

Annual ARR Allocation and FTR Auction Transmission Outage Modeling

PJM determines the transmission outages to model in the simultaneous feasibility test utilized in the Annual ARR Allocation and FTR Auction using the following procedure.

PJM executes the SFT analysis on transmission outages as follows:

1. PJM begins with the initial outage list as it is submitted to PJM by the transmission owners posted on the PJM OASIS. This is a raw list of outages available to the public on the PJM OASIS page. This list is not necessarily a list of approved outages or actual outages that will be occurring as it changes daily and many of the outages are not yet approved. This list consists of all transmission outages of duration of two weeks or longer. Transmission outages will only be considered in final model if scheduled for at least two months or if identified in step four below.
2. PJM reviews the initial outage list for all PJM transmission zones and identifies outages that are occurring during the period of the Annual ARR allocation and FTR Auction which do not occur simultaneously. Outages often occur during different times of the year and would not be approved to occur simultaneously because they would cause reliability concerns. Therefore, PJM models the best representation of outages to reflect the expected conditions of the auction time period. In many instances it is impractical and unrealistic to model multiple outages in a similar region that occur during different time periods because the Annual ARR/FTR model is a single year period and if these multiple outages were modeled the optimization program would fail because of a power imbalance or infeasibility.
3. PJM market engineers also review all transmission outages of interest with the PJM interconnection and operations group for the likelihood of the outages actually occurring. In many instances outages are submitted to PJM and posted on OASIS that are not yet approved and will be delayed, cancelled, or rescheduled. Outages might be rescheduled, cancelled, or delayed for reasons such as cancelled transmission upgrades, conflicts with other outages, maintenance cancellations, etc. This information is gathered by the PJM Interconnection Planning department, PJM System Operations department, and the actual transmission owners.
4. PJM market engineers will review the transmission outage list and identify transmission outages that could have a large impact on congestion and possibly FTR revenue adequacy. This determination is made by comparing transmission outages to historical data, focusing on higher voltage transmission outages, considering outage duration, and performing power flow congestion analysis.
5. After this analysis is performed on the initial OASIS outage list and PJM determines the actual outages that will be placed in the optimization program, PJM posts a separate FTR outage list to the FTR web page. This separate FTR outage list is posted publicly along with the actual FTR model usually at least one week before the

bidding window opens so that PJM members have a transparent view of the conditions to be used for the optimization program.

PJM must use reasonable assumptions for the topology to be used as part of the optimization program. The goal of the simultaneous feasibility determination shall be to ensure that there are sufficient revenues from Transmission Congestion Charges to satisfy all Financial Transmission Rights obligations for the auction period under expected conditions and to ensure that there are sufficient revenues from the Annual Financial Transmission Right Auction to satisfy all Auction Revenue Rights obligations.

The SFT analysis has resulted in the below transmission outages to be modeled in the 2020/2021 Annual ARR Allocation and FTR Auction.

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
AE	CHESTNAE69 KV CHE-MOSS	LINE	All	9/10/2020	5/6/2021	
AE	CHESTNAE69 KV CHE-MOT6	LINE	All	9/10/2020	5/14/2021	
AE	ENGLAND 138 KV ENG-SCU7	LINE	All	10/5/2020 2/22/2021	12/6/2020 5/6/2021	
AE	ENGLAND 138 KV ENG-SCU8	LINE	All	10/5/2020 2/22/2021	12/6/2020 5/6/2021	
AE	LAKEAVEN69 KV LAK-MIDT	LINE	All	9/28/2020 12/1/2020 1/5/2021	11/20/2020 12/18/2020 4/16/2021	
AE	LAUREL 69 KV LAU-WOO	LINE	All	11/15/2020 11/23/2020 2/10/2021 2/12/2021	11/15/2020 1/11/2021 2/10/2021 3/6/2021	
AE	MONR AE 69 KV MON-PIN	LINE	All	9/21/2020	5/6/2021	
AE	SEASLE 69 KV SEA-SWA	LINE	All	10/26/2020	5/6/2021	
AEP-AP	AMOS 765 KV AMO-NPR1	LINE	All	4/5/2021	4/23/2021	
AEP-AP	BANISTER138 KV BAN-BAN1	LINE	All	3/3/2021	6/11/2021	
AEP-AP	CHEMICAL138 KV . 1	XFRM	All	9/30/2017 4/5/2021	12/31/2020 7/30/2021	
AEP-AP	CHEMICAL138 KV . 2	XFRM	All	8/14/2019	12/31/2020	
AEP-AP	CULLODE2765 KV CUL-WYO1	LINE	All	3/17/2021	6/10/2021	
AEP-AP	DANVILLE138 KV DAN-EDA1	LINE	All	10/5/2020 3/17/2021	11/12/2020 4/21/2021	
AEP-AP	FREMONT 138 KV 1-T	XFRM	All	5/25/2020 9/16/2020	7/7/2020 10/21/2020	
AEP-AP	GRAVESMI138 KV GRA-REU1	LINE	All	9/14/2020	12/16/2020	
AEP-AP	GUYANDOT138 KV GUY-MUL	LINE	All	5/24/2020	9/27/2020	
AEP-AP	HOLSTON 138 KV HOL-ORE1	LINE	All	3/15/2021 4/9/2021 4/27/2021	3/15/2021 4/9/2021 5/20/2021	
AEP-AP	KAMMER2 138 KV KAM-ORM1	LINE	All	7/25/2018	12/31/2020	
AEP-AP	KAMMER2 138 KV KAM-ORM2	LINE	All	12/4/2014	12/31/2020	
AEP-AP	KAMMER2 138 KV KAM-ORM3	LINE	All	12/4/2014	12/31/2020	

