

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 2014/2015 Annual ARR Allocation and FTR Auction.

2014/2015 Annual ARR/FTR Outages						
Zone	FACILITY NAME	TYPE	Modeled Period	Scheduled Start Day	Scheduled End Day	
AE	BUTLER 69 KV BUT-SML	LINE	All	11/1/2014	2/15/2015	
AE	CARDIFF 138 KV CAR-LEW	LINE	All	10/1/2014	11/7/2014	
AE	CARDIFF 230 KV T6	XFMR	All	10/1/2014	11/7/2014	
AE	CEDAR 69 KV CED-SHI	LINE	All	10/1/2014	1/7/2015	
AE	CHESTNAE69 KV CHE-MOSS	LINE	All	9/2/2014	6/7/2015	
AE	CHESTNAE69 KV CHE-MOT6	LINE	All	9/2/2014	6/7/2015	
AE	CHURCHTO69 KV CHU-DEE	LINE	All	3/24/2015	5/7/2015	
AE	CORSON 69 KV COR-COU	LINE	All	9/8/2014 1/12/2015	1/7/2015 5/8/2015	
AE	COURT 69 KV COU-MID	LINE	All	9/8/2014 1/12/2015	1/7/2015 5/8/2015	
AE	COURT 69 KV COU-MID8	LINE	All	9/8/2014	1/9/2015	
AE	COURT 69 KV COU-SWA	LINE	All	9/8/2014	1/9/2015	
AE	DACOSTA 69 KV DAC-WIN	LINE	All	10/1/2014	1/7/2015	
AE	DEEPWATE138 KV DEE-LNT	LINE	All	9/3/2014	6/7/2015	
AE	DEEPWATE138 KV DEE-UPP	LINE	All	9/3/2014	6/7/2015	
AE	DEEPWATE138 KV T12	XFMR	All	3/8/2015	5/7/2015	
AE	DOROTHY 138 KV DOR-LNT	LINE	All	9/3/2014	6/7/2015	
AE	ENGLAND 138 KV ENG-SCU7	LINE	All	10/1/2014 3/1/2015	11/7/2014 5/7/2015	
AE	LANDITAP138 KV LNT-MON	LINE	All	9/3/2014	6/7/2015	
AE	LAUREL 69 KV LAU-ROA	LINE	All	11/2/2014	4/7/2015	
AE	LEWIS 138 KV LEW #1	XFMR	All	9/1/2014	2/13/2015	
AE	LEWIS 138 KV LEW-MIL7	LINE	All	10/1/2014	11/7/2014	
AE	LEWIS 69 KV LEW-MOSS	LINE	All	9/2/2014	6/7/2015	
AE	MICKLETO230 KV MIC-MON6	LINE	All	11/8/2014	1/7/2015	
AE	MIDD AE 69 KV MID-MDT	LINE	All	9/8/2014 1/12/2015	1/7/2015 5/8/2015	

AE	MILL 138 KV MIL-SCU7	LINE	All	10/1/2014 3/1/2015	11/7/2014 5/7/2015
AE	MILL 69 KV MIL-SEA	LINE	All	10/16/2014	2/7/2015
AE	MONR AE 69 KV MON-WINA	LINE	All	10/1/2014	1/7/2015
AE	PINEHILL69 KV PIN-TER	LINE	All	9/15/2014	1/7/2015
AE	SICKLER 69 KV SIC-TAN	LINE	All	10/1/2014	1/7/2015
AEP	ACADEMIA138 KV ACA-MIL1	LINE	All	2/16/2015	5/29/2015
AEP	ACADEMIA138 KV ACA-WMT1	LINE	All	2/16/2015	5/29/2015
AEP	BIXBY 138 KV BIX-GRI1	LINE	All	9/8/2014 10/20/2014	10/17/2014 11/28/2014
AEP	BIXBY 138 KV BIX-GRO1	LINE	All	9/8/2014	11/28/2014
AEP	CANTONCE138 KV CAN-CLO1	LINE	All	5/12/2014 9/15/2014	6/26/2014 10/8/2014
AEP	CANTONCE345 KV T-1	XFMR	All	8/25/2014	10/31/2014
AEP	CANTONCE345 KV T-2	XFMR	All	8/25/2014	10/31/2014
AEP	CHEMICAL138 KV CHE-UNI1	LINE	All	2/9/2015	5/29/2015
AEP	CONESVIL345 KV CON-COR1	LINE	All	8/25/2014	10/31/2014
