

# State of the PJM Market January through April, 2010

PJM Members Committee  
June 3, 2010

Joseph Bowring

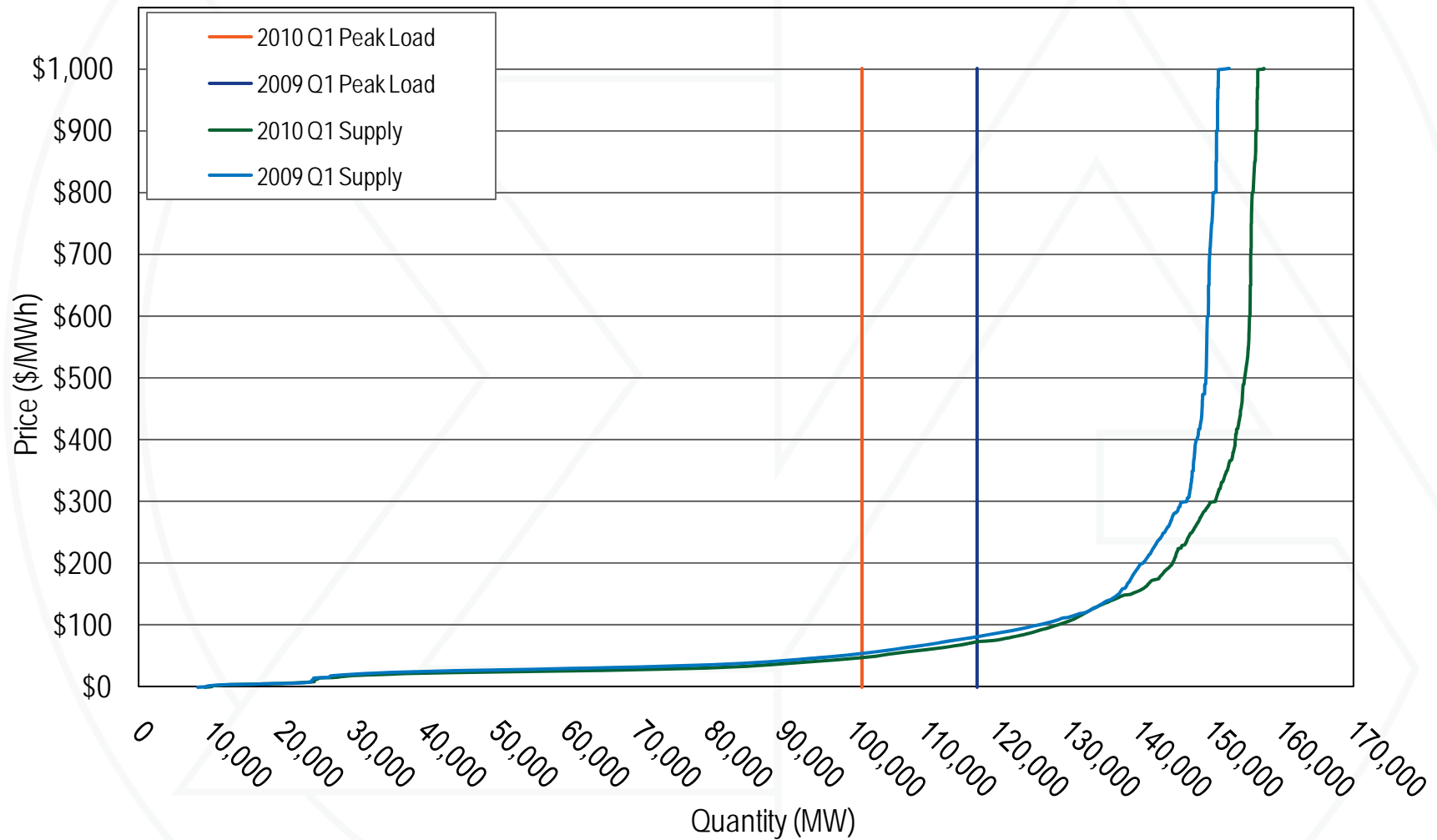


Monitoring Analytics

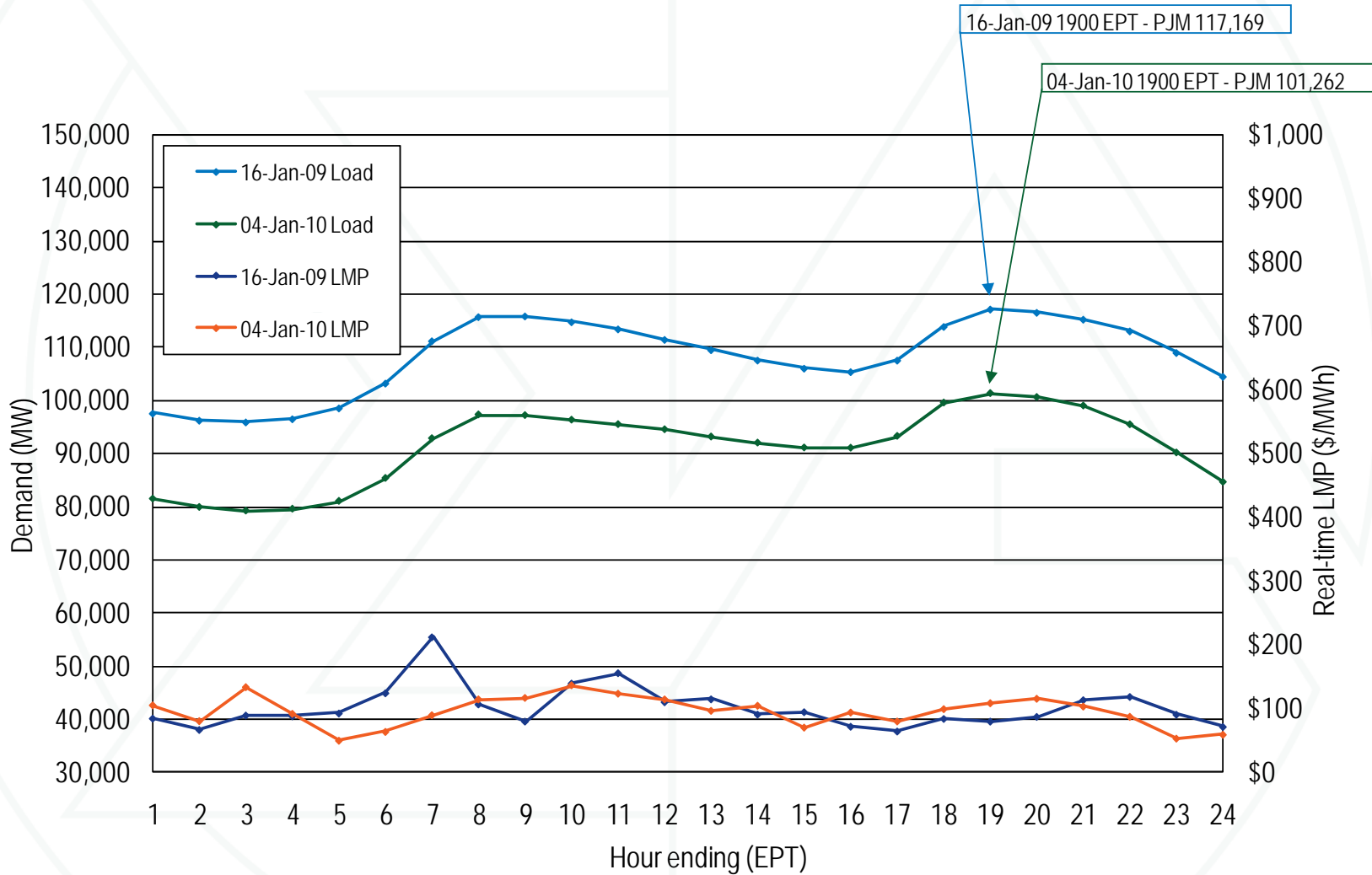
## Total price per MWh: January through April 2010

Category	\$/MWh	Percent
Load Weighted Energy	\$44.14	71.5%
Capacity	\$11.52	18.7%
Transmission Service Charges	\$4.04	6.6%
Operating Reserves (Uplift)	\$0.63	1.0%
PJM Administrative Fees	\$0.37	0.6%
Reactive	\$0.37	0.6%
Regulation	\$0.33	0.5%
Transmission Enhancement Cost Recovery	\$0.13	0.2%
Transmssion Owner (Schedule 1A)	\$0.09	0.1%
Synchronized Reserves	\$0.05	0.1%
NERC/RFC	\$0.02	0.0%
Black Start	\$0.02	0.0%
RTO startup and Expansion	\$0.01	0.0%
Load Response	\$0.01	0.0%
Transmission Facility Charges	\$0.00	0.0%
Total	\$61.72	100.0%

## Average PJM aggregate supply curves: January through April 2009 and 2010



# PJM peak-load comparison: January through April Peak 2009 vs. January through April Peak 2010



## Annual offer-capping statistics: Calendar years 2006 to April 2010

	Real Time		Day Ahead	
	Unit Hours Capped	MW Capped	Unit Hours Capped	MW Capped
2006	1.0%	0.2%	0.4%	0.1%
2007	1.1%	0.2%	0.2%	0.0%
2008	1.0%	0.2%	0.2%	0.1%
2009	0.4%	0.1%	0.1%	0.0%
2010	0.7%	0.2%	0.2%	0.1%

## Offer-capped unit statistics: January through April 2010

2010 Offer-Capped Hours						
Run Hours Offer-Capped, Percent Greater Than Or Equal To:	Hours $\geq$ 500	Hours $\geq$ 400 and $<$ 500	Hours $\geq$ 300 and $<$ 400	Hours $\geq$ 200 and $<$ 300	Hours $\geq$ 100 and $<$ 200	Hours $\geq$ 1 and $<$ 100
90%	0	0	0	1	0	29
80% and $<$ 90%	0	0	0	0	0	18
75% and $<$ 80%	1	0	0	0	0	8
70% and $<$ 75%	1	0	0	0	0	4
60% and $<$ 70%	0	0	0	0	0	16
50% and $<$ 60%	0	0	0	0	1	11
25% and $<$ 50%	0	0	1	0	0	27
10% and $<$ 25%	0	1	0	2	0	39

# Type of fuel used (By real-time marginal units): January through April 2010

Fuel Type	2010
Coal	72%
Natural Gas	23%
Wind	2%
Petroleum	1%
Landfill Gas	1%
Misc	0%