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
AEP-AP	KAMMER2 138 KV KAM-ORM4	LINE	All	12/4/2014	12/31/2020	
AEP-AP	KAMMER2 765 KV .200	XFRM	All	9/7/2020	9/25/2020	
AEP-AP	KAMMER2 765 KV KAM-SCA1	LINE	All	9/7/2020	12/31/2020	
AEP-AP	MONEL 138 KV MON-REU1	LINE	All	9/14/2020	12/18/2020	
AEP-AP	MOSELEY 138 KV MOS-ROA1	LINE	All	10/14/2020 10/19/2020	10/14/2020 11/20/2020	
AEP-AP	MULLENSV138 KV MUL-PIN1	LINE	All	5/24/2020	9/27/2020	
AEP-AP	TRISTATE345 KV 2	XFRM	All	5/1/2020	9/17/2020	
AEP-IM	BENTONHA138 KV BEN-CRY1	LINE	All	3/15/2021	9/10/2021	
AEP-IM	BENTONHA138 KV BEN-RIV2	LINE	All	9/28/2020 3/15/2021	11/13/2020 9/10/2021	
AEP-IM	BOSSERMN138 KV BOS-TRA	LINE	All	9/14/2020	10/2/2020	
AEP-IM	CONCORD 138 KV CON-TWI	LINE	All	9/9/2020 1/25/2021	12/17/2020 1/29/2021	
AEP-IM	COOK 345 KV 5	XFRM	All	8/3/2020	10/23/2020	
AEP-IM	CROSSTAP138 KV CRO-HOG1	LINE	All	9/14/2020	12/19/2020	
AEP-IM	DELAWAIM138 KV DEL-VAN1	LINE	All	9/1/2020 2/2/2021	1/29/2021 10/8/2021	
AEP-IM	DEQUINE 345 KV DEQ-EUG1	LINE	All	2/1/2021	6/25/2021	
AEP-IM	DEQUINE 345 KV DEQ-SUL	LINE	All	2/1/2021	7/9/2021	
AEP-IM	DEQUINE 345 KV DEQ-WES2	LINE	All	2/1/2021	3/12/2021	
AEP-IM	DESOTO 138 KV DES-GAS1	LINE	All	8/10/2020 9/1/2020	8/14/2020 1/29/2021	
AEP-IM	DUMONT2 765 KV DUM-WIL1	LINE	All	9/21/2020	10/9/2020	
AEP-IM	DUMONT2 765 KV T2	XFRM	All	4/30/2018	11/1/2020	
AEP-IM	DUMONT2 765 KV T3	XFRM	All	9/8/2020	12/4/2020	
AEP-IM	DUNTONLK138 KV DUN-WIL	LINE	All	10/14/2020	1/15/2021	
AEP-IM	GUARDIAN138 KV GUA-TWI1	LINE	All	6/3/2020 9/9/2020	6/3/2020 12/17/2020	
AEP-IM	JEFFERSO345 KV JEF-CLI1	LINE	All	9/7/2020 10/26/2020	10/2/2020 11/20/2020	
AEP-IM	JEFFERSO765 KV JEF-GRE1	LINE	All	6/1/2020	10/23/2020	
AEP-IM	JEFFERSO765 KV XF2	XFRM	All	9/7/2020 10/26/2020	10/2/2020 11/20/2020	
AEP-IM	JONESCREE138 KV HOG-JON	LINE	All	7/11/2020	7/12/2021	
AEP-IM	KENZIECR138 KV KEN-RIV1	LINE	All	2/4/2020	5/14/2021	
AEP-IM	KENZIECR138 KV KEN-SOD1	LINE	All	2/4/2020 12/7/2020	9/21/2020 4/22/2021	
AEP-IM	LANTERNP138 KV LAN-WES	LINE	All	9/14/2020 3/8/2021	12/19/2020 6/23/2021	
AEP-IM	LAPORTE 69 KV LAP-NEW1	LINE	All	3/9/2020	10/2/2020	
AEP-IM	ROBISONP138 KV DUN-ROB	LINE	All	10/14/2020	1/15/2021	
AEP-IM	SBENDAEP138 KV SBE-TWI1	LINE	All	8/17/2020	1/29/2021	
AEP-IM	SORENSEN765 KV XF3	XFRM	All	10/1/2020	10/29/2020	