AEP	COUNTYLI138 KV COU-SAN	LINE	All	9/2/2014	10/31/2014
AEP	EUGENE 345 KV EUG-BUN1	LINE	All	9/15/2014 3/16/2015	11/28/2014 5/29/2015
AEP	FOSTORIA138 KV FOS-MEL1	LINE	All	9/2/2014	10/31/2014
AEP	FREMNT 138 KV FRE-FRE1	LINE	All	9/2/2014	4/24/2015
AEP	FREMONTC138 KV FRE-TIF1	LINE	All	9/2/2014	4/24/2015
AEP	GREENLAW138 KV GRE-MEL1	LINE	All	9/2/2014	12/4/2014
AEP	GREENLAW138 KV GRE-TIF1	LINE	All	9/2/2014	4/24/2015
AEP	GREIF 138 KV GRE-HUN	LINE	All	10/20/2014 3/2/2015	11/13/2014 4/2/2015
AEP	HOCKING 138 KV HOC-WLA1	LINE	All	9/15/2014 3/2/2015	11/28/2014 5/8/2015
AEP	HOWARD2 138 KV HOW-BRO1	LINE	All	9/15/2014	5/31/2015
AEP	HOWARD2 138 KV HOW-MEL1	LINE	All	9/2/2014	10/31/2014
AEP	HUNTLEY2138 KV HUN-LIN1	LINE	All	9/2/2014 3/2/2015	10/17/2014 4/2/2015
AEP	JUGSTRET345 KV KIR-JUG	LINE	All	9/2/2014	11/28/2014
AEP	KAMMER2 345 KV KAM-WBE	LINE	All	9/2/2014	12/19/2014
AEP	MADISON 138 KV MAD-TAN1	LINE	All	9/29/2014 4/6/2015	10/24/2014 5/29/2015
AEP	MALISZEW138 KV MAL-HYA1	LINE	All	9/29/2014	12/5/2014
AEP	MALISZEW765 KV MAL-MAR1	LINE	All	9/22/2014	11/14/2014
AEP	MARYSVI2345 KV MAR-SWL1	LINE	All	8/18/2014	10/10/2014
AEP	MILLWOO2138 KV MIL-WTR1	LINE	All	2/16/2015	5/29/2015
AEP	MUSKING2138 KV MUS-WOL	LINE	All	9/8/2014 2/9/2015	10/17/2014 5/1/2015

AEP	MUSKING2345 KV MUS-WAT1	LINE	All	9/13/2014	11/16/2014
AEP	SCANTON2345 KV SCA-STA1	LINE	All	10/27/2014 1/16/2015	11/15/2014 3/6/2015
AEP	SPORNAEP345 KV . 4	XFMR	All	9/29/2014	11/20/2014
AEP	SPORNAEP345 KV SPO-WAT1	LINE	All	9/13/2014	11/16/2014
AEP	TACKETTC138 KV TAC-TUR1	LINE	All	12/1/2014 3/16/2015	1/29/2015 4/2/2015
AEP	TURNER 138 KV TUR-UNI1	LINE	All	2/9/2015	5/29/2015
AEP	TURNER 138 KV TUR-UNI2	LINE	All	2/9/2015 3/16/2015	3/6/2015 4/2/2015
AEP	UNIONCA8138 KV UNI-UNI1	LINE	All	2/9/2015	5/29/2015
AEP	UNIONCA8138 KV UNI-UNI2	LINE	All	2/9/2015	5/29/2015
AEP	WMILLERS345 KV WMI-HYA1	LINE	All	9/15/2014 3/2/2015	11/15/2014 4/17/2015
AEP	WOLFCREE144 KV T2	XFMR	All	2/9/2015	5/1/2015
APSS	ARMSTRON138 KV ARM-BUR	LINE	All	9/8/2014 10/13/2014	10/10/2014 11/21/2014
APSS	ARMSTRON138 KV ARM-GAR	LINE	All	9/8/2014 10/13/2014	10/10/2014 11/21/2014
APSS	BETHELPA138 KV BET-ELR	LINE	All	10/6/2014	12/5/2014
APSS	DOUBS 500 KV DOU-PLV	LINE	All	9/22/2014	11/21/2014
APSS	HAMPSHIR138 KV HAM-RID	LINE	All	6/2/2014	9/26/2014
APSS	LAKELYNN138 KV LAK-WES	LINE	All	7/7/2014	12/12/2014
APSS	MILESBUR230 KV MIL-MOS	LINE	All	4/28/2014	11/7/2014
