

Correction to Comments

PJM LAS
November 24, 2010



Corrected Measures of PJM Forecast Accuracy

- Our calculations of forecast accuracy presented last week contained an inadvertent error. The most recent data included when the study was updated was not weather normalized. This is now corrected on the following pages. Our thanks to Jim Wilson for spotting our error.
- The mean and standard error are the correct metrics to use in studying forecast accuracy. The mean error is the most commonly used measure of forecast bias (refer to your favorite econometrics text). The standard error is the measure of dispersion used to test whether the bias is significant (“Truth is a t-value greater than 2. Absolute truth is a t-value greater than 4.”)
- The customers in these three zones have a combined metered summer peak demand of 12.9 gW and a combined annual Net Energy for Load of 62.4 tWh.

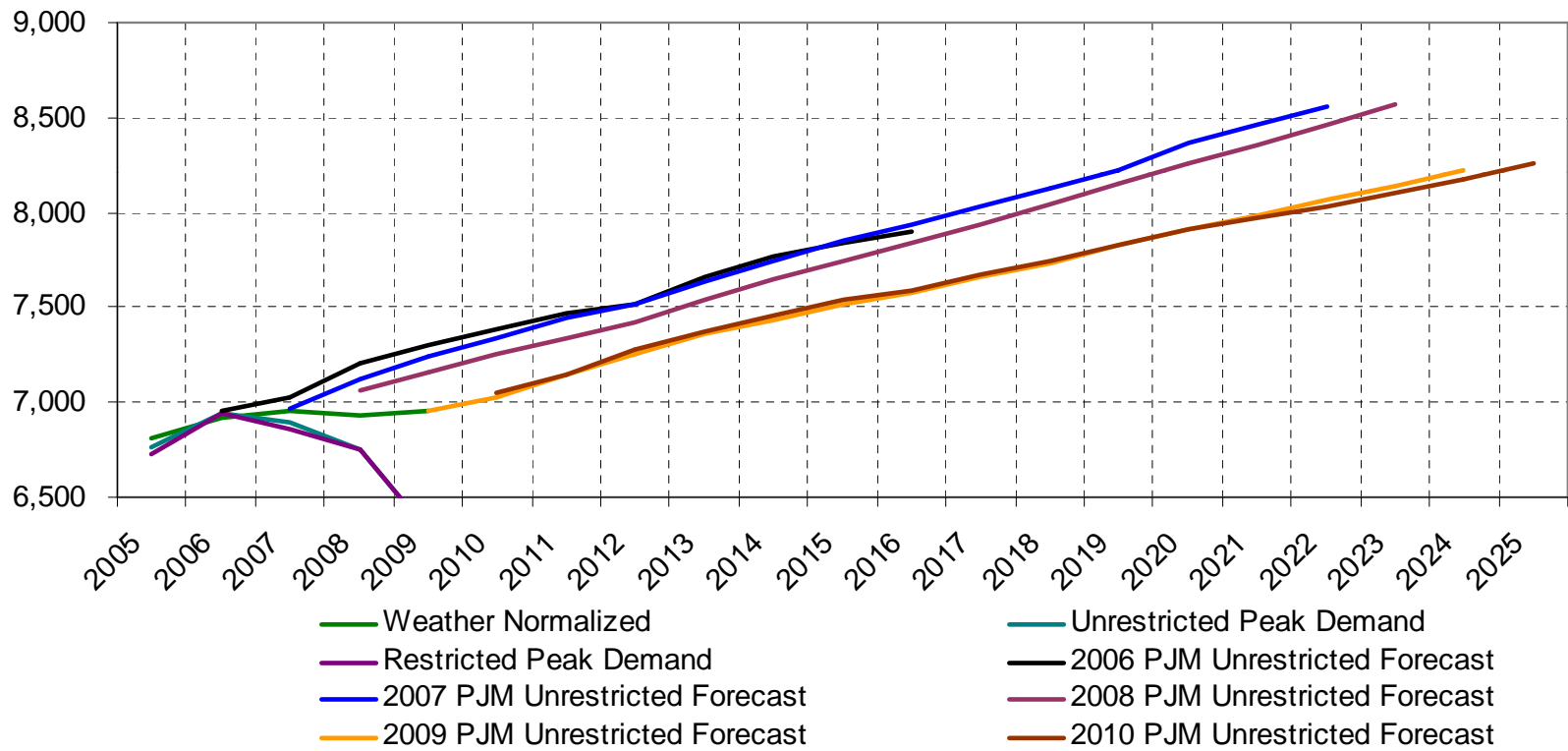
PJM's Forecast Track Record - PEPCO

<u>PEPCO Zone</u>	<u>1-Year</u>	<u>2-Year</u>	<u>3-Year</u>	<u>4-Year</u>	<u>5-Year</u>	<u>6-Year</u>	<u>7-Year</u>	<u>8-Year</u>
2009 PJM Unrestricted Forecast	-							
