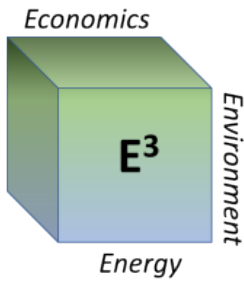


Update on Default MSOC Proposal: Back Cast with Historic Prices and Net CONE

Paul M. Sotkiewicz, Ph.D.

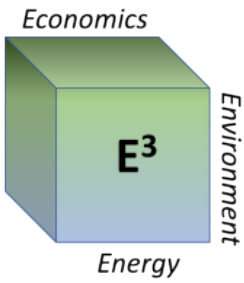
April 11, 2022

RASTF



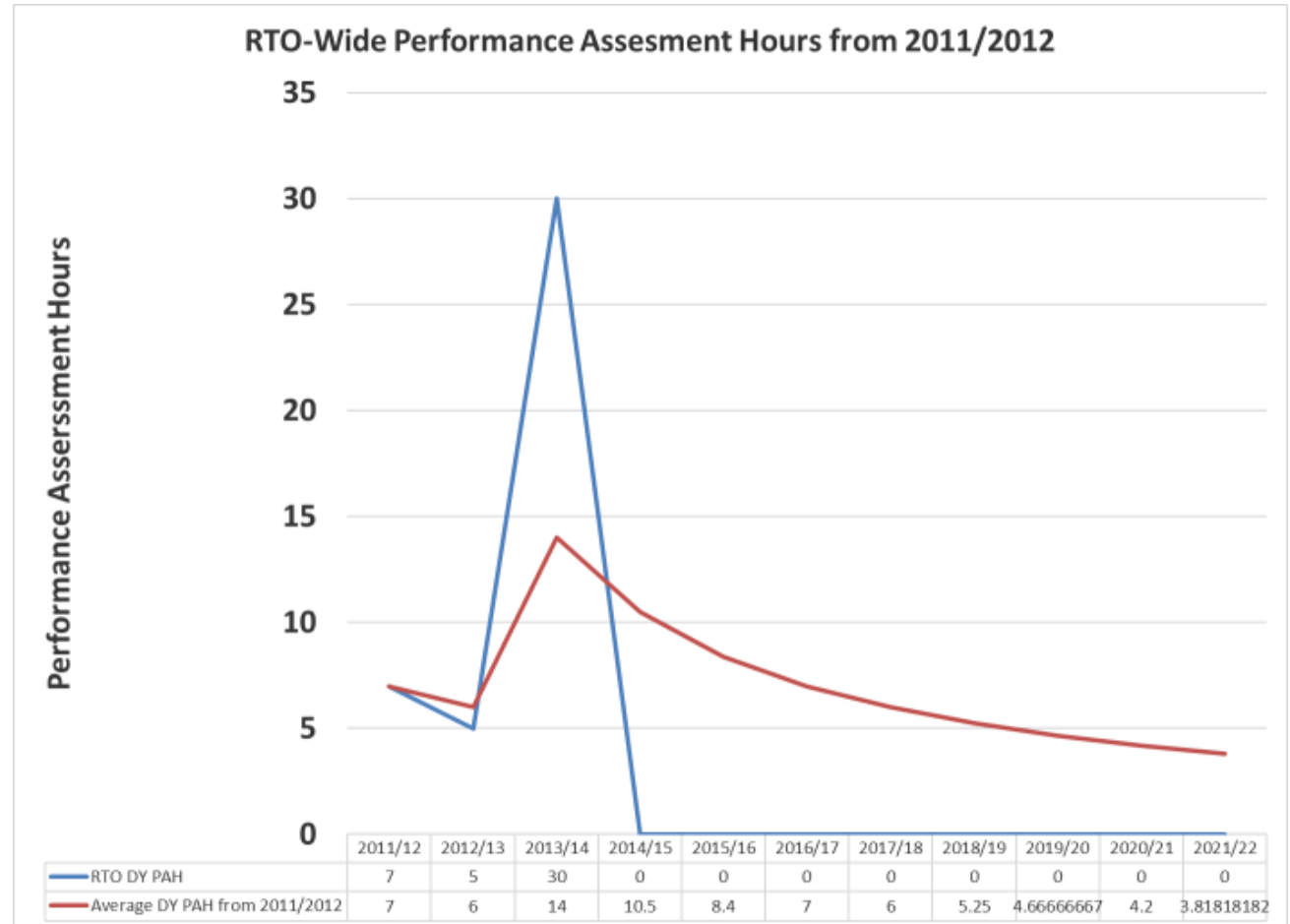
Overview and Context

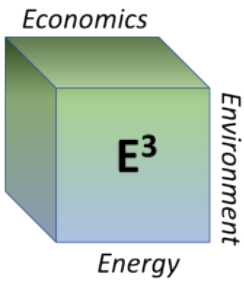
- This presentation is in response to requests for a back cast on the MSOC proposed by E-Cubed that is the variant on Net CONE*B.
- Question is to look at historic PAH/PAI, Net CONE, and Prices to see if the marginal offer may have been reviewed.
 - Note, E-Cubed does not endorse the idea that marginal offers must be reviewed.
 - But for some exceptions, the IMM has noted RPM BRA outcomes have been competitive but for a few bad actors
- Conclusion: Back cast shows that the proposed method would, in most LDAs, results in the marginal offers having been reviewed.
 - Exceptions are in EMAAC (PS) and SWMAAC (BGE & Pepco) which transmission limited, but have cleared with larger (MAAC) LDA.