## Frequently mitigated units and associated units (By month): January through April 2010

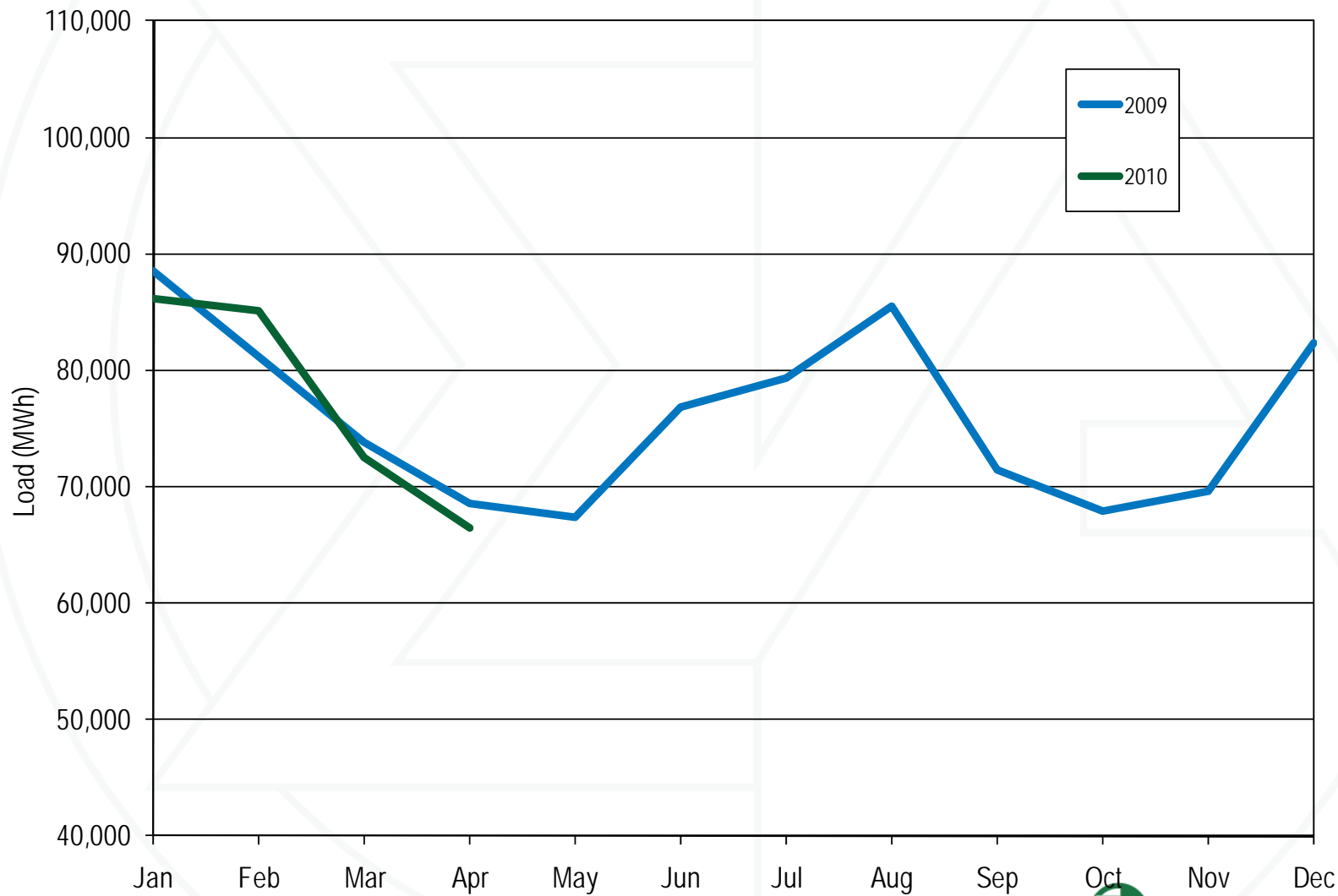
	FMUs and AUs			Total Eligible for Any Adder
	Tier 1	Tier 2	Tier 3	
January	35	31	27	93
February	35	28	31	94
March	42	16	44	102
April	38	13	47	98



## PJM real-time average load: Calendar years 1998 to April 2010

	PJM Real-Time Load (MWh)			Year-to-Year Change		
	Average	Median	Standard Deviation	Average	Median	Standard Deviation
1998	28,578	28,653	5,511	NA	NA	NA
1999	29,641	29,341	5,956	3.7%	2.4%	8.1%
2000	30,113	30,170	5,529	1.6%	2.8%	(7.2%)
2001	30,297	30,219	5,873	0.6%	0.2%	6.2%
2002	35,731	34,746	8,013	17.9%	15.0%	36.5%
2003	37,398	37,031	6,832	4.7%	6.6%	(14.7%)
2004	49,963	48,103	13,004	33.6%	29.9%	90.3%
2005	78,150	76,247	16,296	56.4%	58.5%	25.3%
2006	79,471	78,473	14,534	1.7%	2.9%	(10.8%)
2007	81,681	80,914	14,618	2.8%	3.1%	0.6%
2008	79,515	78,481	13,758	(2.7%)	(3.0%)	(5.9%)
2009	76,035	75,471	13,260	(4.4%)	(3.8%)	(3.6%)
2010	77,461	76,776	12,017	1.9%	1.7%	(9.4%)

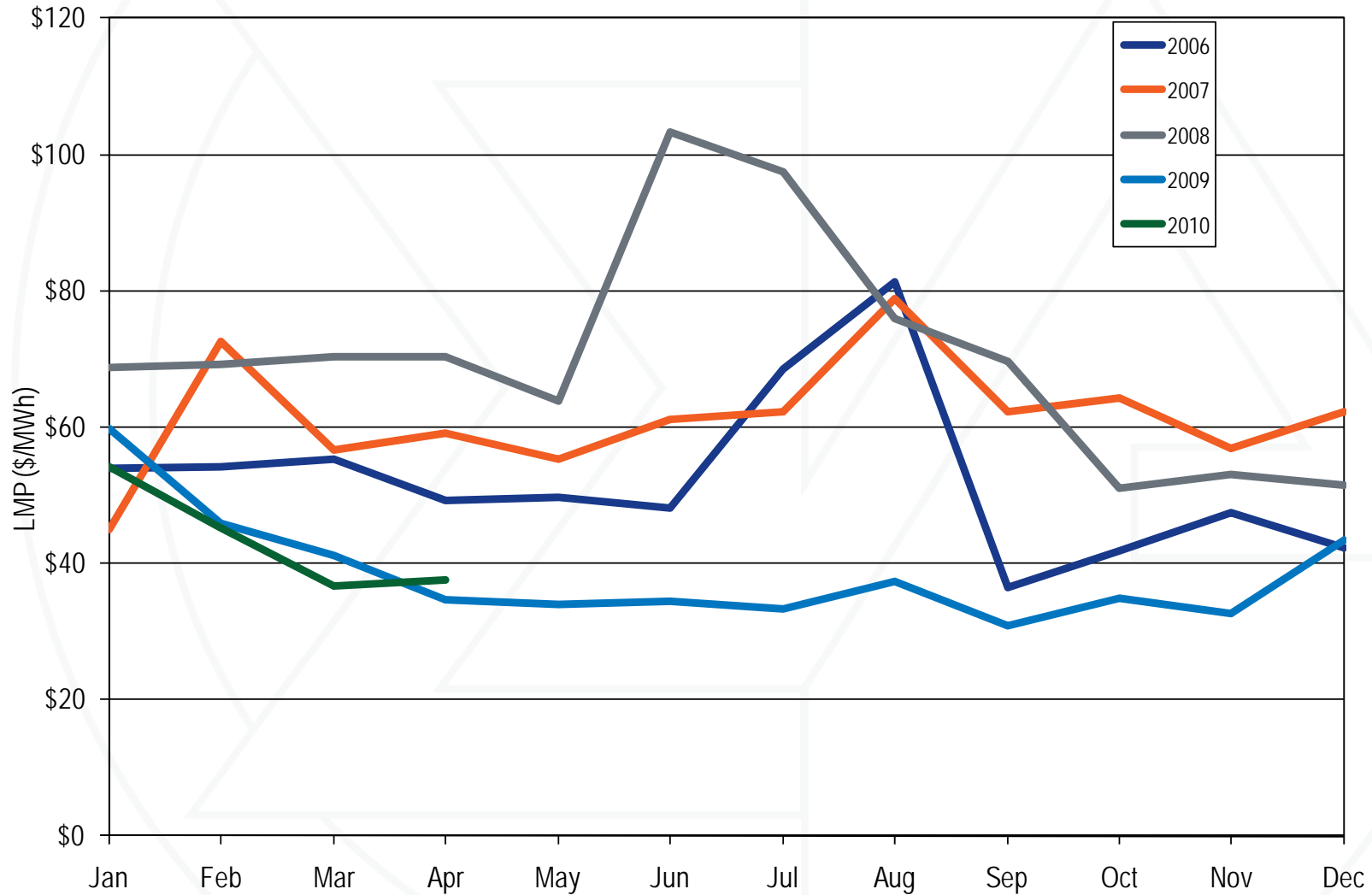
## PJM real-time average load: Calendar years 2009 through April, 2010



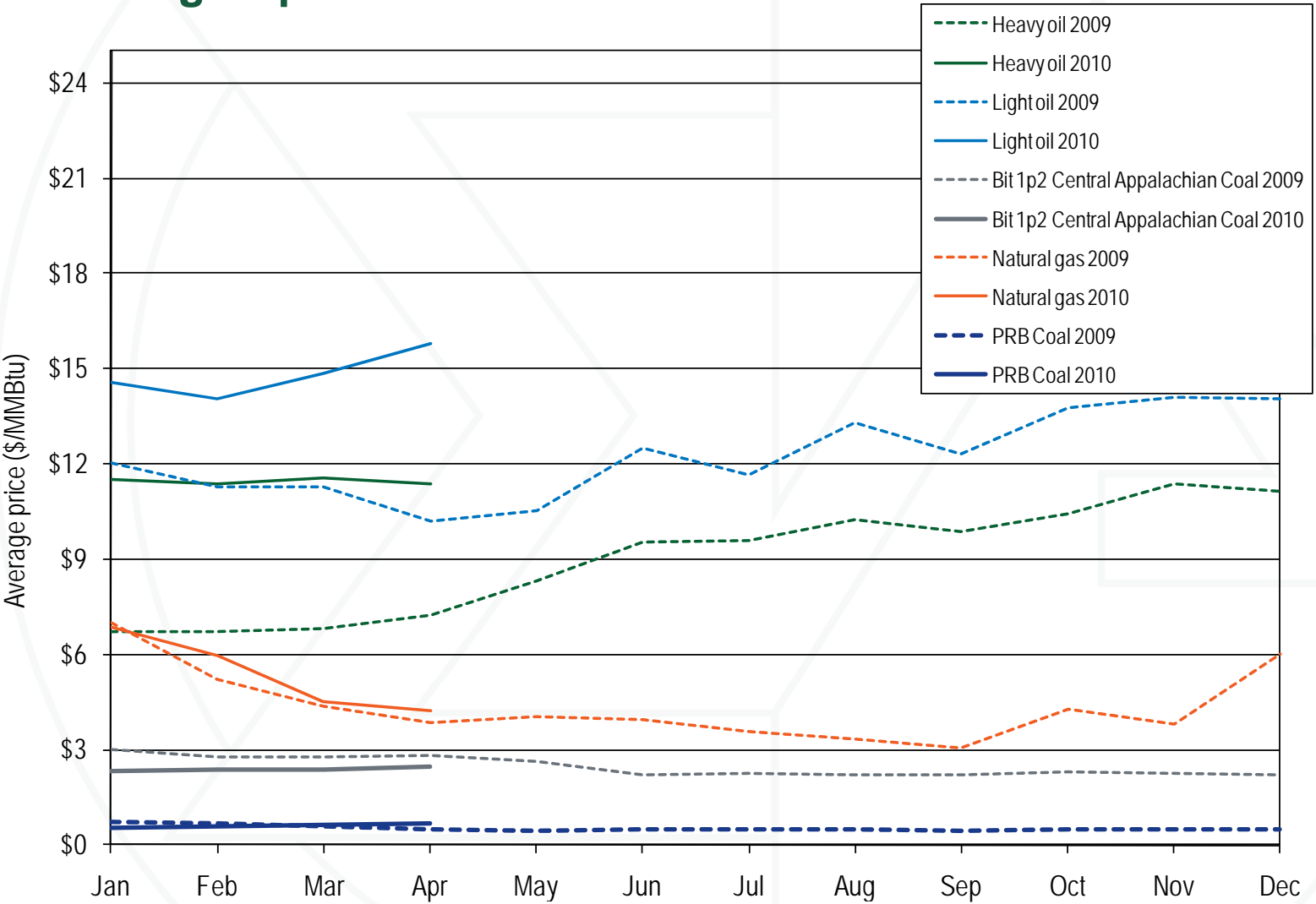
## PJM real-time, annual, load-weighted, average LMP (Dollars per MWh): Calendar years 1998 through April 2010