2020/2021 Annual ARR/FTR Outages					
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day
AEP-IM	TANNERSC345 KV TAN-EBE1	LINE	All	9/21/2020 11/16/2020 2/1/2021 2/22/2021	11/13/2020 11/18/2020 2/5/2021 2/23/2021
AEP-IM	TANNERSC345 KV TAN-MIA1	LINE	All	5/4/2020 10/5/2020 3/1/2021	9/18/2020 12/4/2020 5/21/2021
AEP-KY	HAZARD 138 KV 2	XFRM	All	8/31/2020 3/1/2021	12/18/2020 3/19/2021
AEP-KY	HAZARD 161 KV 3	XFRM	All	3/16/2020 3/1/2021	12/18/2020 3/19/2021
AEP-KY	HAZARD 161 KV HAZ-WOO	LINE	All	3/16/2020 3/1/2021	12/18/2020 3/19/2021
AEP-OH	ADAMSAEP138 KV ADA-SEA1	LINE	All	11/4/2020 3/4/2021	12/22/2020 5/25/2021
AEP-OH	AMLIN 138 KV AML-COL	LINE	All	9/16/2020 4/7/2021	10/6/2020 6/1/2021
AEP-OH	BEATTY 138 KV BEA-LON1	LINE	All	9/16/2020	12/8/2020
AEP-OH	BEATTY 345 KV BEA-ADK1	LINE	All	1/14/2021	4/13/2021
AEP-OH	BETHEL2 138 KV BET-BRO1	LINE	All	1/6/2021	5/25/2021
AEP-OH	BETHEL2 138 KV BET-LIN1	LINE	All	7/29/2020 11/11/2020 1/6/2021	8/25/2020 12/22/2020 5/25/2021
AEP-OH	BLENDON 138 KV BLE-MOR1	LINE	All	9/9/2020 3/3/2021	12/8/2020 4/26/2021
AEP-OH	BUCKEYE 138 KV BUC-GAY1	LINE	All	1/13/2021	3/30/2021
AEP-OH	CARROLLT138 KV CAR-SUN1	LINE	All	7/6/2020	6/30/2021
AEP-OH	COLE 345 KV TR2	XFRM	All	9/16/2020 4/7/2021	10/6/2020 6/1/2021
AEP-OH	CORRIDOR138 KV COR-MOR1	LINE	All	9/9/2020	12/8/2020
AEP-OH	DELAWARE138 KV DEL-TAN1	LINE	All	7/31/2018	12/31/2020
AEP-OH	FAIRCRES138 KV FAI-SCA1	LINE	All	3/19/2019	12/31/2020
AEP-OH	FOSTORIA345 KV . 1	XFRM	All	9/21/2020	10/18/2020
AEP-OH	GORSUCH 138 KV GOR-HAR	LINE	All	9/9/2020 4/3/2021 5/8/2021	11/24/2020 4/30/2021 5/8/2021
AEP-OH	HILLSBOR138 KV HIL-MID	LINE	All	9/9/2020 3/29/2021	12/10/2020 6/24/2021
AEP-OH	JUGSTRET345 KV KIR-JUG	LINE	All	9/16/2020 3/10/2021 4/21/2021	9/29/2020 3/23/2021 5/25/2021
AEP-OH	MADDOXCR345 KV ELI-MAD	LINE	All	9/16/2020 3/3/2021	12/1/2020 5/25/2021
AEP-OH	MALISZEW765 KV 1	XFRM	All	9/21/2020	12/18/2020
AEP-OH	NEWCOMER138 KV 1-P	XFRM	All	3/3/2021	5/25/2021
AEP-OH	NNEWARK 138 KV NNE-SHA1	LINE	All	11/2/2020	5/28/2021

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
AEP-OH	NPROCTO2765 KV NPR-HAN1	LINE	All	4/5/2021	4/23/2021	
AEP-OH	NPROCTO2765 KV T2	XFRM	All	10/19/2020 3/1/2021	10/30/2020 5/28/2021	
AEP-OH	ROBERTS2138 KV ROB-TRA1	LINE	All	3/3/2021	5/11/2021	
AEP-OH	SCANTON234 KV 3-T	XFRM	All	9/7/2020	12/31/2020	
AEP-OH	SCANTON2345 KV 3-S	XFRM	All	9/7/2020	12/31/2020	
AEP-OH	SCANTON2765 KV 3-P	XFRM	All	9/7/2020	12/31/2020	
APSS	502JCT 500 KV 502-KAM	LINE	All	9/7/2020	9/25/2020	
APSS	BELMONT 500 KV BEL-HAR	LINE	All	7/6/2020 7/13/2020 7/20/2020 5/3/2021	7/10/2020 7/17/2020 7/24/2020 5/28/2021	
APSS	GARFLD_T138 KV GAR-RIN	LINE	All	9/1/2020	5/21/2021	
APSS	MEADOWBR500 KV LOU-MEA	LINE	All	9/15/2020	10/15/2020	
APSS	OLDFARM 230 KV OLD-RIN	LINE	All	3/15/2021	5/30/2021	
APSS	RHODESLN500 KV RHO-YUK	LINE	All	11/20/2020 1/18/2021	11/30/2020 3/7/2021	
APSS	RINGGOLD230 KV T3	XFRM	All	3/15/2021	5/30/2021	
APSS	WYLIERID500 KV TRAN 7	XFRM	All	4/12/2021	5/28/2021	
APSS	YUKON 500 KV TRAN 2	XFRM	All	11/9/2020 2/8/2021	11/19/2020 5/20/2021	
APSS	YUKON 500 KV TRAN 3	XFRM	All	11/20/2020 2/8/2021	11/22/2020 5/20/2021	
BC	BAGLEY 230 KV 230-1	XFRM	All	3/14/2021 4/26/2021	3/20/2021 6/6/2021	
BC	BAGLEY 230 KV BAG-GRAC	LINE	All	9/15/2020 11/14/2020 3/1/2021	10/14/2020 12/4/2020 4/23/2021	
BC	BAGLEY 230 KV BAG-RAP	LINE	All	9/15/2020 11/14/2020 3/1/2021	10/14/2020 12/4/2020 4/23/2021	
BC	CALVERTC500 KV CAL-CHA	LINE	All	2/22/2021	3/21/2021	
BC	CEDARPRK115 KV CED-CRO3	LINE	All	4/15/2020 9/1/2020	6/30/2020 11/20/2020	
BC	CONASTON230 KV CNS-NOR1	LINE	All	9/14/2020 3/1/2021	11/3/2020 4/20/2021	
BC	CONASTON230 KV CON-GRAC	LINE	All	3/1/2021	5/21/2021	
BC	CONASTON500 KV CNS-PEA	LINE	All	10/1/2020	10/29/2020	
BC	HIGHRIDG230 KV 230-4TR	XFRM	All	9/14/2020	12/3/2020	
COMED	0906 138 KV 0906 7	LINE	All	9/15/2020	11/16/2020	
COMED	114 NORT138 KV 11408	LINE	All	10/1/2020	12/15/2020	
COMED	116 GOOD345 KV 11620	LINE	All	9/14/2020	12/13/2020	
COMED	116 GOOD345 KV 11622	LINE	All	9/14/2020	12/13/2020	
COMED	135 ELMH138 KV 13505 1	LINE	All	9/14/2020	12/17/2020	
COMED	135 ELMH138 KV 13506 1	LINE	All	9/14/2020	12/17/2020	
COMED	155 NELS138 KV 15508 1	LINE	All	9/9/2020	12/16/2020	