RTO-Wide PAH

- There have been no PAH in the RTO-wide area since 2013/2014 DY.
- Through today, only 3.8 PAH on average since 2011/2012
- PAH in sub regions of RTO are additive to the RTO value.



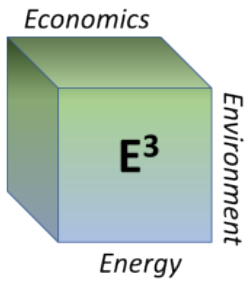


Mid-Atlantic & Dominion

- More hours in this subregion as it includes RTO-wide and PAH for Mid Atl-Dom only.
- Since 2011/2012, the current PAH is 5.72 PAH to date.
- Mid-Atl-Dom wide since 2013/2014

**Mid Atlantic & Dom Performance Assessment Hours Since 2011/2012
(Includes RTO-wide PAH since Mid Atl & Dom is a Subregion of RTO)**

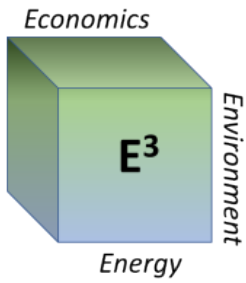




Zonal Alone PAH events on Average Since 2011/2012

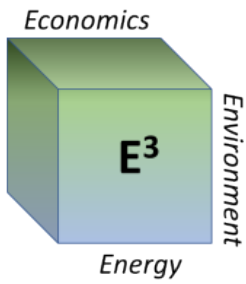
Zone	Average PAH since 2011/2012
BGE	2.454545
Pepco	1.454545
Dominion	0.6
ComEd	0.818182
AEP	2.454545
ATSI	1.909091
AE	0.818182
DLCO	0.363636

- These hours would be additive to the PAH or the wider parent LDA/zone in which the transmission zone resides.
- For example, AEP and ATSI would be added to RTO-wide, increasing the “risk” of PAH
 - AEP 2.45 + RTO 3.82 = 6.27 PAH
 - ATSI 1.91 + RTO 3.82 = 5.73 PAH
- However, BGE and Pepco are in Mid-Atl
 - BGE 2.45 + MidAtl 5.73 = 8.28 PAH



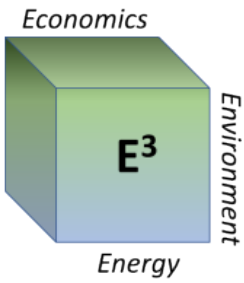
Historic CP Clearing Prices by LDA

	RTO	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH	PEPCO	ATSI	ATSI-CLEVELAN D	COMED	BGE	PL	DAYTON	DEOK
16/17	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	\$134.00	**	**	**	**	**
17/18	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	\$151.50	**	**
18/19	\$164.77	\$164.77	\$225.42	\$164.77	\$225.42	\$225.42	\$225.42	\$164.77	\$164.77	\$164.77	\$215.00	\$164.77	\$164.77	**	**
19/20	\$100.00	\$100.00	\$119.77	\$100.00	\$119.77	\$119.77	\$119.77	\$100.00	\$100.00	\$100.00	\$202.77	\$100.30	\$100.00	**	**
20/21	\$76.53	\$86.04	\$187.87	\$86.04	\$187.87	\$187.87	\$187.87	\$86.04	\$76.53	\$76.53	\$188.12	\$86.04	\$86.04	\$76.53	\$130.00
21/22	\$140.00	\$140.00	\$165.73	\$140.00	\$204.29	\$204.29	\$165.73	\$140.00	\$171.33	\$171.33	\$195.55	\$200.30	\$140.00	\$140.00	\$140.00
22/23	\$50.00	\$95.79	\$97.86	\$95.79	\$97.86	\$97.86	\$97.86	\$95.79	\$50.00	\$50.00	\$68.96	\$126.50	\$95.79	\$50.00	\$71.69
23/24															