	Real-Time, Load-Weighted, Average LMP			Year-to-Year Change		
	Average	Median	Standard Deviation	Average	Median	Standard Deviation
1998	\$24.16	\$17.60	\$39.29	NA	NA	NA
1999	\$34.07	\$19.02	\$91.49	41.0%	8.1%	132.8%
2000	\$30.72	\$20.51	\$28.38	(9.8%)	7.9%	(69.0%)
2001	\$36.65	\$25.08	\$57.26	19.3%	22.3%	101.8%
2002	\$31.60	\$23.40	\$26.75	(13.8%)	(6.7%)	(53.3%)
2003	\$41.23	\$34.96	\$25.40	30.5%	49.4%	(5.0%)
2004	\$44.34	\$40.16	\$21.25	7.5%	14.9%	(16.3%)
2005	\$63.46	\$52.93	\$38.10	43.1%	31.8%	79.3%
2006	\$53.35	\$44.40	\$37.81	(15.9%)	(16.1%)	(0.7%)
2007	\$61.66	\$54.66	\$36.94	15.6%	23.1%	(2.3%)
2008	\$71.13	\$59.54	\$40.97	15.4%	8.9%	10.9%
2009	\$39.05	\$34.23	\$18.21	(45.1%)	(42.5%)	(55.6%)
2010	\$44.14	\$38.04	\$21.68	13.1%	11.1%	19.1%

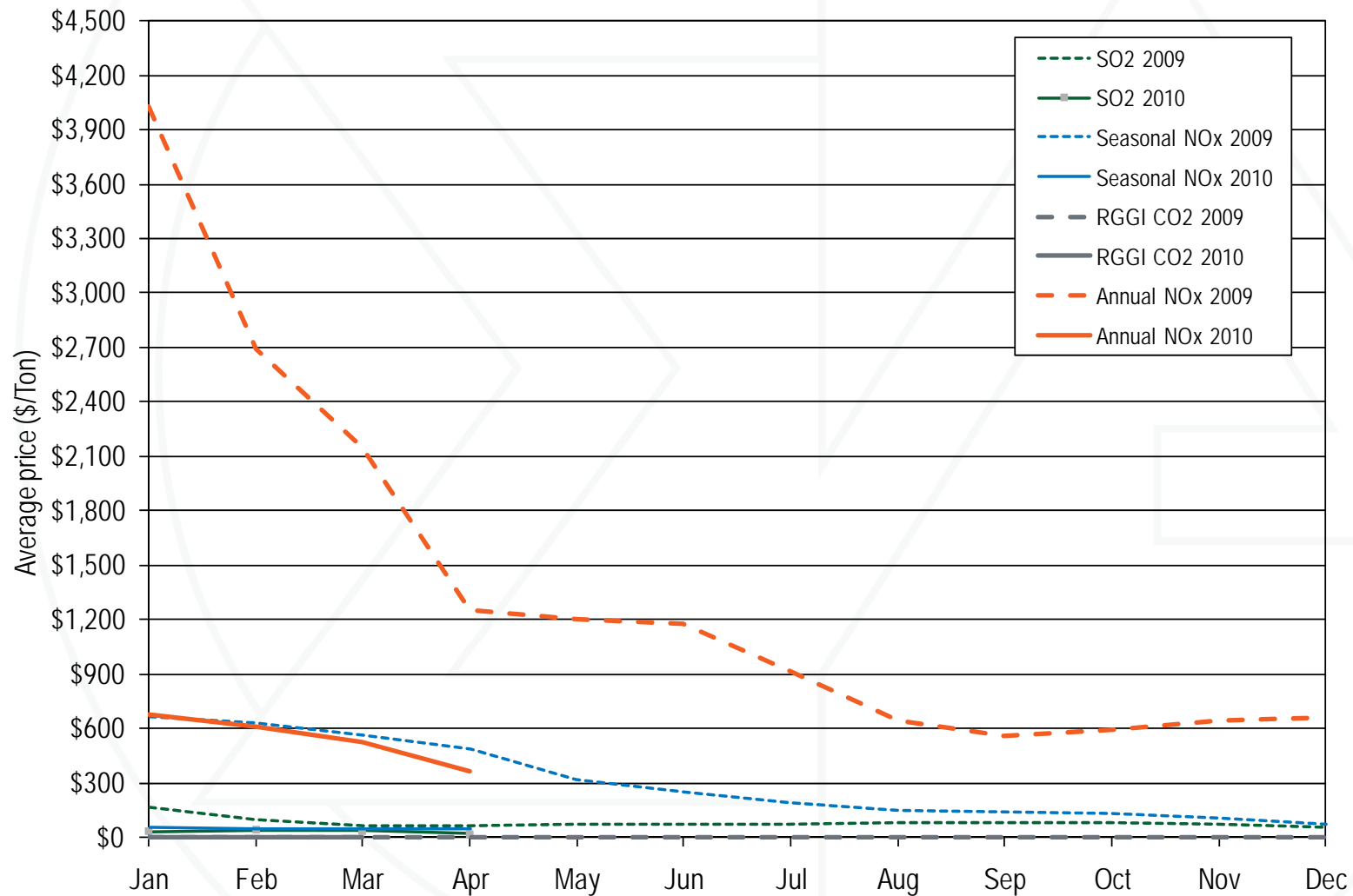
## PJM real-time, monthly, load-weighted, average LMP: Calendar years 2006 through April 2010



# Spot average fuel price comparison: Calendar years 2009 through April 2010



## Spot average emission price comparison: Calendar years 2009 through April 2010



**PJM fuel-cost-adjusted, load-weighted LMP (Dollars per MWh):  
Year-over-year method: January through April 2009 and 2010**

	2009	2010	
	Load-Weighted	Fuel-Cost-Adjusted,	
	LMP	Load-Weighted	
		LMP	Change
Average	\$46.31	\$50.22	8.4%

## Components of PJM real-time, annual, load-weighted, average LMP: January through April 2010

Element	Contribution to LMP	Percent
Coal	\$19.83	44.9%
Gas	\$16.46	37.3%
10% Cost Adder	\$4.04	9.1%
VOM	\$2.28	5.2%
NOX	\$1.04	2.4%
Dispatch Differential	\$0.69	1.6%
CO2	\$0.44	1.0%
Oil	\$0.35	0.8%
SO2	\$0.24	0.5%
FMU Adder	\$0.06	0.1%
NA	\$0.09	0.2%
Shadow Price Limit Adder	\$0.03	0.1%
M2M Adder	\$0.01	0.0%
Offline CT Adder	\$0.00	0.0%
Unit LMP Differential	\$0.00	0.0%
Municipal Waste	(\$0.01)	(0.0%)
UDS Override Differential	(\$0.21)	(0.5%)
Markup	(\$1.22)	(2.8%)
LMP	\$44.14	100.0%



## Monthly volume of cleared and submitted INCs, DEC: January through April 2010

	Increment Offers				Decrement Bids			
	Average Hourly Cleared MW	Average Hourly Submitted MW	Average Hourly Cleared Count	Average Hourly Submitted Count	Average Hourly Cleared MW	Average Hourly Submitted MW	Average Hourly Cleared Count	Average Hourly Submitted Count
Jan	11,144	21,634	282	936	266	893	17,513	29,406
Feb	12,387	23,827	387	1,122	270	883	17,602	28,542
Mar	10,811	21,062	308	915	253	763	15,019	24,968
Apr	10,512	19,940	289	784	246	705	13,875	24,458
May								
Jun								
Jul								
Aug								
Sep								
Oct								
Nov								
Dec								
Annual	11,190	21,575	315	936	258	810	15,980	26,821

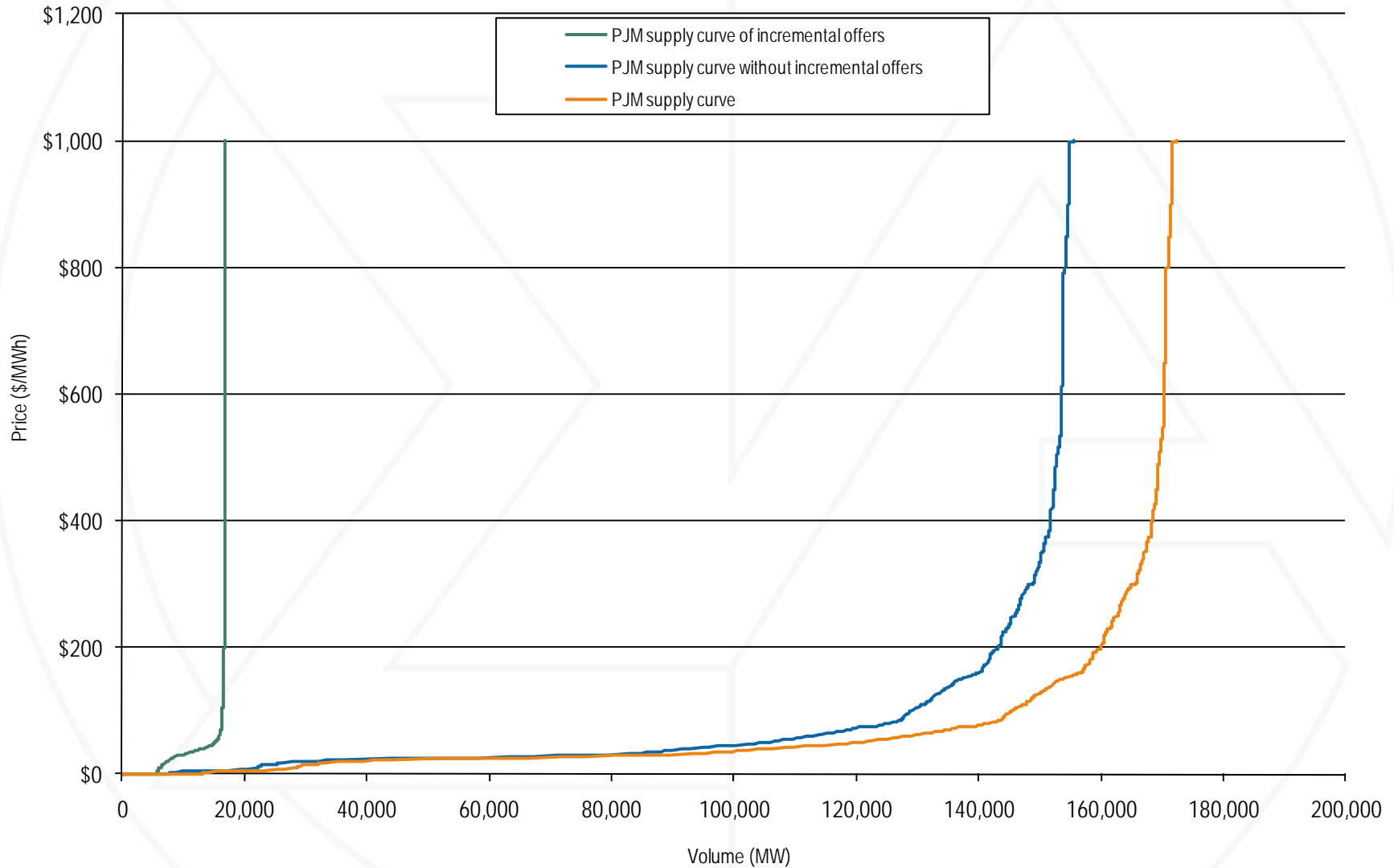
## PJM virtual bids by type of bid parent organization (MW): January through April 2010