2008 PJM Unrestricted Forecast	127	199						
2007 PJM Unrestricted Forecast	22	196	278					
2006 PJM Unrestricted Forecast	33	71	270	336				
2005 PJM Unrestricted Forecast	(291)	(274)	(173)	(21)	84			
2004 PJM Unrestricted Forecast	84	(216)	(204)	(111)	33	130		
2003 PJM Unrestricted Forecast	71	84	(216)	(204)	(111)	33	130	
2002 PJM Unrestricted Forecast	23	66	99	(144)	(60)	91	300	460
2001 PJM Unrestricted Forecast	(48)	23	66	99	(144)	(60)	91	300
2000 PJM Unrestricted Forecast	16	(108)	(37)	6	39	(204)	(120)	31
1999 PJM Unrestricted Forecast	8	16	(108)	(37)	6	39	(204)	(120)
Mean Error	4.07	5.68	-2.80	-9.53	-21.89	4.79	39.40	167.75
Standard Error	108.36	159.27	192.18	168.37	84.64	120.71	202.14	261.02

- Over the period 1999-2008, the mean error of the forecast for the 1-period through 8-period forecasts is small relative to the standard error.
- It really is true that on a weather normalized basis the error was zero on a 1-period forecast in 2009 for the PEPCO zone. It was purely good fortune.
- PHI believes that any change in PJM's forecast methodology should be expected to improve this already excellent record.