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
COMED	15508 138 KV 15508_3	LINE	All	9/9/2020	12/16/2020	
COMED	34 KINGS138 KV 5803 Z1	LINE	All	10/26/2020 5/4/2021	12/31/2020 5/5/2021	
COMED	45 JEFFE138 KV 4525	LINE	All	10/26/2020	12/31/2020	
COMED	453 WOOD138 KV 6605 2	LINE	All	9/14/2020	11/16/2020	
COMED	64 BELLW138 KV 13501 2	LINE	All	9/21/2020	12/18/2020	
COMED	64 BELLW138 KV TR78 34	XFRM	All	9/21/2020	12/18/2020	
COMED	80 PONTI345 KV 8001	LINE	All	9/22/2020	11/25/2020	
DAYTON	BATH 138 KV BAT-09T1	LINE	All	3/1/2021	5/1/2021	
DAYTON	HUTCHING138 KV HUT-MID	LINE	All	9/9/2020 3/2/2021	12/10/2020 5/27/2021	
DAYTON	HUTCHING138 KV HUT-SUG1	LINE	All	9/14/2020 11/30/2020	11/20/2020 12/20/2020	
DAYTON	SUGARCRE345 KV BK-S	XFRM	All	9/14/2020	11/20/2020	
DEOK	08BROWN 138 KV 08B-STU1	LINE	All	11/2/2020	12/18/2020	
DEOK	08CLRMT1138 KV 08C-PIE1	LINE	All	10/5/2020	12/4/2020	
DEOK	08EMWOD1138 KV 08E-08L1	LINE	All	4/6/2020 4/12/2021	6/19/2020 5/7/2021	
DEOK	08HALL1 138 KV 08H-PROV	LINE	All	11/2/2020 3/8/2021	12/18/2020 4/30/2021	
DEOK	CUMMIVL 138 KV 08C-MIT1	LINE	All	10/12/2020 2/22/2021	11/20/2020 4/9/2021	
DEOK	CUMMIVL 138 KV 08C-SFT	LINE	All	10/12/2020 2/22/2021	11/20/2020 4/2/2021	
DEOK	MULHAUSR138 KV 08M-POR1	LINE	All	6/8/2020 11/2/2020 3/8/2021	6/12/2020 12/18/2020 4/30/2021	
DOM-C	BANISTE4138 KV TX1	XFRM	All	3/3/2021	5/11/2021	
DOM-C	BANISTE4138 KV TX2	XFRM	All	3/1/2021	6/11/2021	
DOM-C	BELLMEAD230 KV GSUS3	XFRM	All	5/22/2018	12/31/2020	
DOM-C	CLARKVIL115 KV 127C	LINE	All	6/1/2020	4/5/2021	
DOM-C	CLOVER 500 KV 556B	LINE	All	9/14/2020	10/9/2020	
DOM-C	CLOVER 500 KV TX7	XFRM	All	9/14/2020	10/9/2020	
DOM-C	CLOVER 500 KV TX8	XFRM	All	9/14/2020	10/9/2020	
DOM-C	CLOVER 500 KV TX9	XFRM	All	9/14/2020	10/9/2020	
DOM-C	GARNERDP115 KV 65D	LINE	All	7/6/2020	11/20/2020	
DOM-C	HICKGRDP115 KV 1022	LINE	All	5/15/2020	12/15/2020	
DOM-C	KINDERTN115 KV 127D	LINE	All	6/1/2020	4/25/2021	
DOM-C	LANCASTR115 KV 65B1	LINE	All	7/6/2020	11/20/2020	
DOM-C	LANCASTR115 KV 65C	LINE	All	7/6/2020	11/20/2020	
DOM-C	LANCASTR115 KV TX1	XFRM	All	7/6/2020	11/20/2020	
DOM-C	LANCASTR115 KV TX2	XFRM	All	7/6/2020	11/20/2020	
DOM-C	LANCASTR115 KV TX3	XFRM	All	7/6/2020	11/20/2020	
DOM-C	MDSNVLDP115 KV 154E1	LINE	All	2/2/2020	12/31/2020	