	Category	Total Virtual Bids MW	Percentage
2010	Financial	39,899,840	28.6%
2010	Physical	99,432,495	71.4%
2010	Total	139,332,335	100%

## PJM virtual bids by top ten locations (MW): January through April 2010

Aggregate Name	Aggregate Type	INC MW	DEC MW	Total MW
WESTERN HUB	HUB	20,060,732	25,437,413	45,498,145
N ILLINOIS HUB	HUB	3,109,549	2,961,426	6,070,976
AEP-DAYTON HUB	HUB	1,972,025	2,567,963	4,539,988
PSEG	ZONE	928,846	2,185,193	3,114,039
PEPCO	ZONE	2,376,889	583,886	2,960,775
PPL	ZONE	172,783	2,681,876	2,854,659
BGE	ZONE	1,418,588	1,224,088	2,642,676
JCPL	ZONE	1,516,947	1,033,800	2,550,747
IMO	INTERFACE	1,272,553	464,960	1,737,513
MISO	INTERFACE	523,895	813,909	1,337,804

## PJM day-ahead aggregate supply curves: 2010 example day



## Day-ahead and real-time simple annual average LMP (Dollars per MWh): Calendar years 2000 through April 2010

	Day Ahead	Real Time	Difference	Difference as Percent Real Time
2000	\$31.97	\$30.36	(\$1.61)	(5.3%)
2001	\$32.75	\$32.38	(\$0.37)	(1.1%)
2002	\$28.46	\$28.30	(\$0.16)	(0.6%)
2003	\$38.73	\$38.28	(\$0.45)	(1.2%)
2004	\$41.43	\$42.40	\$0.97	2.3%
2005	\$57.89	\$58.08	\$0.18	0.3%
2006	\$48.10	\$49.27	\$1.17	2.4%
2007	\$54.67	\$57.58	\$2.90	5.0%
2008	\$66.12	\$66.40	\$0.28	0.4%
2009	\$37.00	\$37.08	\$0.08	0.2%
2010	\$43.54	\$42.20	(\$1.34)	(3.2%)

## Monthly average percentage of real-time self-supply load, bilateral-supply load and spot-supply load based on parent companies: Calendar year 2009 through April 2010

	2009			2010			Difference in Percentage Points		
	Bilateral Contract	Spot	Self-Supply	Bilateral Contract	Spot	Self-Supply	Bilateral Contract	Spot	Self-Supply
Jan	12.6%	15.4%	72.0%	11.9%	17.3%	70.8%	(0.7%)	2.0%	(1.2%)
Feb	13.4%	14.5%	72.1%	13.3%	18.0%	68.7%	(0.1%)	3.5%	(3.5%)
Mar	13.8%	16.7%	69.5%	12.8%	18.1%	69.1%	(1.0%)	1.4%	(0.4%)
Apr	13.5%	17.2%	69.3%	12.5%	19.2%	68.3%	(0.9%)	1.9%	(1.0%)
May	14.6%	18.8%	66.7%						
Jun	12.5%	16.5%	71.0%						
Jul	12.6%	16.9%	70.5%						
Aug	11.7%	16.0%	72.3%						
Sep	12.5%	18.1%	69.4%						
Oct	13.0%	19.8%	67.2%						
Nov	13.2%	19.0%	67.8%						
Dec	11.7%	16.8%	71.5%						
Annual	12.9%	17.0%	70.1%	12.6%	18.1%	69.3%	(0.2%)	1.0%	(0.8%)

# Economic Load Response Program Reductions and Credits: January through April 2010

	Real Time			Day Ahead			Dispatched in Real Time			Totals		
	MWh	Credits	Hours	MWh	Credits	Hours	MWh	Credits	Hours	MWh	Credits	Hours
AECO			0				0	\$25	3	0	\$25	3
AEP										0	\$0	0
AP	1,274	\$17,002	365				5	\$806	1	1,279	\$17,808	366
BGE										0	\$0	0
ComEd	34	\$1,166	37				333	\$9,810	205	367	\$10,976	242
DAY												
DLCO												
Dominion	3,397	\$183,950	204	511	\$7,150	72	268	\$16,003	122	4,176	\$207,103	398
DPL										0	\$0	0
JCPL			0				10	\$752	19	10	\$752	19
Met-Ed	2	\$16	8							2	\$16	8
PECO	2,456	\$64,266	5,152				86	\$8,281	412	2,541	\$72,547	5,564
PENELEC			0				1	\$208	6	1	\$208	6
Pepco			0				11	\$395	57	11	\$395	57
PPL	386	\$9,267	285				18	\$1,577	47	405	\$10,844	332
PSEG										0	\$0	0
RECO										0	\$0	0
Total	7,548	\$275,667	6,051	511	\$7,150	72	734	\$37,856	872	8,793	\$320,673	6,995
Max	3,397	\$183,950	5,152	511	\$7,150	72	333	\$16,003	412	4,176	\$207,103	5,564
Avg	1,258	\$45,944	605	511	\$7,150	72	82	\$4,206	97	586	\$21,378	466

## RPM Payments in the Load Management Program: January through April 2010

Zone	January	February	March	April	Total
AECO	\$387,589	\$350,080	\$387,589	\$375,086	\$1,500,344
AEP	\$3,871,619	\$3,496,946	\$3,871,619	\$3,746,728	\$14,986,912
APS	\$3,082,016	\$2,783,756	\$3,082,016	\$2,982,596	\$11,930,383
BGE	\$4,613,517	\$4,167,048	\$4,613,517	\$4,464,694	\$17,858,777
ComEd	\$4,357,876	\$3,936,146	\$4,357,876	\$4,217,299	\$16,869,196
DAY	\$667,966	\$603,324	\$667,966	\$646,419	\$2,585,676
DLCO	\$387,642	\$350,129	\$387,642	\$375,138	\$1,500,551
Dominion	\$1,655,820	\$1,495,580	\$1,655,820	\$1,602,407	\$6,409,627
DPL	\$1,004,045	\$906,879	\$1,004,045	\$971,656	\$3,886,625
JCPL	\$897,896	\$811,003	\$897,896	\$868,932	\$3,475,727
Met-Ed	\$1,357,392	\$1,226,031	\$1,357,392	\$1,313,605	\$5,254,420
PECO	\$2,120,899	\$1,915,651	\$2,120,899	\$2,052,483	\$8,209,932
PENELEC	\$1,325,705	\$1,197,411	\$1,325,705	\$1,282,941	\$5,131,763
Pepco	\$814,714	\$735,871	\$814,714	\$788,433	\$3,153,731
PPL	\$3,617,545	\$3,267,460	\$3,617,545	\$3,500,850	\$14,003,401
PSEG	\$1,777,619	\$1,605,591	\$1,777,619	\$1,720,276	\$6,881,105
RECO	\$18,494	\$16,704	\$18,494	\$17,897	\$71,588
Total	\$31,958,354	\$28,865,610	\$31,958,354	\$30,927,439	\$123,709,757



## PJM installed capacity (By fuel source): January 1, 2009; May 31, 2009; June 1, 2009; December 31, 2009; January 1, 2010; and April 30, 2010

	1-Jan-09		31-May-09		1-Jun-09		31-Dec-09		1-Jan-10		30-Apr-10	
	MW	Percent	MW	Percent	MW	Percent	MW	Percent	MW	Percent	MW	Percent
Coal	67,064.7	40.7%	67,025.3	40.6%	68,159.0	40.7%	68,137.1	40.7%	68,382.1	40.7%	68,273.2	40.8%
Gas	48,333.9	29.3%	48,506.9	29.4%	48,979.3	29.2%	48,838.8	29.2%	49,238.8	29.3%	48,967.2	29.2%
Hydroelectric	7,476.3	4.5%	7,550.1	4.6%	7,939.9	4.7%	7,939.9	4.7%	7,921.9	4.7%	7,897.9	4.7%
Nuclear	30,478.0	18.5%	30,542.5	18.5%	30,701.5	18.3%	30,731.5	18.4%	30,611.9	18.2%	30,599.9	18.3%
Oil	10,714.9	6.5%	10,674.3	6.5%	10,704.3	6.4%	10,700.1	6.4%	10,700.1	6.4%	10,675.0	6.4%
Solid waste	664.7	0.4%	664.7	0.4%	672.1	0.4%	672.1	0.4%	672.1	0.4%	672.1	0.4%
Wind	166.4	0.1%	182.9	0.1%	297.8	0.2%	306.9	0.2%	326.9	0.2%	409.5	0.2%
Total	164,898.9	100.0%	165,146.7	100.0%	167,453.9	100.0%	167,326.4	100.0%	167,853.8	100.0%	167,494.8	100.0%

# PJM generation (By fuel source (GWh)): January through April 2010

	GWh	Percent
Coal	122,830.0	52.6%
Nuclear	82,285.3	35.3%
Gas	17,330.6	7.4%
Natural Gas	16,820.9	7.2%
Landfill Gas	509.6	0.2%
Biomass Gas	0.1	0.0%
Hydroelectric	5,541.8	2.4%
Waste	1,873.1	0.8%
Solid Waste	1,432.2	0.6%
Miscellaneous	440.8	0.2%
Wind	3,301.4	1.4%
Oil	193.4	0.1%
Heavy Oil	150.1	0.1%
Light Oil	37.9	0.0%
Diesel	4.6	0.0%
Kerosene	0.8	0.0%
Jet Oil	0.0	0.0%
Solar	1.2	0.0%
Battery	0.1	0.0%
<b>Total</b>	<b>233,357.0</b>	<b>100.0%</b>

## Capacity factor of wind units in PJM: January through April 2010

Type of Resource	Capacity Factor	Total Hours	Installed Capacity
Energy-Only Resource	30.0%	40,712	1,336
Capacity Resource	35.1%	78,108	2,517
All Units	33.9%	118,820	3,854

# Wind resources in real time offering at a negative price in PJM: January through April 2010

	Average MW Offered	Intervals Marginal	Percent of Intervals
At Negative Price	520.7	434	1.26%
All Wind	1,438.6	664	1.92%

## Peak and off-peak seasonal capacity factor, average wind generation, and PJM load: January through April 2010

		Winter	Spring	Summer	Fall	Annual
Peak	Capacity Factor	31.5%	35.8%			32.7%
	Average Wind Generation	960.5	1,188.6			1,019.6
	Average Load	86,478.4	73,925.8			83,229.5
Off-Peak	Capacity Factor	34.1%	37.9%			35.1%
	Average Wind Generation	1,033.9	1,257.9			1,088.2
	Average Load	75,827.7	59,369.9			71,840.6