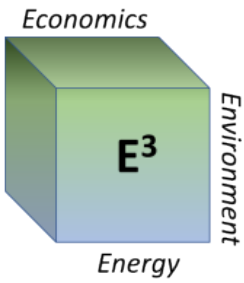
Historic Net CONE by LDA

	RTO	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH	PEPCO	ATSI	ATSI-CLEVELAN D	COMED	BGE	PL	DAYTON	DEOK
16/17	\$330.53	\$276.90	\$329.94	\$276.90	\$329.94	\$329.94	\$329.94	\$276.90	\$362.64	\$362.64					
17/18	\$351.39	\$313.00	\$365.87	\$313.00	\$365.87	\$365.87	\$365.87	\$313.00	\$373.75	\$373.75	\$373.75	\$313.00	\$354.46		
18/19	\$300.57	\$271.67	\$284.82	\$243.17	\$297.99	\$297.99	\$258.32	\$250.74	\$271.72	\$271.72	\$320.29	\$235.59	\$284.79		
19/20	\$299.30	\$262.02	\$283.63	\$229.93	\$303.30	\$303.30	\$262.27	\$244.23	\$264.06	\$264.06	\$328.44	\$215.62	\$277.74		
20/21	\$292.95	\$252.40	\$283.10	\$202.43	\$306.92	\$306.92	\$254.97	\$226.53	\$261.17	\$261.17	\$329.81	\$178.33	\$267.33	\$273.14	\$282.46
21/22	\$321.57	\$292.69	\$313.77	\$264.88	\$330.61	\$330.61	\$300.18	\$285.42	\$306.87	\$306.87	\$344.36	\$244.33	\$300.72	\$312.56	\$312.80
22/23	\$260.50	\$245.12	\$259.36	\$242.95	\$268.44	\$268.44	\$236.18	\$259.52	\$230.50	\$230.50	\$247.86	\$226.37	\$250.41	\$226.32	\$223.63
23/24	\$274.96	\$275.08	\$291.36	\$244.72	\$299.61	\$299.61	\$264.91	\$270.00	\$263.07	\$263.07	\$284.97	\$219.44	\$279.52	\$246.93	\$252.63



Implied MSOC under Proposed Method Looking Back

	RTO	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH	PEPCO	ATSI	ATSI-CLEVELAN D	COMED	BGE	PL	DAYTON	DEOK
16/17	98.33268	123.5666	147.2357	123.5666	147.2357	147.2357	147.2357	123.5666	161.8281	161.8281					
17/18	104.5385	139.6763	163.2695	139.6763	163.2695	163.2695	163.2695	139.6763	166.7859	166.7859	166.7859	139.6763	158.1778		
18/19	89.41958	121.2327	127.1009	108.5146	132.978	132.978	115.2753	111.8927	121.2551	121.2551	142.9294	105.132	127.0875		
19/20	89.04175	116.9264	126.5699	102.6063	135.3476	135.3476	117.038	108.9876	117.8368	117.8368	146.5664	96.22043	123.9415		
20/21	69.7221	90.1068	101.0667	72.26751	109.5704	109.5704	91.02429	80.87121	93.23769	93.23769	117.7422	63.66381	95.43681	65.00732	67.22548
21/22	63.77805	87.07528	93.34658	78.8018	98.35648	98.35648	89.30355	84.91245	91.29383	91.29383	102.4471	72.68818	89.4642	61.99107	62.03867
22/23	30.9995	48.61547	51.43973	48.18508	53.2406	53.2406	46.84237	51.47147	45.71583	45.71583	49.1589	44.89672	49.66465	26.93208	26.61197
23/24	29.68193	49.10178	52.00776	43.68252	53.48039	53.48039	47.28644	48.195	46.958	46.958	50.86715	39.17004	49.89432	26.65609	27.27141



CP Price – MSOC

Positive value implies marginal offer would have been reviewed
 Based only on RTO or Mid-Atl & Dom values for average PAH only
 Zonal specific differences not shown.

	RTO	MAAC	EMAAC	SWMAAC	PS	PS NORTH	DPL SOUTH	PEPCO	ATSI	ATSI-CLEVELAN D	COMED	BGE	PL	DAYTON	DEOK
16/17	35.66733	10.43338	-13.2357	10.43338	-13.2357	-13.2357	-13.2357	10.43338	26.1146	26.1146					
17/18	46.96148	11.82375	-11.7695	11.82375	-11.7695	-11.7695	-11.7695	11.82375	40.30938	40.30938	40.30938	11.82375	-6.67778		
18/19	75.35043	43.53726	98.31908	56.25539	92.44196	92.44196	110.1447	52.87728	83.9333	83.9333	119.7137	59.63796	37.68246		
19/20	10.95825	-16.9264	-6.79989	-2.60626	-15.5776	-15.5776	2.732013	-8.98764	21.44215	21.44215	105.0591	4.079575	-23.9415		
20/21	6.8079	-4.0668	86.8033	13.77249	78.29956	78.29956	96.84571	5.16879	14.37154	14.37154	109.6252	22.37619	-9.39681	11.52268	62.77452
21/22	76.22195	52.92473	72.38343	61.1982	105.9335	105.9335	76.42645	55.08755	110.4675	110.4675	127.2519	127.6118	50.5358	78.00893	77.96133
22/23	19.0005	47.17453	46.42027	47.60492	44.6194	44.6194	51.01763	44.31853	22.5705	22.5705	39.46466	81.60328	46.12535	23.06792	45.07803
23/24															