2020/2021 Annual ARR/FTR Outages					
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day
DOM-C	NANNA4 500 KV TX6	XFRM	All	6/8/2020 9/21/2020 3/1/2021	7/17/2020 10/2/2020 3/25/2021
DOM-C	NRTHNECK115 KV TX1	XFRM	All	7/6/2020	11/20/2020
DOM-C	OCRAN 115 KV 65A1	LINE	All	7/6/2020	11/20/2020
DOM-C	OCRAN 115 KV TX1	XFRM	All	7/6/2020	11/20/2020
DOM-C	WHITESTN115 KV 65A	LINE	All	5/31/2020 5/3/2021	11/20/2020 5/30/2021
DOM-C	WHITESTN115 KV TX1	XFRM	All	7/6/2020	11/20/2020
DOM-E	FENTRES4500 KV TX1	XFRM	All	6/1/2020 9/21/2020	7/17/2020 10/30/2020
DOM-E	HICKORY 115 KV 16A	LINE	All	2/2/2021	7/2/2021
DOM-E	LANDSTWN230 KV 231D	LINE	All	5/18/2020 8/1/2020	6/12/2020 10/15/2020
DOM-E	LANEXA 230 KV 224A	LINE	All	7/6/2020	2/15/2021
DOM-E	SEAFORD 115 KV 76B	LINE	All	5/9/2020	10/31/2020
DOM-E	SEAFORD 115 KV 79B	LINE	All	5/9/2020	10/31/2020
DOM-E	THOMPSCR115 KV 120B	LINE	All	2/2/2021	8/31/2021
DOM-E	THOMPSCR115 KV TX1	XFRM	All	2/2/2021	8/31/2021
DOM-E	THOMPSCR115 KV TX2	XFRM	All	2/2/2021	8/31/2021
DOM-E	THOMPSCR115 KV TX3	XFRM	All	2/2/2021	8/31/2021
DOM-N	AQUAHAR 230 KV 2104C	LINE	All	2/15/2021	4/23/2021
DOM-N	AQUAHAR 230 KV 2119	LINE	All	2/15/2021	4/23/2021
DOM-N	BULLRUN 115 KV 156A	LINE	All	9/8/2020	11/12/2020
DOM-N	BULLRUN 230 KV 200A	LINE	All	10/5/2020 4/19/2021	11/20/2020 5/28/2021
DOM-N	CANNONBR230 KV 2132	LINE	All	9/15/2020	12/19/2020
DOM-N	CATHARDP115 KV 124E	LINE	All	9/13/2020 10/28/2020	10/25/2020 11/12/2020
DOM-N	CATHARDP115 KV 124F	LINE	All	9/8/2020	11/12/2020
DOM-N	GAINESVL230 KV TX3	XFRM	All	8/6/2020 10/11/2020	10/6/2020 11/8/2020
DOM-N	JOHNSNDP230 KV 265A	LINE	All	10/5/2020 3/15/2021	11/20/2020 5/21/2021
DOM-N	LADYSMTH500 KV 568A	LINE	All	9/14/2020	10/13/2020
DOM-N	LOUDOUN4230 KV TX3	XFRM	All	9/8/2020	11/12/2020
DOM-N	LOUDOUN4230 KV TX4	XFRM	All	9/8/2020	11/12/2020
DOM-N	PLEASNTV230 KV 274D	LINE	All	3/1/2021	5/20/2021
DOM-N	PLEASNTV230 KV TX2	XFRM	All	3/1/2021	5/20/2021
DOM-N	REMGNTN115 KV 6A	LINE	All	6/8/2020 10/5/2020	9/24/2020 10/23/2020
DOM-N	REMNTNCT230 KV TX9	XFRM	All	6/8/2020	9/24/2020
DOM-N	TYSONS 230 KV TX5	XFRM	All	9/28/2020 10/12/2020	10/4/2020 1/19/2023
DOM-S	SUNBURY4230 KV 247C	LINE	All	6/1/2020	3/17/2021
DOM-W	BARRCKRD230 KV 233B1	LINE	All	4/19/2021	5/18/2021