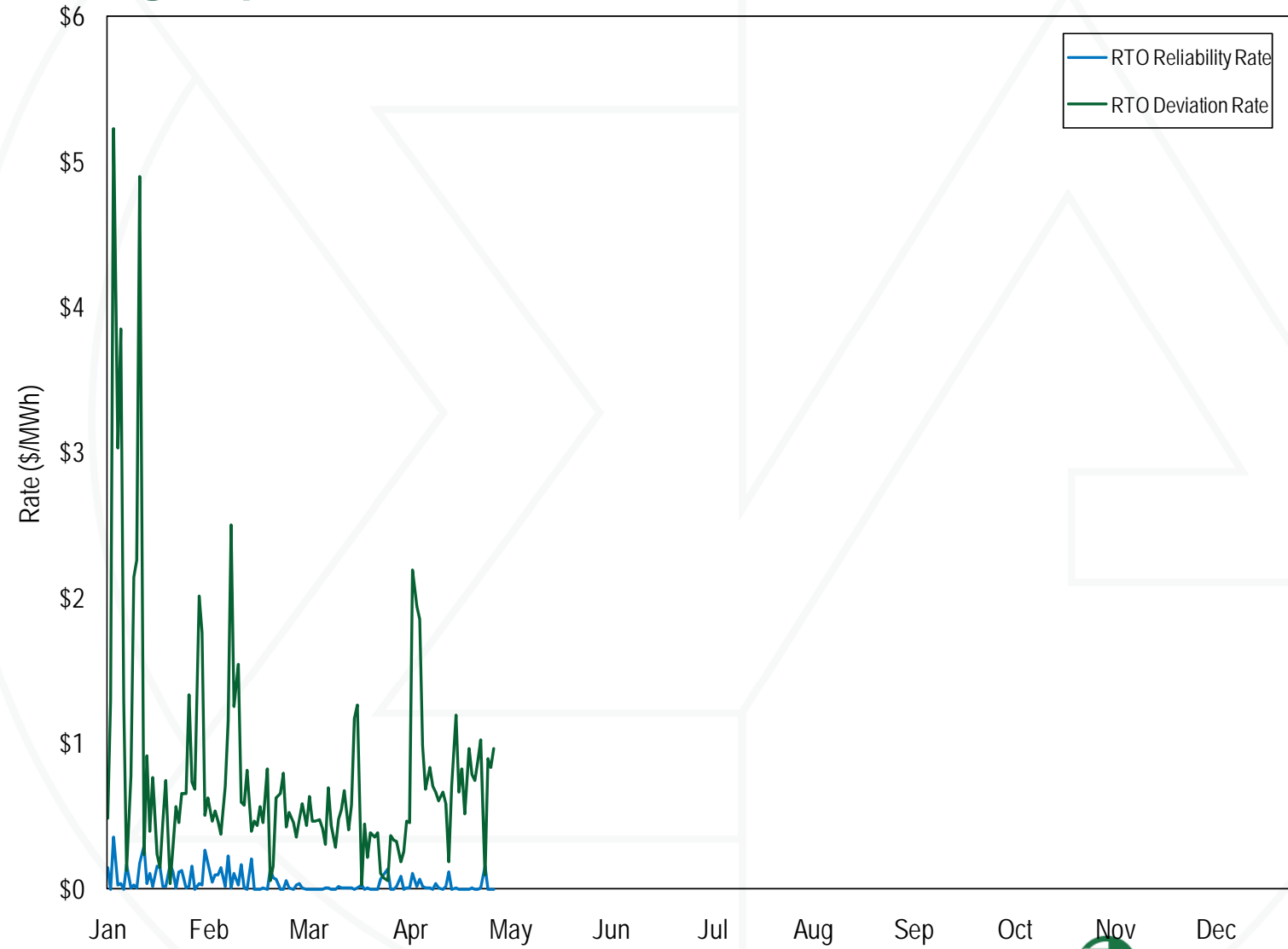
## Monthly operating reserve charges: Calendar years 2009 and 2010

	2009 Charges				2010 Charges			
	Day-Ahead	Synchronous Condensing	Balancing	Total	Day-Ahead	Synchronous Condensing	Balancing	Total
Jan	\$9,260,150	\$1,328,814	\$30,116,725	\$40,705,689	\$10,281,351	\$50,022	\$40,460,844	\$50,792,217
Feb	\$7,434,068	\$839,679	\$16,548,988	\$24,822,735	\$11,425,494	\$14,715	\$22,344,500	\$33,784,709
Mar	\$9,549,963	\$108,664	\$26,025,562	\$35,684,189	\$8,836,886	\$122,817	\$16,746,195	\$25,705,897
Apr	\$6,998,364	\$19,929	\$13,251,273	\$20,269,566	\$7,633,141	\$93,253	\$22,338,262	\$30,064,656
May	\$6,024,108	\$5,543	\$15,490,257	\$21,519,908				
Jun	\$6,722,329	\$0	\$19,339,846	\$26,062,175				
Jul	\$8,210,636	\$38,643	\$17,728,976	\$25,978,255				
Aug	\$7,697,174	\$1	\$21,164,586	\$28,861,761				
Sep	\$6,057,598	\$13,611	\$13,471,368	\$19,542,577				
Oct	\$7,046,301	\$0	\$17,026,425	\$24,072,727				
Nov	\$8,617,280	\$22,639	\$12,888,600	\$21,528,519				
Dec	\$11,323,263	\$117,573	\$25,353,409	\$36,794,245				
<b>Total</b>	<b>\$94,941,235</b>	<b>\$2,495,097</b>	<b>\$228,406,015</b>	<b>\$325,842,346</b>	<b>\$38,176,873</b>	<b>\$280,807</b>	<b>\$101,889,800</b>	<b>\$140,347,479</b>
Share of Annual Charges	29.1%	0.8%	70.1%	100.0%	27.2%	0.2%	72.6%	100.0%

# Regional balancing charges allocation: January through April 2010

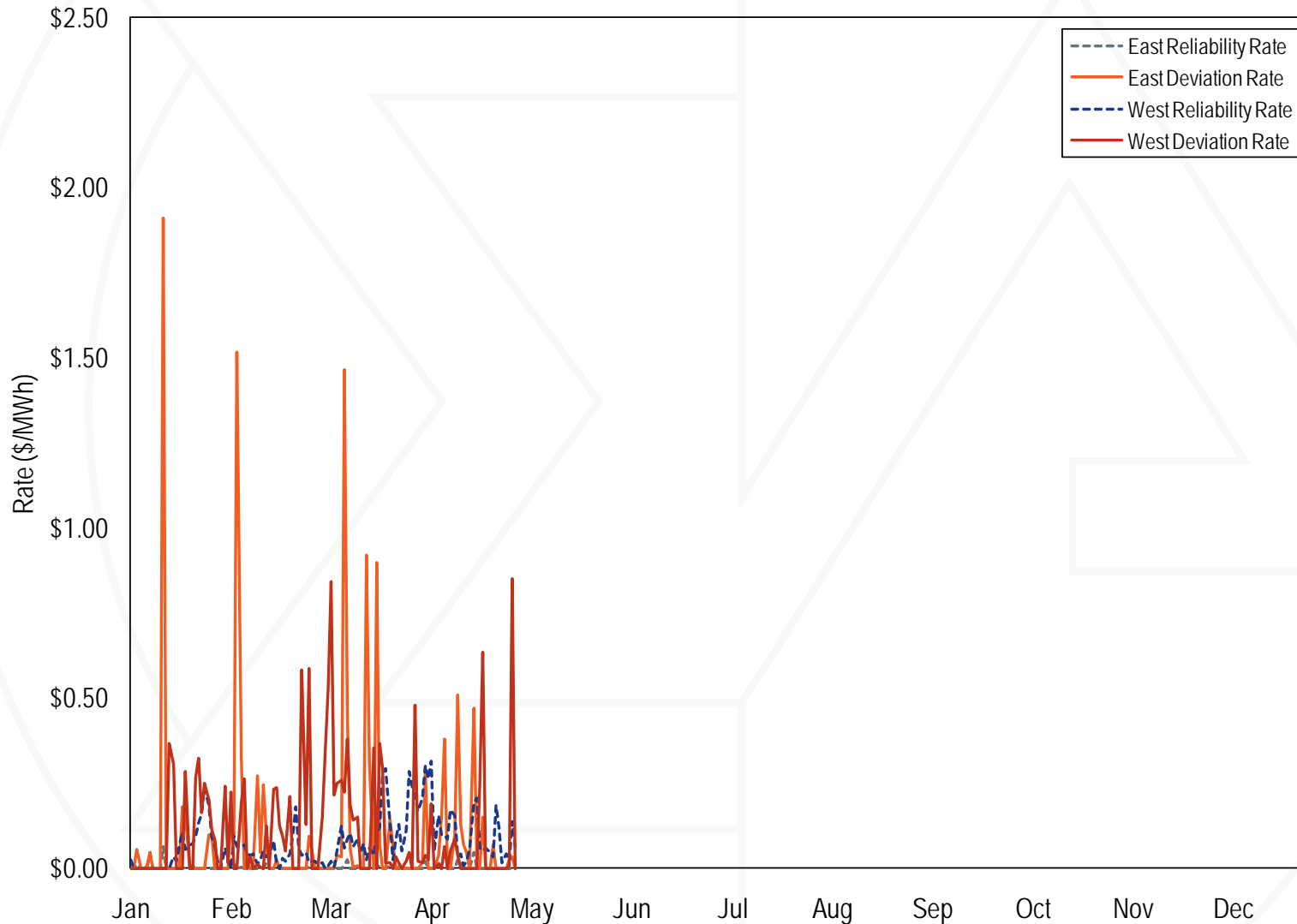
	Reliability Charges			Deviation Charges				Total
	Real-Time Load	Real-Time Exports	Reliability Total	Demand Deviations	Supply Deviations	Generator Deviations	Deviations Total	
RTO	\$11,636,486 14.5%	\$442,193 0.6%	\$12,078,678 15.0%	\$27,716,822 34.5%	\$17,564,561 21.9%	\$8,339,464 10.4%	\$53,620,847 66.8%	\$65,699,525 81.8%
East	\$402,354 0.5%	\$15,296 0.0%	\$417,650 0.5%	\$2,174,640 2.7%	\$1,664,164 2.1%	\$471,397 0.6%	\$4,310,201 5.4%	\$4,727,851 5.9%
West	\$7,278,261 9.1%	\$240,859 0.3%	\$7,519,119 9.4%	\$1,226,895 1.5%	\$654,415 0.8%	\$479,520 0.6%	\$2,360,830 2.9%	\$9,879,950 12.3%
Total	\$19,317,100 24.1%	\$698,348 0.9%	\$20,015,448 24.9%	\$31,118,357 38.7%	\$19,883,141 24.8%	\$9,290,380 11.6%	\$60,291,878 75.1%	\$80,307,326 100%