APSS	MILLVILL138 KV MIL-OLD	LINE	All	9/1/2014 2/2/2015	12/1/2014 6/1/2015
APSS	MOSHANON230 KV MOS-SHA	LINE	All	4/28/2014	11/7/2014
COMED	13 CRAWF345 KV 1311	LINE	All	1/5/2015	4/3/2015
COMED	159 NORT138 KV TR81CT-S	XFMR	All	3/2/2015	3/21/2015
COMED	159 NORT345 KV TR81CT-P	XFMR	All	3/2/2015	3/21/2015
COMED	164 SAND138 KV 17105 6	LINE	All	9/8/2014	11/5/2014
COMED	167 PLAN345 KV TR93CT-S	XFMR	All	9/23/2014	12/31/2014
COMED	167 PLAN765 KV TR93CT-P	XFMR	All	9/23/2014 2/23/2015	12/31/2014 3/16/2015
COMED	171 WEMP138 KV TR84CT-S	XFMR	All	9/23/2014	12/16/2014
COMED	171 WEMP345 KV TR84CT-P	XFMR	All	9/23/2014	12/16/2014
COMED	17105 138 KV 17105 Z1	LINE	All	9/8/2014	11/5/2014
COMED	51 MC CO138 KV TR82CT-S	XFMR	All	3/2/2015	5/26/2015
COMED	51 MC CO345 KV 10804	LINE	All	3/2/2015	5/26/2015
COMED	51 MC CO345 KV TR82CT-P	XFMR	All	3/2/2015	5/26/2015
COMED	83 GLIDD138 KV 11323 3	LINE	All	2/2/2015	4/25/2015
COMED	86 DAVIS138 KV 0901 7	LINE	All	9/22/2014	11/3/2014
COMED	88 SKOKI138 KV TR84CT-S	XFMR	All	3/2/2015	4/17/2015

COMED	88 SKOKI345 KV TR84CT-P	XFMR	All	3/2/2015	4/17/2015
CPL	WAKE4 500 KV 570B	LINE	All	3/1/2015	5/15/2015
DEOK	08FRFLD1138 KV BK2_P	XFMR	All	9/15/2014	11/29/2014
DEOK	MORGAN 138 KV 08F-MRG	LINE	All	11/2/2014	1/3/2015
DOM-C	BEECHDP 115 KV 22B	LINE	All	4/1/2014	6/1/2015
DOM-C	CARSON4 500 KV 570A	LINE	All	3/1/2015	5/15/2015
DOM-C	CLBHOUSE115 KV 71E	LINE	All	9/2/2014	11/1/2014
DOM-C	CLOVER 500 KV TX9	XFMR	All	4/3/2015	6/5/2015
DOM-C	DOMINION115 KV 30B	LINE	All	3/16/2015	5/30/2015
DOM-C	EVINGTDP115 KV 30C	LINE	All	8/15/2014	3/15/2015
DOM-C	FOURRIVR230 KV 256A	LINE	All	7/16/2014	10/15/2014
DOM-C	KERRDAM 115 KV 22C	LINE	All	4/1/2014	6/1/2015
DOM-C	LOCKS 230 KV TX7	XFMR	All	9/6/2014	11/14/2014
DOM-C	NANNA4 500 KV TX5	XFMR	All	8/5/2014	10/3/2014
DOM-C	NEAST 230 KV TX7	XFMR	All	12/8/2014	2/28/2015
DOM-E	HUNTMNDP230 KV 2110A	LINE	All	11/3/2014	5/29/2015
DOM-E	HUNTMNDP230 KV 2110B	LINE	All	11/3/2014	5/29/2015
DOM-E	HUNTMNDP230 KV TX1	XFMR	All	11/3/2014	5/29/2015
DOM-E	ROCKLNDG230 KV 292C1	LINE	All	2/3/2015	7/25/2015
DOM-E	SHELLBNK230 KV TX6	XFMR	All	9/2/2014	11/7/2014
DOM-E	YADKIN4 230 KV 2070A	LINE	All	7/7/2014	9/12/2014
				7/7/2014	9/12/2014
DOM-E	YADKIN4 230 KV 262B	LINE	All	9/15/2014	10/14/2014
DOM-N	AQUAHAR 230 KV 2120	LINE	All	9/30/2013	12/31/2014
DOM-N	BRAMBLET500 KV 558A1	LINE	All	9/22/2014	11/21/2014
DOM-N	CHANCELR500 KV TX1	XFMR	All	8/11/2014	11/28/2014
