



Transmission Expansion Advisory Committee Meeting

2009 Market Efficiency Analysis Results Update

October 22, 2009



Identifying Future Congestion Bottlenecks

- Simulations made of study years 2012, 2015 and 2018 using 2013 RTEP power flow case
- Review results to identify future constraints causing significant congestion

Congestion by Constraints for Study Years 2012, 2015, and 2018,

		2012 Study Year		2015 Study Year		2018 Study Year	
		2013 System Topology (see Note 1)		2013 System Topology (see Note 2)		2013 System Topology (see Note 2)	
Constraint	From/Area	Frequency (Hours)	Market Congestion (\$Millions)	Frequency (Hours)	Market Congestion (\$Millions)	Frequency (Hours)	Market Congestion (\$Millions)
AP-South Interface	-	2616	223.1	1564	77.5	3228	384.8
Western Interface	-	1313	121.4	0	0	0	0
Central Interface	-	1432	43.6	1531	25.6	2468	89.3
8CLOVER - 6CLOVER	VIEP - VIEP	1548	40.1	721	17.6	1668	66
05CLOVRD - 8LEXNGTN	AEP - VIEP	837	25.2	117	1.3	966	29.6
ALTOONA - BEAR RCK	PENNELEC - PENNELEC	622	23.3	796	33.5	2175	111.4
15ELRM 5 - 01MITCHL	APS - DQE	2084	15.3	513	3.8	903	9.4
BLA-BED Interface	-	91	14.3	14	2.7	22	8.3
01PRNTY - 8MT STM	APS - VIEP	84	2.5	0	0	0	0
CONOWG01 - COLOR PE	PECO - DPLC	114	2.3	8	0	3	0
01CHARLR - 01MITCHL	APS - APS	190	2.1	26	0.1	92	0.6
8LEXNGTN - 8DOOMS	VIEP - VIEP	23	1.9	3	0.2	16	1.7
HOMER CY - WATRC345	PENNELEC - NYISO	280	1.2	142	0.5	433	2.7
SHAWVL 1 - SHAW1MID	PENNELEC - PENNELEC	144	0.8	171	1.1	359	2.1
01MITCHL - 01UNIONJ	APS - APS	20	0.6	0	0	26	1.3
GRACETON - BAGLEY13	BG&E - BG&E	3	0.6	8	0	19	0.6
NRGDOVER - KENT	DPLC - DPLC	161	0.5	41	0.1	30	0.1
6BREMO - 6POWHATN	VIEP - VIEP	8	0.5	0	0	59	1.1
GRACETON - PCHBTMTP	PECO - BG&E	53	0.4	113	0.3	347	2
CROYDON - BRLGNT11	PECO - PSEG	3487	0.4	2514	0.1	3153	0.5
HOMER CT - SHELOCTA	PENNELEC - PENNELEC	108	0.4	30	0	232	0.3
WANEETA3 - RICHMOND	PECO - PECO	1810	0.3	1004	0.2	2011	0.8
05KAMMER - 05WBELLA	AEP - AEP	31	0.3	0	0	5	0
SHAWVL 2 - SHAW2MID	PENNELEC - PENNELEC	109	0.2	181	0.7	296	0.6
ERIE SE - ERIE E	PENNELEC - PENNELEC	200	0.2	22	0	29	0
ATHENIA - BERGEN	PSEG - PSEG	400	0.2	0	0	0	0
Eastern Interface	-	6	0.1	30	2.4	42	0.9
WLOOP; B - STARWLOO	COED - COED	862	0.1	995	0.1	830	0.1
BRUNNER - YORKANA	METED - PPL	6	0.1	1	0	5	0
BURT2334 - SANDY34T	BG&E - PEPSCO	1	0	121	12.1	117	16.4
LINWOOD - CHICHST2	PECO - PECO	2	0	117	3.9	89	1
PRINTZ - RIDLEY	PECO - PECO	0	0	18	3.1	8	0.4
IRONWOOD - S LEBTAP	METED - METED	0	0	672	2.3	1085	13.2
LUMBRN - COOKSTOW	JCPL - PSEG	7	0	100	1	160	0
COXSCRNR - LUMBRN	PSEG - PSEG	774	0	512	0.4	1021	0.4
WESTFALL - TYRONE N	PENNELEC - PENNELEC	2	0	38	0.3	67	1
BRIGH014 - BURT2314	PEPCO - PEPCO	0	0	3	0.2	0	0
PONTI; B - WILTO; B	COED - COED	1	0	10	0.1	236	16.6
50045005 Interface	-	0	0	2	0.1	5	0.7
FORDML90 - EMILIE7	PECO - PECO	0	0	0	0	724	1.7
KENDA;BU - LOCKP; B	COED - COED	0	0	0	0	56	1.4
BYRON; R - CHERR; R	COED - COED	0	0	1	0	45	1
O24 - DRES; R	COED - COED	0	0	0	0	15	1
CONASTON - MT CAR22	BG&E - BG&E	0	0	2	0	22	0.3
GOODI;2R - LOCKP; R	COED - COED	0	0	0	0	4	0.3
QUAD3-11 - H471 ;	COED - COED	13	0	10	0	14	0.3
GESG TAP - GORE JCT	PENNELEC - PENNELEC	0	0	28	0	72	0.2
CHERR; R - SILVE; R	COED - COED	0	0	0	0	5	0.1
GOODI;4B - LOCKP; B	COED - COED	0	0	0	0	3	0.1
JUNIATA - DAUPH-H2	PPL - PPL	0	0	0	0	4	0.1
		522		191.3		770.4	