## Daily RTO reliability and deviation rates (\$/MWh): January through April 2010

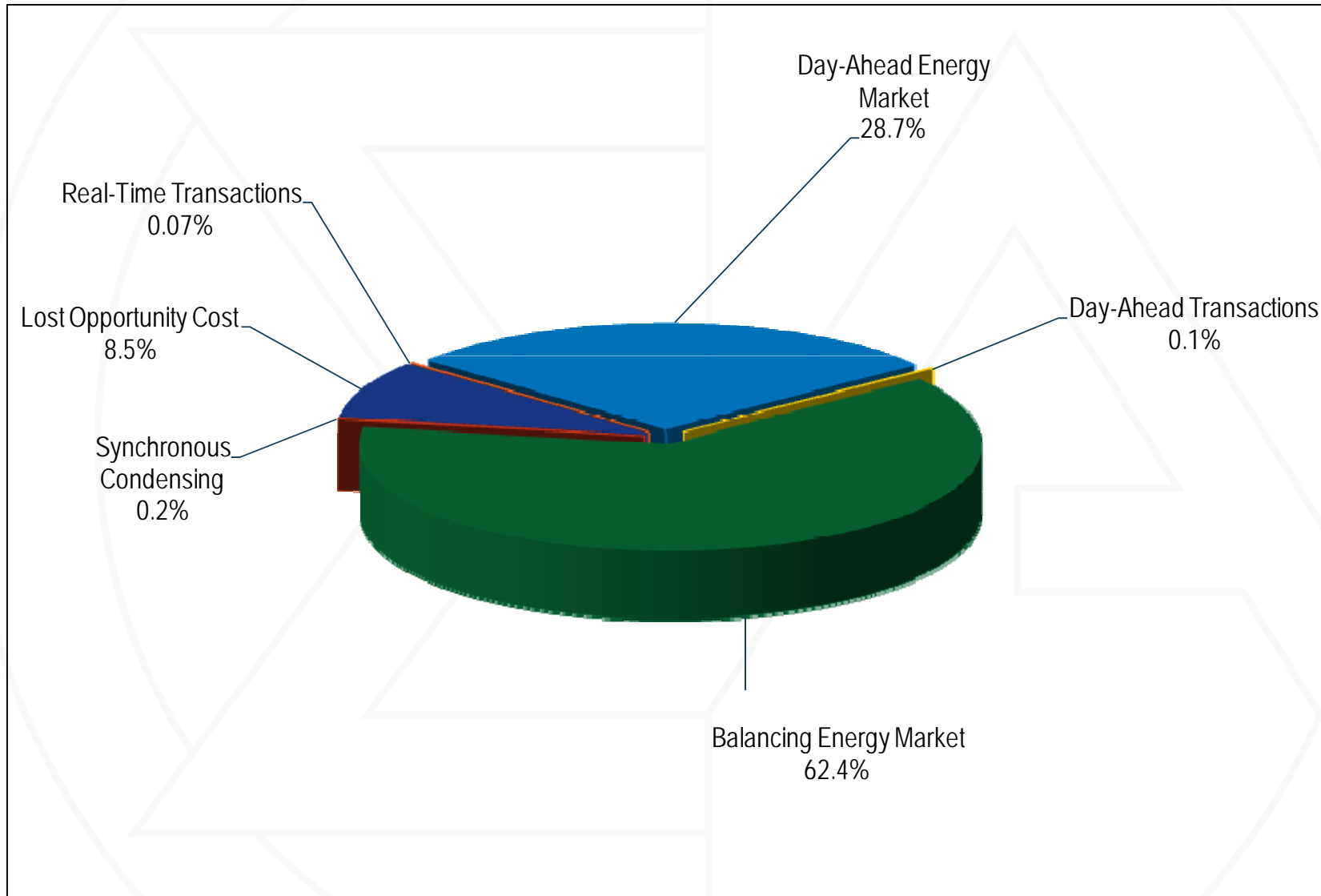




## Daily regional reliability and deviation rates (\$/MWh): January through April 2010



## Operating reserve credits: January through April 2010



## Credits by operating reserve market (By unit type): January through April 2010

Unit Type	Day-Ahead Generator	Synchronous Condensing	Balancing Generator	Lost Opportunity Cost	Total
Combined Cycle	38.3%	0.0%	58.7%	3.0%	\$59,610,895
Combustion Turbine	0.4%	1.2%	91.5%	6.8%	\$22,747,851
Diesel	0.0%	0.0%	98.4%	1.6%	\$67,902
Hydro	0.0%	0.0%	100.0%	0.0%	\$3,539
Landfill	0.0%	0.0%	0.0%	100.0%	\$5,984,436
Nuclear	0.0%	0.0%	0.0%	0.0%	\$0
Steam	34.7%	0.0%	60.9%	4.4%	\$43,578,522
Wind Farm	0.0%	0.0%	100.0%	0.0%	\$130,166

## Difference in total charges between old rules and new rules: January through April 2010

	Reliability Charges			Deviation Charges			
	Real-Time Load	Real-Time Exports	Reliability Total	Demand Deviations	Injection Deviations	Generator Deviations	Deviations Total
Charges (Old)	\$0	\$0	\$0	\$40,968,351	\$26,569,855	\$12,220,399	\$79,758,605
Charges (Current)	\$19,036,718	\$688,696	\$19,725,414	\$30,967,000	\$19,810,568	\$9,255,623	\$60,033,191
Difference	\$19,036,718	\$688,696	\$19,725,414	(\$10,001,352)	(\$6,759,287)	(\$2,964,776)	(\$19,725,414)

# Total virtual bids and amount of virtual bids paying balancing operating charges (MWh): January through April 2010

Month	Total Increment Offers (MWh)	Total Decrement Bids (MWh)	Adjusted Increment Offer Deviations (MWh)	Adjusted Decrement Bid Deviations (MWh)
Jan	8,291,432	13,029,516	2,463,852	3,452,047
Feb	8,323,844	11,828,780	2,004,162	2,234,045
Mar	8,032,429	11,159,303	2,150,898	2,594,826
Apr	7,568,471	9,989,951	2,214,314	2,066,270
May				
Jun				
Jul				
Aug				
Sep				
Oct				
Nov				
Dec				
<b>Total</b>	<b>32,216,176</b>	<b>46,007,551</b>	<b>8,833,226</b>	<b>10,347,188</b>

# Comparison of balancing operating reserve charges to virtual bids: January through April 2010

Month	Charges Under Current Rules	Charges Under Old Rules	Difference
Jan	\$10,186,971	\$12,704,209	(\$2,517,238)
Feb	\$3,935,858	\$5,381,782	(\$1,445,924)
Mar	\$3,462,680	\$4,589,665	(\$1,126,984)
Apr	\$5,167,164	\$6,374,384	(\$1,207,219)
May			
Jun			
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			
<b>Total</b>	<b>\$22,752,674</b>	<b>\$29,050,039</b>	<b>(\$6,297,365)</b>

# Summary of impact on virtual bids under balancing operating reserve allocation: January through April 2010

Region	Adjusted Increment Offer Deviations	Adjusted Decrement Bid Deviations	Total Adjusted Virtual Deviations	Balancing Rate Under Current Rules	Balancing Rate Under Old Rules	Charges Under Current Rules	Charges Under Old Rules	Difference
RTO	8,833,226	10,347,188	19,180,414	0.9994	1.4235	\$20,684,928	\$29,050,039	(\$8,365,111)
East	5,754,048	5,974,521	11,728,570	0.1103	0	\$1,315,629	\$0	\$1,315,629
West	3,047,658	4,310,620	7,358,278	0.1081	0	\$752,117	\$0	\$752,117

# Impact of segmented make whole payments: December 2008 through April 2010

Year	Month	Balancing Credits		Difference
		Under Old Rules	Under New Rules	
2008	Dec	\$17,879,706	\$18,564,627	\$684,920
2009	Jan	\$24,958,891	\$26,413,119	\$1,454,228
2009	Feb	\$13,834,755	\$14,391,550	\$556,795
2009	Mar	\$21,434,893	\$22,200,141	\$765,248
2009	Apr	\$10,532,594	\$10,741,260	\$208,666
2009	May	\$13,499,668	\$13,813,209	\$313,541
2009	Jun	\$15,111,383	\$16,058,545	\$947,162
2009	Jul	\$14,657,498	\$15,414,023	\$756,525
2009	Aug	\$14,467,711	\$15,602,754	\$1,135,043
2009	Sep	\$10,293,949	\$10,576,618	\$282,669
2009	Oct	\$14,337,978	\$14,605,878	\$267,900
2009	Nov	\$8,889,163	\$9,091,845	\$202,682
2009	Dec	\$19,403,859	\$20,002,885	\$599,026
2010	Jan	\$32,982,105	\$33,924,310	\$942,205
2010	Feb	\$17,321,317	\$17,609,133	\$287,815
2010	Mar	\$13,381,805	\$13,595,778	\$213,972
2010	Apr	\$16,283,918	\$16,880,164	\$596,246
Total		\$279,271,192	\$289,485,838	\$10,214,645



## Impact of segmented make whole payments (By unit type): January through April 2010

Unit Type	Number of Unit-Days	Average Daily Balancing Credits (Old Rules)	Average Daily Balancing Credits (New Rules)	Average Daily Difference	Total Balancing Credits (Old Rules)	Total Balancing Credits (New Rules)	Total Difference
Combined-Cycle	361	\$3,308	\$6,648	\$3,340	\$1,194,190	\$2,399,785	\$1,205,595
Medium Frame Combustion Turbine (30 - 65 MW)	659	\$2,166	\$2,650	\$484	\$1,427,472	\$1,746,178	\$318,706
Large Frame Combustion Turbine (135 - 180 MW)	36	\$12,440	\$19,082	\$6,642	\$447,851	\$686,951	\$239,100
Petroleum/Gas Steam (Post-1985)	30	\$2,288	\$5,895	\$3,607	\$68,639	\$176,838	\$108,199
Sub-Critical Coal	130	\$66	\$607	\$541	\$8,565	\$78,871	\$70,306
Medium-Large Frame Combustion Turbine (65 - 125 MW)	68	\$3,671	\$4,469	\$798	\$249,600	\$303,871	\$54,271
Petroleum/Gas Steam (Pre-1985)	3	\$0	\$11,443	\$11,443	\$0	\$34,329	\$34,329
Small Frame Combustion Turbine (0 - 29 MW)	52	\$2,975	\$3,139	\$164	\$154,681	\$163,205	\$8,523
Diesel	1	\$0	\$1,210	\$1,210	\$0	\$1,210	\$1,210

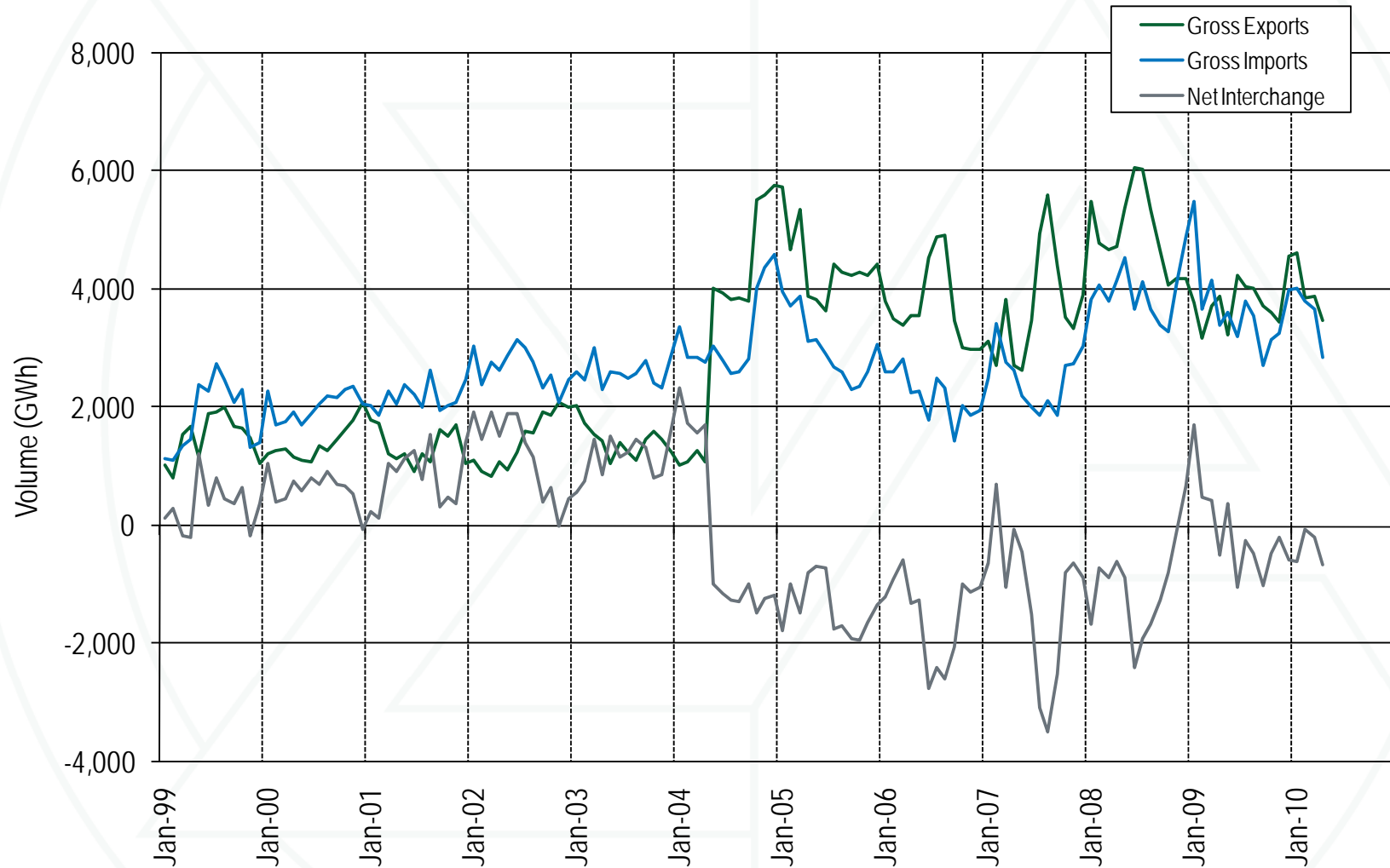
# Share of balancing operating reserve increases for segmented make whole payments (By unit type): January through April 2010