2020/2021 Annual ARR/FTR Outages					
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day
DOM-W	BARRCKRD230 KV TX2	XFRM	All	4/19/2021	5/18/2021
DOM-W	COVINGTN138 KV 112A	LINE	All	8/24/2020	12/31/2020
DOM-W	CROZET 230 KV 233B	LINE	All	9/30/2020 4/19/2021	10/29/2020 5/18/2021
DOM-W	HARRSNBG230 KV TX4	XFRM	All	8/27/2020	12/1/2020
DOM-W	LOCUSTDP115 KV 153C	LINE	All	9/8/2020 3/15/2021	10/20/2020 4/14/2021
DOM-W	LOWMOOR 230 KV TX4	XFRM	All	9/25/2019	1/25/2022
DOM-W	MTSTORM4500 KV 550A	LINE	All	9/15/2020	6/15/2021
DOM-W	MTSTORM4500 KV MTS-PRU	LINE	All	9/14/2020	10/16/2020
DOM-W	SANNA 230 KV 255C	LINE	All	6/1/2020 6/22/2020 10/12/2020	6/18/2020 7/8/2020 11/3/2020
DOM-W	VALLEY4 500 KV TX1	XFRM	All	9/21/2020	10/29/2020
DOM-W	VERONA 115 KV 43D	LINE	All	1/3/2021	4/30/2021
DPL	CAMBRIDG69 KV CAM-JAC	LINE	All	11/2/2020 1/11/2021 1/18/2021 4/19/2021	11/20/2020 1/15/2021 4/16/2021 4/23/2021
DPL	CEDARNEC69 KV CED-REH	LINE	All	9/21/2020 10/5/2020	9/25/2020 11/13/2020
DPL	ENEWMARK69 KV ENE-ENE	LINE	All	9/14/2020 4/19/2021	3/12/2021 4/23/2021
DPL	ENEWMARK69 KV ENE-JAC	LINE	All	9/14/2020 4/19/2021	3/12/2021 4/23/2021
DPL	FAIRMONT69 KV FAI-MIL	LINE	All	8/3/2020 9/14/2020	8/7/2020 10/9/2020
DPL	HARESCOR138 KV HAR-RED2	LINE	All	9/14/2020	12/31/2020
DPL	INDIANRI138 KV IND-NEL	LINE	All	10/5/2020	10/23/2020
DPL	MILFORD 230 KV AT20	XFRM	All	5/6/2021	5/22/2021
DUQU	ARSENAL 138 KV ARS-OAK	LINE	All	9/1/2020	2/1/2021
DUQU	BEAV DUQ345 KV BEA-CLI	LINE	All	9/15/2020	10/13/2020
DUQU	BOCGASES138 KV BOC-DRA	LINE	All	10/12/2020 3/22/2021	11/20/2020 5/1/2021
DUQU	BOCGASES138 KV BOC-LOG	LINE	All	10/12/2020 3/22/2021	11/20/2020 5/1/2021
DUQU	BRUNOTIS138 KV BRU-NEV	LINE	All	9/15/2020	6/1/2021
DUQU	CHESWICK138 KV CHE-PLU	LINE	All	1/15/2021	4/1/2021
DUQU	CRES DUQ138 KV CRE-MON	LINE	All	9/15/2020	6/1/2021
DUQU	DRAVOSBU138 KV DRA-WIL1	LINE	All	9/28/2020 10/12/2020 1/4/2021	10/2/2020 10/17/2020 6/4/2021
DUQU	DRAVOSBU138 KV DRA-WMI3	LINE	All	9/21/2020	3/30/2021
DUQU	NEVILLE 138 KV NEV-NEV	LINE	All	9/15/2020	6/1/2021
DUQU	NEVILTAP138 KV NEV-SEW	LINE	All	9/15/2020	6/1/2021
DUQU	WILSON 138 KV WIL-WMI	LINE	All	8/3/2020	12/4/2020

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
EKPC	AIRPRT_R69 KV AIR-LEON	LINE	All	3/16/2020	10/16/2020	
EKPC	ETOWNEKP69 KV ETO-TUNN	LINE	All	8/31/2020	12/18/2020	
FE	02FABER 138 KV 02F-02F8	LINE	All	10/1/2020	11/30/2020	
FE	02FABER 138 KV 02F-02P2	LINE	All	10/1/2020	11/30/2020	
FE	AETNA 138 KV TR1	XFRM	All	3/1/2021	5/28/2021	
FE	BLUEBELL138 KV BLU-02A1	LINE	All	1/12/2019	12/30/2021	
FE	BROOKSID138 KV BRO-WEL1	LINE	All	9/1/2020	11/13/2020	
FE	HANNAOE 138 KV HAN-NEW1	LINE	All	4/27/2020	6/4/2021	
FE	NAOMIJUN138 KV NAO-WAU1	LINE	All	9/29/2020	1/4/2021	
FE	STAR_FE 138 KV STA-TUS1	LINE	All	9/1/2020	11/12/2020	
FE	UNIV_TOL138 KV 02U-BEL1	LINE	All	1/5/2021	4/2/2021	
FE	UNIV_TOL138 KV 02U-VUL2	LINE	All	1/5/2021	4/2/2021	
FE	WAKRON 138 KV WAK-AET1	LINE	All	3/1/2021	5/28/2021	
FE	WELLINGT138 KV TR3	XFRM	All	9/1/2020	11/13/2020	
FE	WFREMONT138 KV WFR-WOO1	LINE	All	4/19/2021	5/7/2021	
FECL	02EATON 138 KV 02E-02F3	LINE	All	11/20/2019	12/31/2020	
FECL	02EATON 138 KV 02E-02F4	LINE	All	11/20/2019	12/31/2020	
FECL	ASHTABUL138 KV ASH-ASH1	LINE	All	9/5/2020	11/30/2020	
FECL	ASHTABUL345 KV TR-8	XFRM	All	9/1/2020	11/29/2020	
FECL	CLINHOSP138 KV CLI-INL1	LINE	All	9/14/2020 10/22/2020	10/2/2020 12/4/2020	
FECL	CLINHOSP138 KV CLI-INL2	LINE	All	9/14/2020 11/10/2020	10/21/2020 12/4/2020	
FEPA	CHAMBROE345 KV CHA-HAR2	LINE	All	3/8/2021	5/7/2021	
ILL_EQ	AUSTIN 345 KV AUS-21K	LINE	All	9/21/2020 10/13/2020 11/5/2020	9/21/2020 10/26/2020 11/6/2020	
JC-N	BELVEDER115 KV BEL-DRA	LINE	All	1/11/2021	5/28/2021	
JC-N	BELVEDER115 KV BEL-MER	LINE	All	1/11/2021	5/28/2021	
JC-N	BELVEDER115 KV BEL-PEQ	LINE	All	1/11/2021	5/28/2021	
JC-N	FRANKLIN34.5 KV FRA-NEW	LINE	All	3/2/2021	5/3/2021	
JC-N	READINGT230 KV BK 2TR	XFRM	All	1/18/2021	6/1/2021	
JC-N	READINGT230 KV REA-ROS	LINE	All	1/18/2021	6/1/2021	
JC-S	WIND JC 230 KV BK 1TR	XFRM	All	9/14/2020	12/15/2020	
LGEEFL	OWINGV_K69 KV OWI-PRES	LINE	All	3/30/2020	9/28/2020	
ME	CROSSROA115 KV CRO-TOL	LINE	All	9/16/2020 11/6/2020 11/16/2020 3/15/2021	9/22/2020 11/10/2020 12/10/2020 4/9/2021	
ME	HAMILTON115 KV HAM-JAC	LINE	All	10/5/2020	11/2/2020	
ME	HUNTERST230 KV HUN-JAC	LINE	All	9/21/2020 4/19/2021	9/29/2020 5/14/2021	
ME	HUNTERST500 KV HUN-VIN	LINE	All	11/5/2020 4/12/2021	12/7/2020 5/21/2021	
ME	YORKANA 230 KV BANK 1	XFRM	All	3/15/2021	4/15/2021	