DOM-N	GLEBE 230 KV 2023A	LINE	All	9/14/2014	1/23/2015
				6/23/2014	7/7/2014
				7/14/2014	9/11/2014
DOM-N	GODWINDP115 KV 172B	LINE	All	9/15/2014	11/30/2014
DOM-N	PENTAGON69 KV 174A	LINE	All	12/1/2014	3/30/2015
DOM-N	PLEASNTV500 KV TX3	XFMR	All	9/22/2014	11/21/2014
				10/1/2014	12/13/2014
DOM-N	POSS560 500 KV 560A	LINE	All	3/7/2015	5/2/2015
DOM-N	WALNEY 230 KV 2008C	LINE	All	9/8/2014	11/21/2014
DOM-S	TROWBRDG230 KV TX1	XFMR	All	6/1/2014	7/31/2014
DOM-W	DOOMS4 115 KV 39A	LINE	All	2/5/2014	10/15/2014
DOM-W	ENDCAVRN230 KV 2017B	LINE	All	1/6/2014	9/10/2014
DOM-W	ENDCAVRN230 KV TX3	XFMR	All	1/6/2014	9/10/2014
DOM-W	ENDCAVRN230 KV TX4	XFMR	All	1/6/2014	9/10/2014
DOM-W	LEXINGTN500 KV 555A	LINE	All	9/8/2014	6/5/2015
DOM-W	LEXINGTN500 KV TX1	XFMR	All	9/8/2014	12/31/2014
DOM-W	MTSTORM4500 KV H117Z	LINE	All	3/23/2015	5/29/2015

DOM-W	TRIMBLDP115 KV 83B	LINE	All	10/18/2012	12/31/2014
				9/1/2014	9/28/2014
DPL	CARTANZA230 KV CAR-MIL	LINE	All	10/1/2014	10/31/2014
DPL	CECIL 138 KV CEC-GLA	LINE	All	9/1/2014	5/31/2015
DPL	CENTREVL69 KV CNT-WYE	LINE	All	2/3/2015	5/29/2015
DPL	CULVER 69 KV CUL-OCC	LINE	All	3/2/2015	5/22/2015
DPL	HARRTN 69 KV HAR-WEL	LINE	All	1/5/2015	5/31/2015
DPL	KEENEY 500 KV AT51	XFMR	All	9/1/2014	12/31/2014
				9/8/2014	10/10/2014
DUQU	COLLIER 345 KV T1	XFMR	All	11/17/2014	12/19/2014
				10/13/2014	11/14/2014
DUQU	COLLIER 345 KV T2	XFMR	All	11/17/2014	12/19/2014
DUQU	CRES DUQ138 KV CRE-MON	LINE	All	1/5/2015	4/3/2015
DUQU	ELRAMA 138 KV ELR-WMI	LINE	All	10/6/2014	12/5/2014
FE	02INCA 138 KV 02I-04N1	LINE	All	3/2/2015	5/1/2015
FE	CARLISLE345 KV TR1	XFMR	All	9/29/2014	12/4/2014
FE	CLOVEROE138 KV CLO-REB1	LINE	All	10/10/2014	5/2/2016
FE	CLOVEROE138 KV CLO-REB2	LINE	All	6/2/2014	9/30/2014
FE	GALION 345 KV TR4	XFMR	All	9/1/2014	10/31/2014
FE	HANNAOE 345 KV HAN-HIG1	LINE	All	9/15/2014	3/21/2015
FE	LOWELL 138 KV TB8	XFMR	All	11/10/2014	2/13/2015
FE	NEWCASOE138 KV NEW-HOY2	LINE	All	1/2/2015	5/31/2015
				9/15/2014	10/10/2014
FE	SAMMISFE138 KV SAM-BOA1	LINE	All	12/8/2014	1/16/2015
				10/6/2014	10/24/2014
FE	SAMMISFE345 KV SAM-WYL	LINE	All	1/19/2015	2/27/2015
FE	WAKRON 138 KV WAK-BAR1	LINE	All	11/1/2014	6/1/2015
FECL	02HAMLTN138 KV 02H-HOR1	LINE	All	3/2/2015	5/1/2015
FECL	ASHTABUL345 KV TR-8	XFMR	All	3/2/2015	5/4/2015
FECL	EASTLAKE345 KV EAS-JUN1	LINE	All	1/5/2015	3/31/2015
FECL	HARDING2345 KV 2	XFMR	All	6/25/2013	12/31/2015