Unit Type	Share of Increase
Combined-Cycle	59.1%
Steam	10.4%
Combustion Turbines	30.4%
Diesel	0.1%

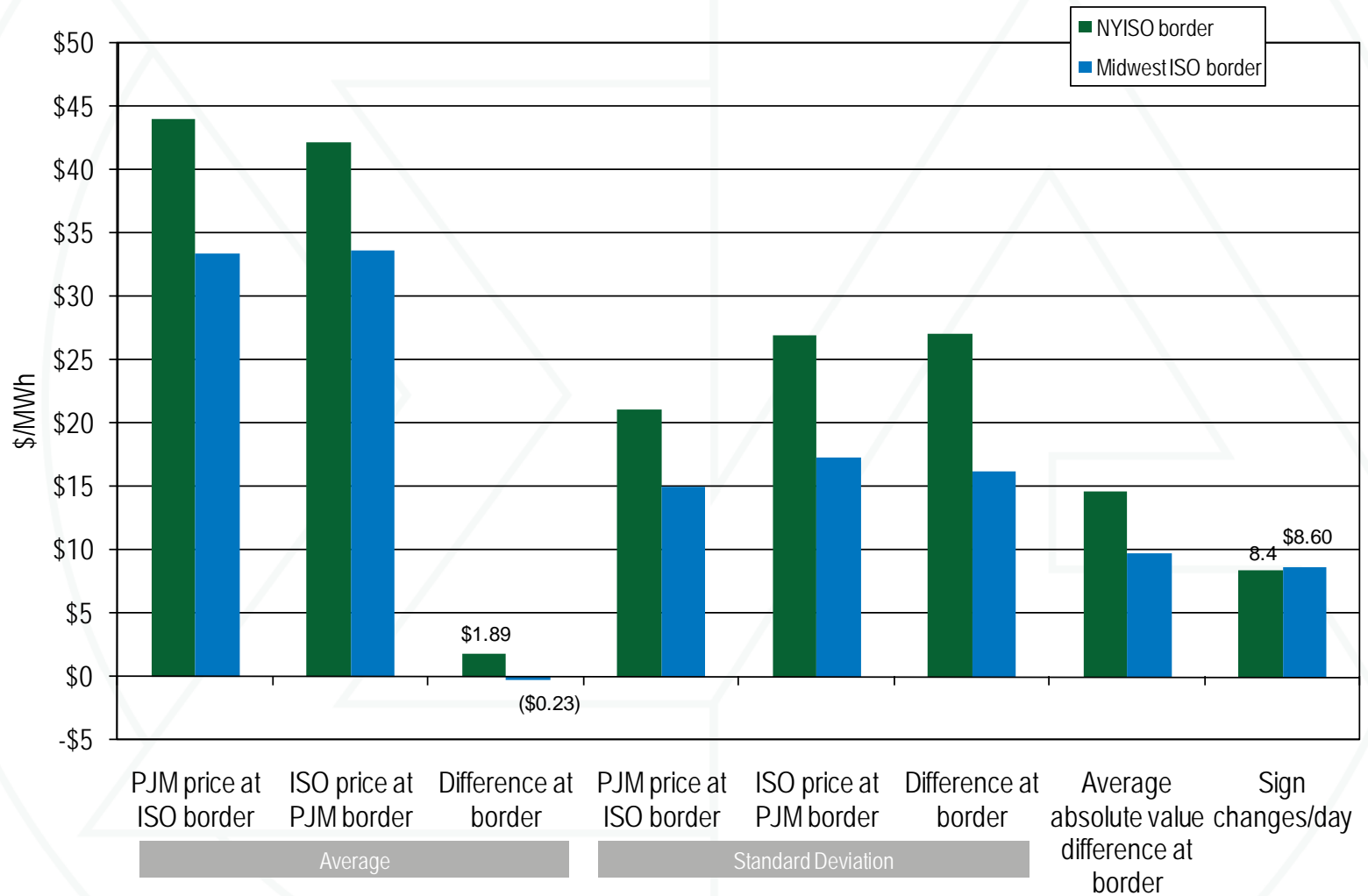
## Top 10 units and organizations receiving total operating reserve credits: January through April 2010

Rank	Units			Organizations		
	Total Credit	Total Credit Share	Total Credit Cumulative Distribution	Total Credit	Total Credit Share	Total Credit Cumulative Distribution
1	\$40,271,049	12.7%	12.7%	\$61,459,065	46.5%	46.5%
2	\$26,582,418	8.4%	21.0%	\$11,442,103	8.7%	55.1%
3	\$13,129,115	4.1%	25.2%	\$8,691,046	6.6%	61.7%
4	\$8,972,470	2.8%	28.0%	\$6,916,865	5.2%	67.0%
5	\$7,153,457	2.3%	30.2%	\$6,281,605	4.8%	71.7%
6	\$6,136,280	1.9%	32.2%	\$5,312,409	4.0%	75.7%
7	\$4,227,166	1.3%	33.5%	\$4,670,105	3.5%	79.3%
8	\$4,178,410	1.3%	34.8%	\$4,179,686	3.2%	82.4%
9	\$3,618,783	1.1%	36.0%	\$3,173,467	2.4%	84.8%
10	\$3,507,989	1.1%	37.1%	\$2,072,195	1.6%	86.4%

# PJM scheduled import and export transaction volume history: 1999 through April 2010



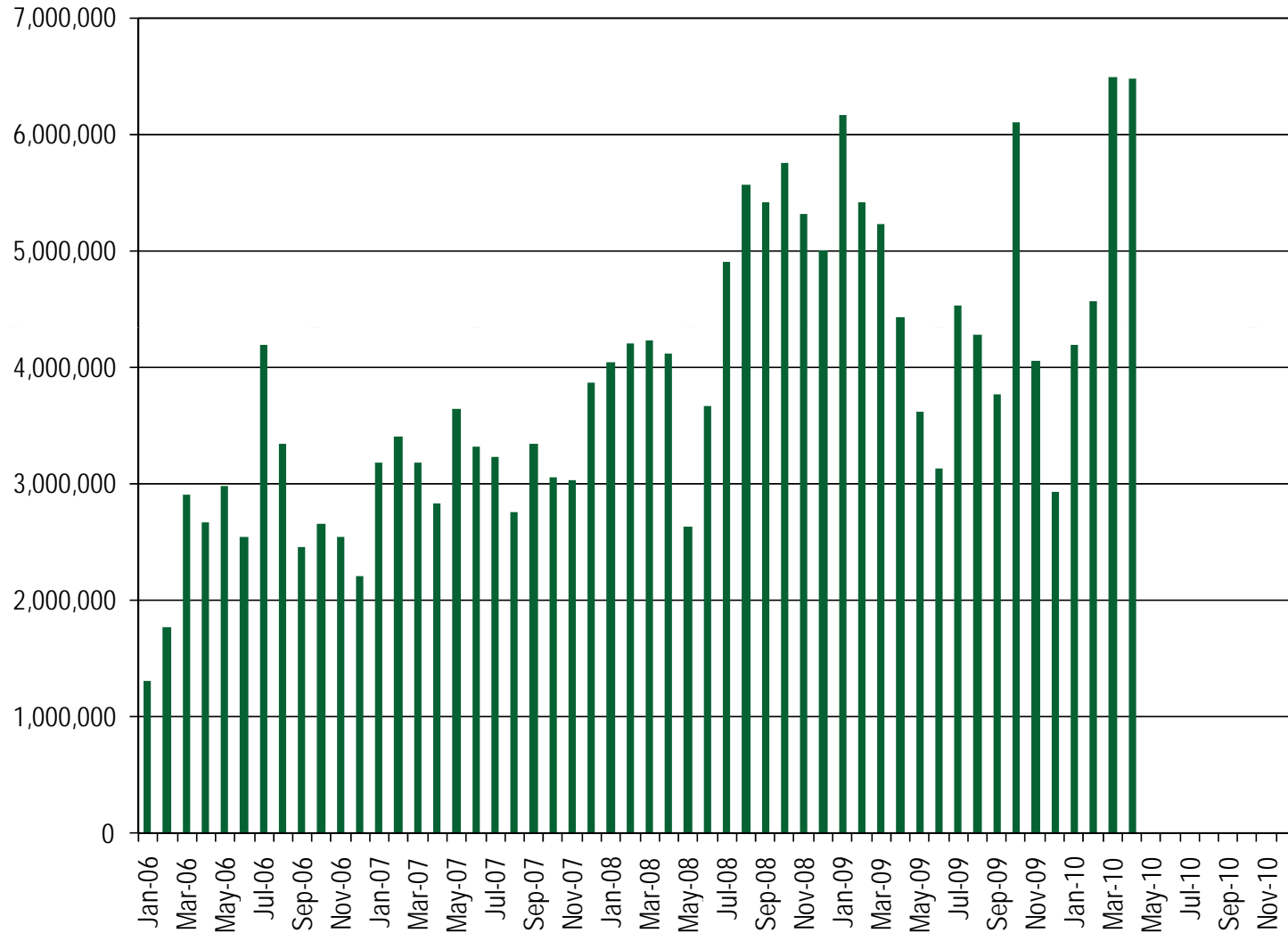
# PJM, NYISO and Midwest ISO real-time border price averages: January through April 2010