2020/2021 Annual ARR/FTR Outages					
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day
PE	CALLOWHI138 KV CAL 2TR	XFRM	All	11/16/2020 4/5/2021	11/20/2020 5/25/2021
PE	CALLOWHI138 KV CAL 5TR	XFRM	All	11/16/2020 4/5/2021	11/20/2020 5/25/2021
PE	CALLOWHI138 KV CAL 8TR	XFRM	All	11/16/2020 4/5/2021	11/20/2020 5/25/2021
PE	CALLOWHI138 KV CAL-TUN	LINE	All	11/16/2020 4/5/2021	11/20/2020 5/25/2021
PE	CROMBY 69 KV CRO-MOS1	LINE	All	8/31/2020 10/19/2020	9/28/2020 11/17/2020
PE	ELROY 500 KV ELR-ELR1	LINE	All	9/14/2020 11/30/2020	10/30/2020 12/4/2020
PE	ELROY 500 KV ELR-HOS	LINE	All	9/14/2020 11/30/2020	10/30/2020 12/4/2020
PE	MOSER 69 KV MOS 3TR	XFRM	All	8/31/2020	9/28/2020
PEP	BELLSMIL230 KV 121-13T	XFRM	All	9/21/2020	2/11/2021
PEP	BELLSMIL230 KV 121-1T	XFRM	All	9/21/2020	5/1/2021
PEP	BELLSMIL230 KV 121-5T	XFRM	All	9/21/2020	2/11/2021
PEP	BELLSMIL230 KV BEL-QUI9	LINE	All	9/21/2020	2/11/2021
PEP	BRIGHTON230 KV BRI-BUR3	LINE	All	9/12/2020	6/5/2021
PEP	BRIGHTON230 KV BRI-BUR5	LINE	All	9/12/2020	6/5/2021
PEP	DICKERSH230 KV DIC-DIC4	LINE	All	9/14/2020	12/11/2020
PEP	DICKERSO230 KV DIC-QUI5	LINE	All	9/15/2020	12/4/2020
PEP	OST 138 KV OST-VAN2	LINE	All	9/12/2020	12/12/2020
PL-N	COLU PL 69 KV COL-SUN	LINE	All	3/8/2021 5/10/2021	5/7/2021 7/2/2021
PL-N	ELIMSPOR230 KV ELI-LYC1	LINE	All	7/7/2020	9/29/2020
PL-N	HARWOOD 230 KV 4	XFRM	All	9/16/2020 12/14/2020	10/21/2020 1/6/2021
PL-N	LYCOMING230 KV 1	XFRM	All	7/7/2020	9/29/2020
PL-N	SUNBURY 500 KV SUN-SUS	LINE	All	10/12/2020 5/20/2021	10/17/2020 6/4/2021
PL-N	SUSQUEHA500 KV 21	XFRM	All	9/1/2020 9/21/2020 10/6/2020	9/8/2020 9/29/2020 4/8/2021
PL-S	ALBURTIS500 KV ALB-HOS	LINE	All	11/2/2020	12/7/2020
PL-S	BRUNNERI230 KV BRU-YOR	LINE	All	3/22/2021	4/15/2021
PL-S	ELROYPL 138 KV 4 TR	XFRM	All	9/14/2020 11/30/2020	10/30/2020 12/4/2020
PL-S	ELROYPL 500 KV 3 TR	XFRM	All	9/14/2020 11/30/2020	10/30/2020 12/4/2020
PL-S	FACEROCK115 KV 1	XFRM	All	6/29/2020	2/16/2021
PL-S	FACEROCK115 KV 2	XFRM	All	6/29/2020	2/16/2021
PL-S	FACEROCK115 KV FAC-FIV1	LINE	All	6/29/2020	2/16/2021
PL-S	FACEROCK115 KV FAC-FIV2	LINE	All	6/29/2020	2/16/2021