Indicates Congestion Costs of at least \$5 million in study year 2012, 2015, or 2018.

Note 1: Includes TRAIL and Susquehanna-Roseland 500 KV. Does not includes PATH, MAPP, Branchburg-Roseland 500 KV, and Roseland-Hudson 500 KV upgrades

Note 2: Includes TRAIL, PATH, Susquehanna-Roseland 500 KV, MAPP, Branchburg-Roseland 500 KV, and Roseland-Hudson 500 KV upgrades.



Constraints showing Significant Congestion Levels in 2012 , 2015, and 2018 Simulations

Constraints with at least \$5 million of Simulated Future Congestion

Constraint	Observations
AP-South Interface	PATH (6/2014) significantly reduces but does not eliminate congestion
BLA-BED Interface	PATH (6/2014) significantly reduces but does not eliminate congestion
Western Interface	PATH (6/2014) eliminates congestion
Central Interface	MAPP (6/2014) significantly reduces but does not eliminate congestion
05CLOVRD - 8LEXNGTN	PATH (6/2014) significantly reduces but does not eliminate congestion
8CLOVER - 6CLOVER	PATH (6/2014) significantly reduces but does not eliminate congestion
ALTOONA - BEAR RCK	Significant levels of congestion observed on Penelec's underlying system - consistent throughout study period
15ELRM 5 - 01MITCHL	502-Prexy replacement upgrades (6/2010) were not modeled in RTEP case - these upgrades will be included in future simulations
BURT2334 - SANDY34T	B0870 (6/2013 - rebuild using double bundle 1033 ACSR. Double circuit 2314/2334) not modeled in RTEP case. To be included in future simulations
IRONWOOD - S.LEBTAP	Significant congestion appears in 2018 simulation. Will closely monitor in future Market Efficiency Analysis.
PONTI; B - WILTO:B	Significant congestion appears in 2018 simulation. Will closely monitor in future Market Efficiency Analysis.

- 15ELRM 5 -01MITCHL
 - Modeling of Prexy replacement upgrades scheduled to be completed by 6/2010 eliminates significant congestion in simulation runs for 2012, 2015 and 2018
- BURT2334 – SANDY34T
 - B0870 upgrade scheduled for 6/2013 will increase rating which eliminates congestion in simulation runs for 2015 and 2018.
- ALTOONA-BEAR RCK
 - Currently running Cost/Benefit analysis on adding a Conemaugh 500/230 KV transformer and new line from Conemaugh-Seward 230 KV.
- 8CLOVER- 6CLOVER
 - Currently running Cost/Benefit analysis on adding a second CLOVER 500/230 KV transformer.