PJM's Forecast Track Record - PEPCO

PEPCO Peak Demand

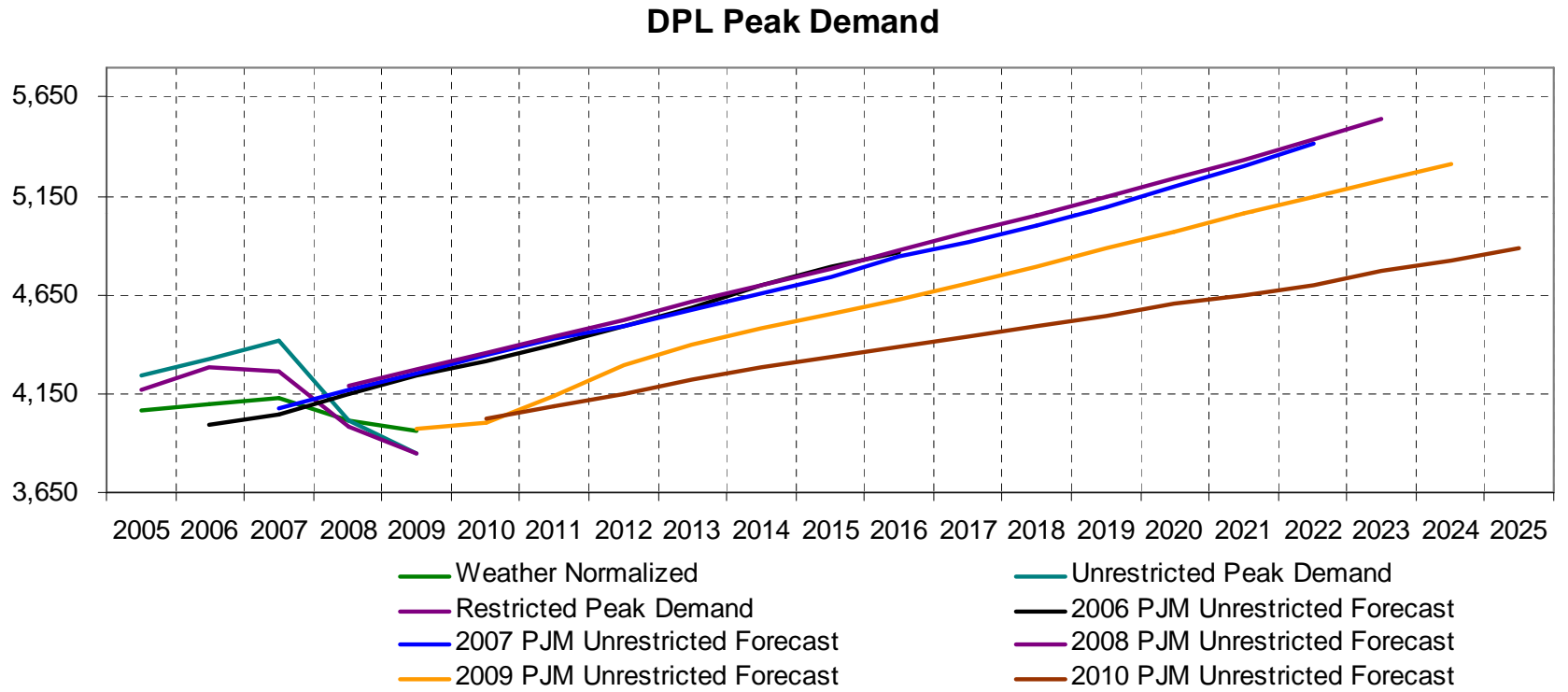


PJM's Forecast Track Record - DPL

<u>DPL Zone</u>	<u>1-Year</u>	<u>2-Year</u>	<u>3-Year</u>	<u>4-Year</u>	<u>5-Year</u>	<u>6-Year</u>	<u>7-Year</u>	<u>8-Year</u>
2009 PJM Unrestricted Forecast	12							
2008 PJM Unrestricted Forecast	182	318						
2007 PJM Unrestricted Forecast	(54)	156	296					
2006 PJM Unrestricted Forecast	(106)	(90)	140	284				
2005 PJM Unrestricted Forecast	(42)	43	127	362	527			
2004 PJM Unrestricted Forecast	105	(46)	37	122	362	535		
2003 PJM Unrestricted Forecast	50	189	72	148	224	460	626	
2002 PJM Unrestricted Forecast	(35)	81	179	16	66	122	343	461
2001 PJM Unrestricted Forecast	(77)	(100)	15	111	(54)	(6)	49	268
2000 PJM Unrestricted Forecast	19	(112)	(174)	(102)	(46)	(244)	(209)	(168)
1999 PJM Unrestricted Forecast	117	(23)	(132)	(183)	(100)	(35)	(232)	(202)
Mean Error	15.55	41.60	62.22	94.75	139.86	138.67	115.40	89.75
Standard Error	90.14	143.59	147.91	182.50	238.54	302.70	368.39	327.19

- As the time horizon is extended, the standard error of the forecast increases, measuring the amount of forecast risk.
- The error bands are trumpet shaped. By 15 years out, the standard error of the forecast in this example would reach approximately 1,500 MW.