2020/2021 Annual ARR/FTR Outages					
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day
PL-S	HUMMELST230 KV HUM-HUM	LINE	All	8/3/2020 8/24/2020 9/1/2020 3/22/2021	8/6/2020 8/27/2020 12/18/2020 5/30/2021
PL-S	HUMMETAP230 KV HUM-MID2	LINE	All	8/3/2020 8/24/2020 9/1/2020 5/8/2021	8/6/2020 8/27/2020 12/18/2020 5/26/2021
PL-S	HUMMETAP230 KV HUM-STE	LINE	All	8/3/2020 8/24/2020 9/1/2020 5/8/2021	8/6/2020 8/27/2020 12/18/2020 5/26/2021
PL-S	STEELCTY500 KV TR1	XFRM	All	3/1/2021	4/14/2021
PN	BLAIRSVE138 KV BLA-SOC	LINE	All	11/17/2020	6/8/2021
PN	BLAIRSVE138 KV NO.1 TX	XFRM	All	11/17/2020	6/8/2021
PN	FOREST 115 KV FOR-RID	LINE	All	9/14/2020 9/21/2020 9/27/2020 3/15/2021	9/19/2020 9/25/2020 1/6/2021 4/15/2021
PN	FOREST 230 KV 1 TX	XFRM	All	9/14/2020 9/21/2020 9/27/2020 3/15/2021	9/19/2020 9/25/2020 1/6/2021 4/15/2021
PN	FOREST 230 KV FOR-SQU	LINE	All	9/21/2020 1/2/2021 3/15/2021	9/25/2020 1/6/2021 4/15/2021
PN	GLADE 230 KV FOR-GLA1	LINE	All	9/21/2020 1/2/2021 4/19/2021	9/25/2020 1/6/2021 5/20/2021
PN	HOOVERSV230 KV 3 TX 1	XFRM	All	11/2/2020	12/11/2020
PN	HOOVERSV230 KV HOO-QUE	LINE	All	11/2/2020	12/11/2020
PN	KEYSTONE230 KV KEY-SHE	LINE	All	8/17/2020 9/11/2020 10/6/2020	8/17/2020 10/2/2020 10/23/2020
PN	LEWISTOW115 KV NO1 -S	XFRM	All	9/8/2020	11/13/2020
PN	LEWISTOW230 KV NO1 -P	XFRM	All	9/8/2020	11/13/2020
PN	PHILIPSB115 KV PHI-SHA	LINE	All	3/1/2021	5/14/2021
PN	ROXBURY 115 KV ROX-SHA	LINE	All	9/22/2020	10/12/2020
PN	SEWARD 115 KV SEW-TOW	LINE	All	9/28/2020	10/27/2020
PN	SEWARD 230 KV 9 TX	XFRM	All	10/5/2020 10/26/2020	10/9/2020 1/15/2021
PN	SEWARD 230 KV T11	XFRM	All	10/26/2020	11/20/2020
PS-N	ATHENIA 230 KV ATH-COO	LINE	All	1/4/2021	1/25/2021
PS-N	BRANCHBU230 KV BRA-EFL	LINE	All	9/15/2020	5/31/2021
PS-N	CEDARSUB230 KV CED-ROSY	LINE	All	11/2/2020 11/30/2020	11/8/2020 1/28/2021

2020/2021 Annual ARR/FTR Outages						
Zone	Facility Name	Type	Modeled Period	Scheduled Start Day	Scheduled End Day	
PS-N	ESSEX 138 KV ESS-NEW	LINE	All	3/22/2021	5/19/2021	
PS-N	HOBOKEN 230 KV HOB-NEWY	LINE	All	7/8/2020	11/9/2020	
PS-N	HOPATCON500 KV HOP-ROS	LINE	All	12/16/2020	1/14/2021	
PS-N	ROSELAND230 KV ROS-WHI	LINE	All	12/16/2020	4/2/2021	
PS-N	VFT_ST 230 KV VFT-WAR1	LINE	All	9/21/2020	12/31/2020	
PS-S	CLARKSVI230 KV CLA-WIN	LINE	All	9/14/2020	12/15/2020	
PS-S	CROSSWIC138 KV CRO-WARZ	LINE	All	9/16/2020 11/2/2020 11/16/2020	9/17/2020 11/7/2020 11/23/2020	
PS-S	TRENTON 138 KV TRE-YAR5	LINE	All	9/14/2020	12/19/2020	
PS-S	TRENTON 138 KV TRE-YAR6	LINE	All	9/14/2020 11/2/2020 11/16/2020	9/19/2020 11/7/2020 11/23/2020	
PS-S	WARDAV 138 KV WAR-YARF	LINE	All	9/16/2020 11/2/2020 11/16/2020	9/17/2020 11/7/2020 11/23/2020	
SENY	FARRAGUT345 KV FAR-MAR	LINE	All	1/15/2018	12/31/2020	
SENY	FARRAGUT345 KV FAR-MAR2	LINE	All	1/15/2018	12/31/2020	