line L15912 or L15913. Backup scheme is located at 48 Highland Park.						
COMED	RFC	Kincaid Unit Stability Trip Scheme	Operational	N	Pre-1995	Armed
To prevent first swing and/or oscillatory instability of either unit, a Multi-Phase Fault High-Speed Sectionalizing Scheme and Multiple Line Outage Scheme are in place at Kincaid. Multiple Line Outage Scheme is normally disabled when one unit is out of service.						
COMED	RFC	Lisle Auto Sectionalizing	Operational	N	2003	Armed
To alleviate loading on TR84, the 138kV bus tie '2-3' will auto-close and the 138kV bus tie '3-4' will trip whenever TR84 loading exceeds 500MVA.						

COMED	RFC	Lisle Auto-Closing	Operational	N	2003	Armed
345kV Bus Tie '2-3' at 103 Lisle will auto-close for the line lockout of Lisle – Lombard 345kV line L10321 or L10322.						
COMED	RFC	Powerton Unit Stability Trip Scheme	Operational	N	Pre-1995	Armed
Multi-phase fault high-speed sectionalizing scheme, multiple line outage unit trip scheme, trip scheme for specific circuit breaker failures and an intentional unit trip scheme for 3-phase faults on certain station line outlets.						
COMED	RFC	Quad Cities Unit Stability Trip Scheme	Operational	N	Pre-1995	Armed
Multiple line outage unit trip scheme to prevent overloads when certain station outlets are out of service; And, a Close-in Three-phase Fault Unit Trip Scheme on Unit2 to prevent Quad Cities unit instability during a fault on 345kV line 0404 Quad Cities – H471.						
COMED	RFC	University Park North Unit Stability Trip Scheme	Operational	N	2002	Armed
To prevent unit instability, a Multi-phase Fault Unit Trip Scheme (345kV line L6608 or L11602) and a Single-phase Fault Unit Trip Scheme (L6608) are in place.						
COMED	RFC	Waukegan 138kV Auto-Closing Scheme	Operational	N	2004	Armed
To prevent low voltages and transmission line overloads, a high-speed relaying scheme will automatically close 138kV '4-14' CB upon sensing the loss of either Unit 7 or Unit 8.						
COMED	RFC	Wolfs Crossing – Sandwich Transfer Trip Scheme	Operational	N	2007	Armed
To prevent low voltages along 138kV Wolfs Crossing – Sandwich L14302, a primary transfer trip scheme is installed at 143 Wolfs Crossing to remote trip source terminals. The secondary relay scheme will open the 138kV 14302/11301 CB at 146 Sandwich for a power flow of 120MVA or greater flowing out of 146 Sandwich towards 143 Wolfs Crossing AND a voltage of 129.7kV or lower on the 146 Sandwich bus.						
COMED	RFC	Wolfs Crossing TR 81 Trip Scheme	Operational	N	2006	Armed
To prevent overloads on the Wolfs Crossing 345/138kV TR81 and 138kV Wolfs – Frontenac L11102 line, an SPS will open 138kV CB TR81 low side CB upon sensing an open CB at Electric Junction on the 138kV Electric Junction – Wolfs Crossing L14321 line with TR81 exceeding its emergency rating.						
COMED	RFC	Zion Generation Stability Trip Scheme	Operational	N	2008	Armed
To prevent instability a Multi-phase Fault Unit Trip Scheme will trip Unit 2 for selected station outlet faults in delayed time to allow for operation of						

primary protection. Unit 2 will also trip if the stability trip scheme is disabled or the communication signal is lost for more than 60 minutes.						
DOM	SERC	Carolina '22' Line	Operational	Y	?	Disarmed
To mitigate overload concerns on the Carolina – Kerr Dam '22' 115kV line, when armed a non-directional overcurrent relay will open the Carolina end of the '22' line if the line rating is being exceeded.						
DOM	SERC	Carolina '54' Line	Operational	Y	?	Disarmed
To mitigate overload concerns on the Carolina – Earleys '54' 115kV line, when armed a non-directional overcurrent relay will open the Carolina end of the '54' line if the line rating is being exceeded.						
DOM	SERC	Clover Unit 2 Stability Trip Scheme	Operational	Y	?	Disarmed
To mitigate line overload concerns on the Northern Neck – Harmony Village '65' 115kV line, a directional power overload scheme will trip the Wan – Harmony Village '176' 115kV line 90 seconds after sensing the line '65' overload. If the overload still persists, 5 seconds later a trip will be initiated on the Harmony Village '65' line @ Harmony Village.						
DOM	SERC	Harmony Village	Operational	Y	?	Disarmed
To mitigate line overload concerns on the Northern Neck – Harmony Village '65' 115kV line, a directional power overload scheme will trip the Wan – Harmony Village '176' 115kV line 90 seconds after sensing the line '65' overload. If the overload still persists, 5 seconds later a trip will be initiated on the Harmony Village '65' line @ Harmony Village.						
DOM	SERC	Virginia Beach	Operational	Y	?	Disarmed
To mitigate overload concerns on the Greenwich – Virginia Beach '27' 115kV line and low voltage concerns in the Virginia Beach area, when armed a directional power overload scheme will sense the overloaded '27' 115kV line and induce a trip to the Virginia Beach 'T122' 115kV bus tie breaker. Should the overload condition remain, the scheme will then trip the Virginia Beach end of the Greenwich – Virginia Beach '27' 115kV line.						
JC-FE	RFC	Yards Creek Pumping	Operational	Y	Pre-1975	Armed
To mitigate overload concerns on the Portland – Kittatinny 'V010' 230kV line during times of Yards Creek hydro in pumping mode, when armed and the actual flow on the 'V010' line exceeds emergency ratings (Winter/Summer) a Yards Creek pump will trip at 60, 120 & 180 second intervals until either the line flow is below the emergency rating or all pumps have been tripped.						
PE	RFC	Linwood (Phillips Island)	Operational	N	Pre-1995	Armed