PJM's Forecast Track Record - DPL



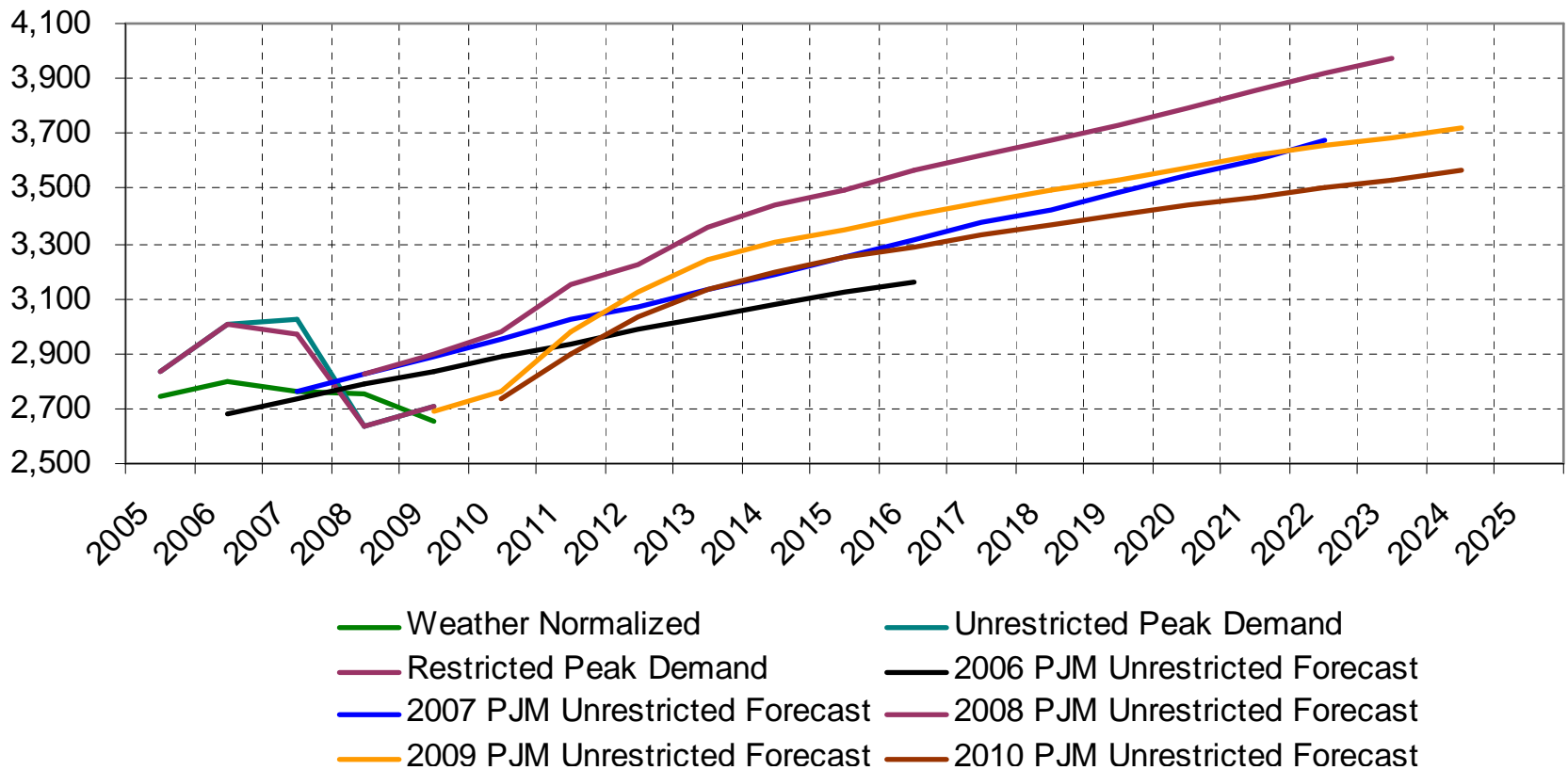
PJM's Forecast Track Record - ACE

<u>ACE Zone</u>	<u>1-Year</u>	<u>2-Year</u>	<u>3-Year</u>	<u>4-Year</u>	<u>5-Year</u>	<u>6-Year</u>	<u>7-Year</u>	<u>8-Year</u>
2009 PJM Unrestricted Forecast	42							
2008 PJM Unrestricted Forecast	79	247						
2007 PJM Unrestricted Forecast	(2)	73	235					
2006 PJM Unrestricted Forecast	(121)	(24)	38	187				
2005 PJM Unrestricted Forecast	(1)	1	103	175	338			
2004 PJM Unrestricted Forecast	126	54	61	163	245	417		
2003 PJM Unrestricted Forecast	93	219	147	154	256	338	510	
2002 PJM Unrestricted Forecast	(16)	51	143	34	30	121	189	334
2001 PJM Unrestricted Forecast	(33)	(91)	(28)	62	(51)	(57)	31	97
2000 PJM Unrestricted Forecast	(52)	(126)	(205)	(64)	(1)	(141)	(170)	(100)
1999 PJM Unrestricted Forecast	(2)	(87)	(56)	(81)	(24)	84	(17)	(10)
Mean Error	10.29	31.71	48.68	78.77	113.29	127.00	108.60	80.25
Standard Error	70.75	125.62	131.15	108.15	160.23	217.34	258.36	187.35

- In all three zones, for 1-year through 8-year forecasts, the mean error is only about one half of a standard error.
- There is absolutely no indication that the PJM Load Report contains any forecast bias, as that subject is understood by statisticians.
- Any change to PJM's forecasting methods must reasonably be expected to improve on this excellent track record. Changes must be made in a thoughtful and deliberate process.

PJM's Forecast Track Record - ACE

ACE Peak Demand



Thank you.

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