FECL	INLAND 138 KV INL-04J1	LINE	All	9/2/2014	12/19/2014
FECL	INLAND 138 KV INL-04J2	LINE	All	9/2/2014	12/19/2014
FECL	IVY 138 KV IVY-04N1	LINE	All	3/2/2015	5/1/2015
				1/5/2015	2/27/2015
FECL	JUNIPER 138 KV JUN-02I1	LINE	All	3/2/2015	5/1/2015
FECL	JUNIPER 345 KV 6	XFMR	All	3/2/2015	5/4/2015
JC-S	SMITHBUR500 KV BK 1 50	XFMR	All	6/24/2013	7/31/2016
PE	PEACHBOT500 KV PEA-TMI	LINE	All	9/15/2014	11/14/2014
PEP	10THST 138 KV 10T-BUZ4	LINE	All	9/20/2014	12/6/2014
PEP	BELLSMIL230 KV 121-14T	XFMR	All	9/13/2014	12/13/2014
				10/1/2014	12/13/2014
PEP	BURCHESH500 KV BUR-POS	LINE	All	3/7/2015	5/2/2015

PEP	BURTONSV230 KV BUR-MET7	LINE	All	9/27/2014	4/26/2015
PEP	BURTONSV230 KV BUR-MET8	LINE	All	9/27/2014	4/26/2015
PEP	BUZZARD 230 KV BUZ-RIT	LINE	All	11/17/2014	3/1/2015
PEP	BUZZARD 230 KV BUZ-RIT1	LINE	All	6/17/2013	11/10/2014
PEP	BUZZARD 230 KV STAB-7-	XFMR	All	11/17/2014	3/1/2015
PEP	CHALKPT 500 KV 500-5T	XFMR	All	9/27/2014	12/13/2014
PEP	DICKERSH230 KV DIC-QUI2	LINE	All	9/20/2014	12/7/2014
PEP	DICKERSH230 KV DIC-QUI4	LINE	All	9/20/2014	12/7/2014
PEP	DICKERSO230 KV DIC-QUI5	LINE	All	9/8/2014	12/13/2014
PEP	METZTAP 230 KV 163-2T	XFMR	All	9/27/2014	4/26/2015
PEP	METZTAP 230 KV 163-4T	XFMR	All	9/27/2014	4/26/2015
PEP	METZTAP 230 KV MET-TAK1	LINE	All	9/27/2014	4/26/2015
PEP	METZTAP 230 KV MET-TAK9	LINE	All	9/27/2014	4/26/2015
PL	BLOOMING230 KV BLO-BUS	LINE	All	7/1/2014	5/31/2015
PL	COPPERST230 KV COP-NLE	LINE	All	9/15/2014	6/1/2015
PL	EGYPT 138 KV EGY-SCH1	LINE	All	6/3/2014 7/7/2014	7/3/2014 8/15/2014
PL	FACEROCK115 KV 2	XFMR	All	8/1/2014	9/26/2014
PL	FACEROCK115 KV FAC-FIV2	LINE	All	8/1/2014	9/26/2014
PL	JUNIATA 500 KV 2	XFMR	All	12/17/2013	12/19/2014
PL	MARTINSC230 KV MAR-SIE2	LINE	All	8/26/2014	10/24/2014
PN	PINEY 115 KV PIN-TIM	LINE	All	9/9/2014 10/6/2014 11/6/2014	10/3/2014 11/4/2014 12/5/2014
PS-N	ATHENIA 230 KV ATH-SAD	LINE	All	9/15/2014 12/1/2014	10/18/2014 1/9/2015
PS-N	BERGEN 138 KV 132-3	XFMR	All	6/6/2013	12/31/2015
PS-N	BRANCHBU500 KV 500-3T	XFMR	All	3/1/2015	4/30/2015
PS-N	DEANS 500 KV 500-1	XFMR	All	9/7/2014	12/20/2014
PS-N	DOREMUSP138 KV DOR-NEW	LINE	All	1/2/2015	5/31/2015
PS-N	ESSEX 230 KV 220-2	XFMR	All	12/1/2014	2/15/2015
PS-N	ESSEX 230 KV ESS-KEA	LINE	All	12/1/2014	2/15/2015
PS-N	FAIRLAWN138 KV FAI-SAD	LINE	All	9/1/2014	5/22/2015
PS-N	NEWPS 230 KV NEW-SWAQ	LINE	All	11/1/2014	4/10/2015
PS-S	CAMDEN 230 KV CAM-RIC	LINE	All	9/1/2014	11/28/2014