To mitigate overloads on the Linwood – Chichester 230kV (220-39 & 220-43) lines, a scheme will trip one CT on the Phillips Island CC if a trip of one of the Linwood-Chichester 230kV lines results in an emergency overload of the remaining in-service parallel path.						
PE	RFC	Peach Bottom '35' 500kV CB Outage	Operational	Y	Pre-1995	Disarmed
To mitigate stability concerns due to an outage of the Peach Bottom 500/230kV transformer during times of Muddy Run generation or pumping, this special purpose relay scheme will remove from service the Muddy Run 5-8 units. Armed during a Peach Bottom '35' 500kV CB outage, if the Peach Bottom '45' 500kV CB trips, the Peach Bottom '675' & '475' 230kV CBs will open and a transfer trip will be issued to the Muddy Run #2 230kV bus.						
PE	RFC	Peach Bottom '45' 500kV CB Outage	Operational	Y	Pre-1995	Disarmed
To mitigate stability concerns due to an outage of the Peach Bottom 500/230kV transformer during times of Muddy Run generation or pumping, this special purpose relay scheme will remove from service the Muddy Run 5-8 units. Armed during a Peach Bottom '45' 500kV CB outage, if the Peach Bottom '35' 500kV CB trips, the Peach Bottom '675' & '475' 230kV CBs will open and a transfer trip will be issued to the Muddy Run #2 230kV bus.						
PE	RFC	Peach Bottom #1 Transformer	Operational	N	Pre-1995	Armed
To mitigate stability concerns due to an outage of the Peach Bottom 500/230kV transformer during times of Muddy Run generation or pumping, this special purpose relay scheme will remove from service the Muddy Run 5-8 units. If the Peach Bottom 500/230kV #1 transformer trips, the Peach Bottom '675' & '475' 230kV CBs will open and a transfer trip will be issued to the Muddy Run #2 230kV bus.						
PE	RFC	Planebrook 230/34kV Transformer	Planning	N	2008	Disarmed
A local SPS which protects one of the station's 230/34kV transformers for the loss of the other two due to a stuck 230kV bus tie breaker. A stuck bus tie breaker event would trip 2 of the 3 230/34 kV distribution transformers. During peak load conditions the most limiting transformer could not carry the estimated station load. (NOTE: <i>Non-Operational due to being stuck breaker contingent.</i>)						
PPL	RFC	Wescosville Transfer Trip Scheme	Operational	N	1983	Armed
To mitigate overload concerns on the Wescosville 500/138kV TR3, a transfer trip relay scheme will trip the '5043' (Susquehanna – Wescosville) 500kV CBs at Susquehanna whenever the '5044' (Alburtis – Wescosville) CBs are both open at Alburtis. This removes the Wescosville TR3 from service.						
PPL	RFC	Susquehanna #1 Unit	Planning	N	1983	Armed
To prevent generator instability, a rejection scheme will trip the Susquehanna #1 Unit due to the simultaneous interruption of the Susquehanna – Harwood #1 & #2 230kV lines AND the Susquehanna – Wescosville – Alburtis 500kV circuit. (NOTE: <i>Non-Operational due to being related to a triple contingency.</i>)						

PPL	RFC	Susquehanna #2 Unit	Planning	N	1983	Armed
To prevent generator instability, a rejection scheme will trip the Susquehanna #2 Unit due to the simultaneous interruption of the Susquehanna – Sunbury 5045 500kV line AND the Susquehanna – Wescosville – Alburtis 500kV 5043/5044 circuit. (NOTE: <i>Non-Operational due to being related to a double contingency.</i>)						
PS	RFC	Artificial Island (Salem) Cross Trip Scheme	Operational	Y	1987	Disarmed
To prevent generator instability of Artificial Island generation (Salem #1, Salem #2 & Hope Creek #1) during extended outages to either the '5015' Hope Creek – Red Lion or the '5038' East Windsor – New Freedom 500kV lines. Can trip either Salem #1 or Salem #2 unit depending on selection. For a '5015' line outage, will trip the selected Salem unit when armed AND relayed operation of the '5038' 500kV line occurs. For a '5038' line outage, will trip the selected Salem unit when armed AND relayed operation of the '5015' 500kV line occurs.						
PN-FE	RFC	Conemaugh #2 Unit Stability Trip	Operational	Y	Pre-1990	Disarmed
To mitigate transient instability concerns during outages to the Juniata – Conemaugh '5005' 500kV line, a trip scheme will trip Conemaugh #2 Unit upon the loss of the Keystone – Conemaugh '5003' 500kV line.						
PN-FE	RFC	East Sayre – North Waverly 115kV Relay	Operational	Y	Pre-1990	Armed
To mitigate overloads on the E Sayre – N Waverly 115kV line, an inverse time overcurrent relay trips the 115kV CB at E Sayre if the flow on the line reaches 128MVA.						
PN-FE	RFC	Homer City #2 & #3 Unit Stability Trip Schemes	Operational	Y	?	Disarmed
To mitigate unit instability for potential configurations that would isolate either Homer City Unit #2 or #3 onto one 345kV line, a Unit Stability Trip Scheme is armed to trip Unit #2 or #3 whenever one 345kV CB is open and a second 345kV CB opening could isolate the unit.						
PN-FE	RFC	Warren – Falconer 115kV Relay	Operational	Y	Pre-1990	Armed
To mitigate overloads on the Warren – Falconer 115kV line, an inverse time overcurrent relay trips the line if flow exceeds the emergency rating.						