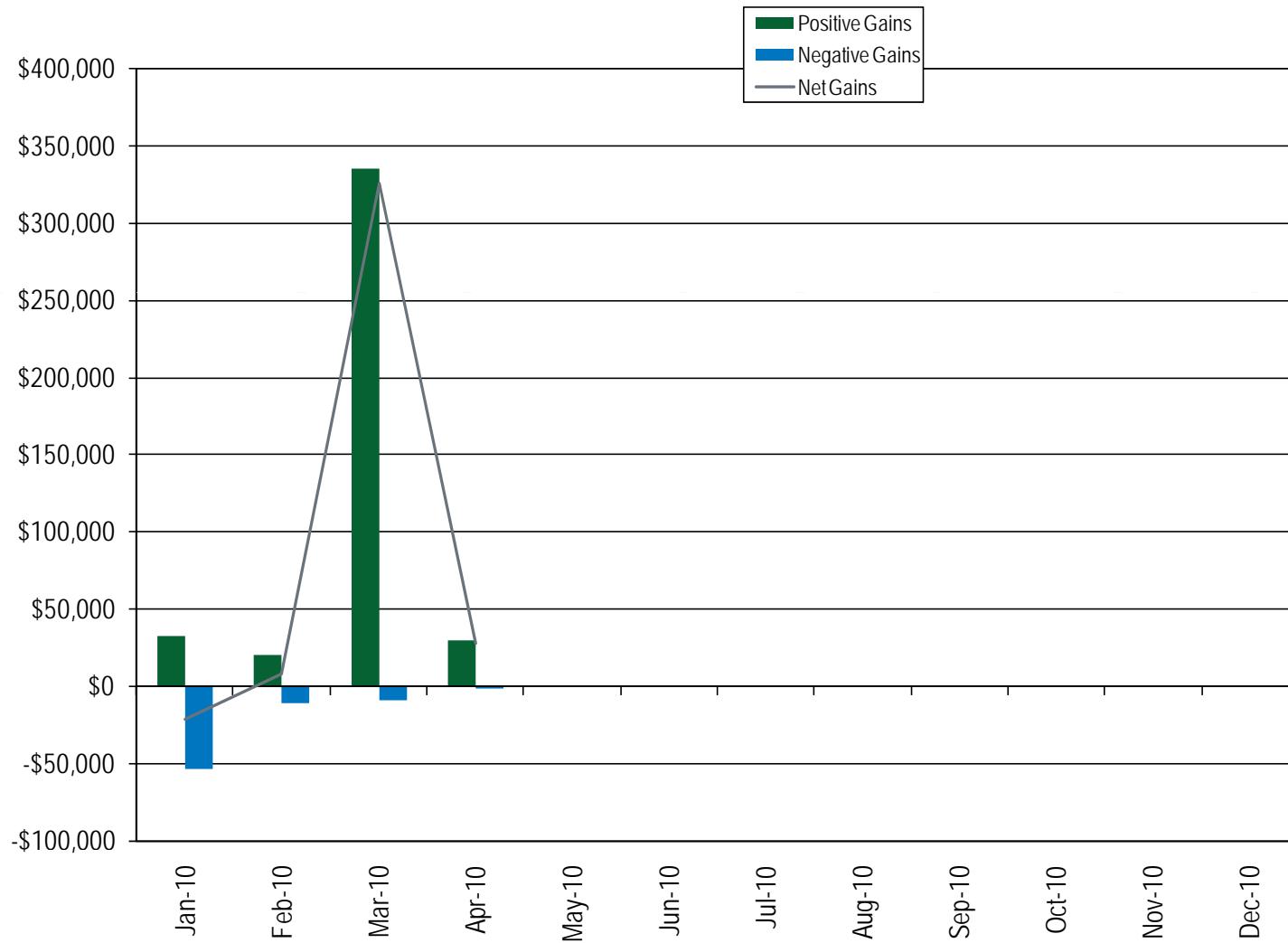
## Net scheduled and actual PJM interface flows (GWh): January through April 2010

	Actual	Net Scheduled	Difference (GWh)	Difference (percent of net scheduled)
CPLC	3,165	21	3,144	14971%
CPLW	(582)	-	(582)	0%
DUK	(870)	258	(1,128)	(437%)
EKPC	80	(107)	187	(175%)
LGEE	442	253	189	75%
MEC	(817)	(1,729)	912	(53%)
MISO	(2,935)	1,563	(4,498)	(288%)
ALTE	(1,959)	1	(1,960)	(196000%)
ALTW	(675)	(55)	(620)	1127%
AMIL	1,780	(349)	2,129	(610%)
CIN	1,401	1,500	(99)	(7%)
CWLP	(35)	-	(35)	0%
FE	(730)	(732)	2	(0%)
IPL	869	149	720	483%
MECS	(4,180)	1,106	(5,286)	(478%)
NIPS	(790)	(40)	(750)	1875%
WEC	1,384	(17)	1,401	(8241%)
NYISO	(3,041)	(4,478)	1,437	(32%)
LIND	(455)	(455)	-	0%
NEPT	(1,632)	(1,632)	-	0%
NYIS	(954)	(2,391)	1,437	(60%)
OVEC	2,879	4,026	(1,147)	(28%)
TVA	1,157	(381)	1,538	(404%)
Total	(522)	(574)	52	(9.1%)

# Monthly up-to congestion bids in MWh: January 2006 through April 2010

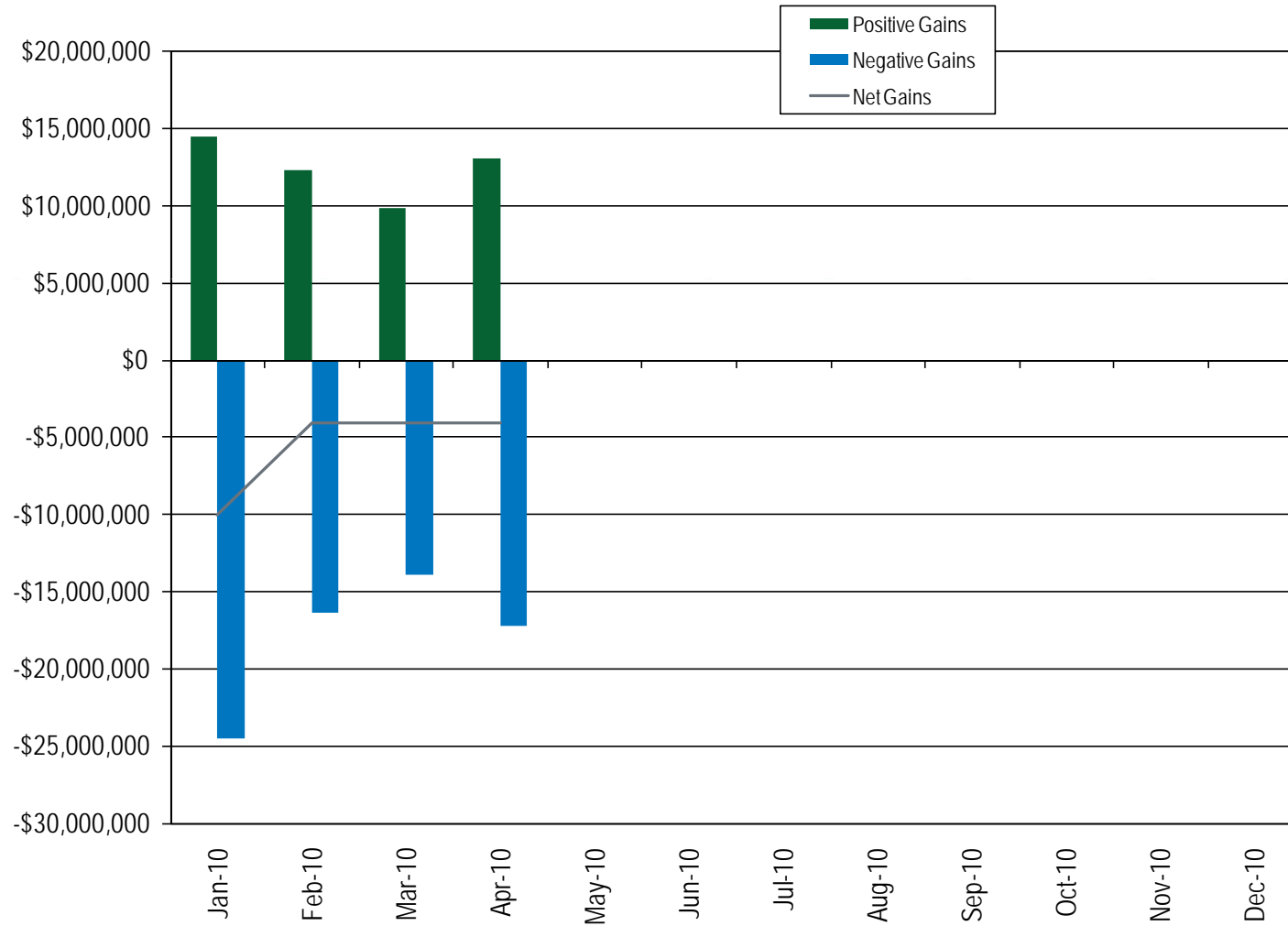


# Total settlements showing positive, negative and net gains for up-to congestion bids with a matching Real-Time Market transaction: January 2009 through April 2010





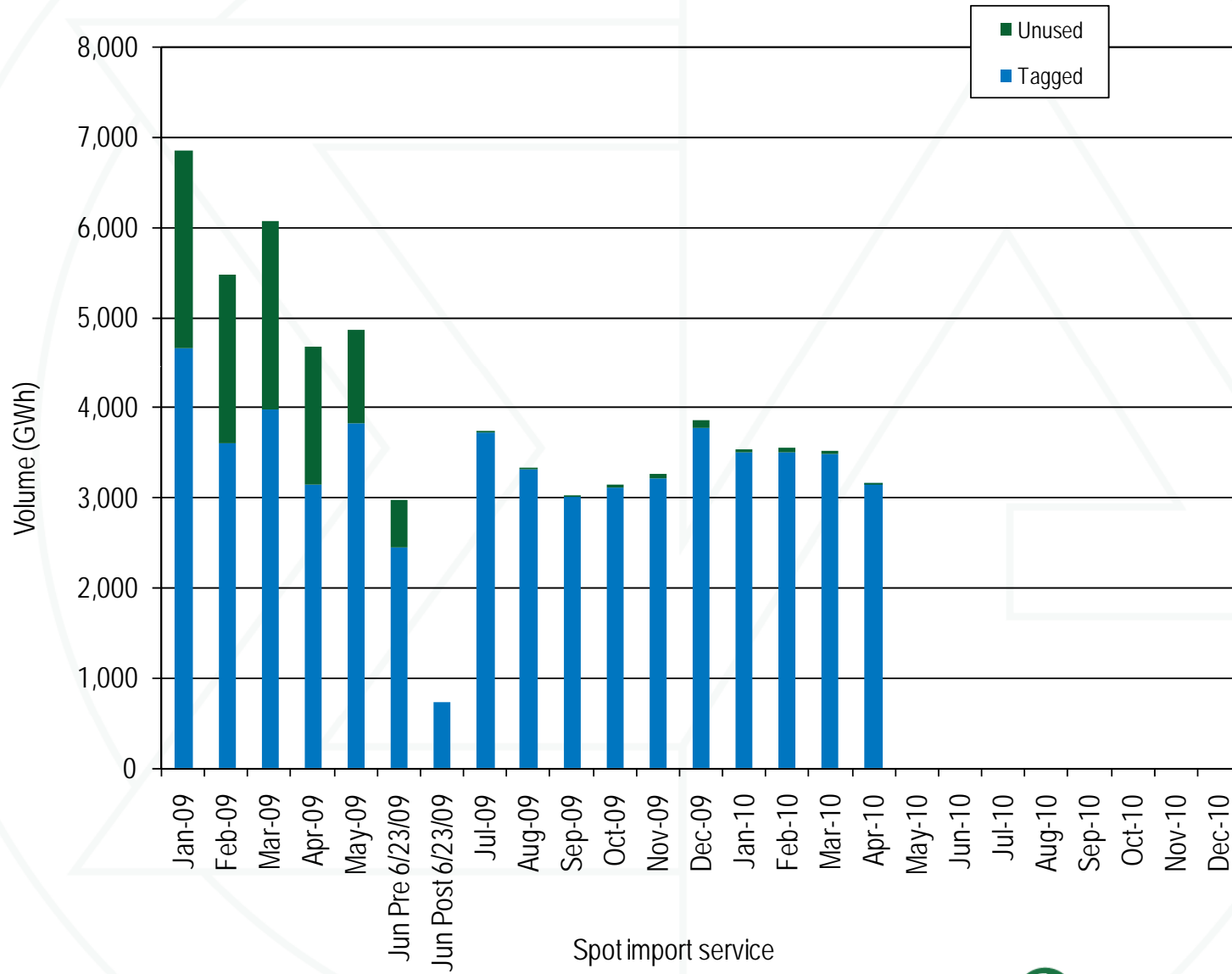
# Total settlements showing positive, negative and net gains for up-to congestion bids without a matching Real-Time Market transaction: January 2009 through April 2010



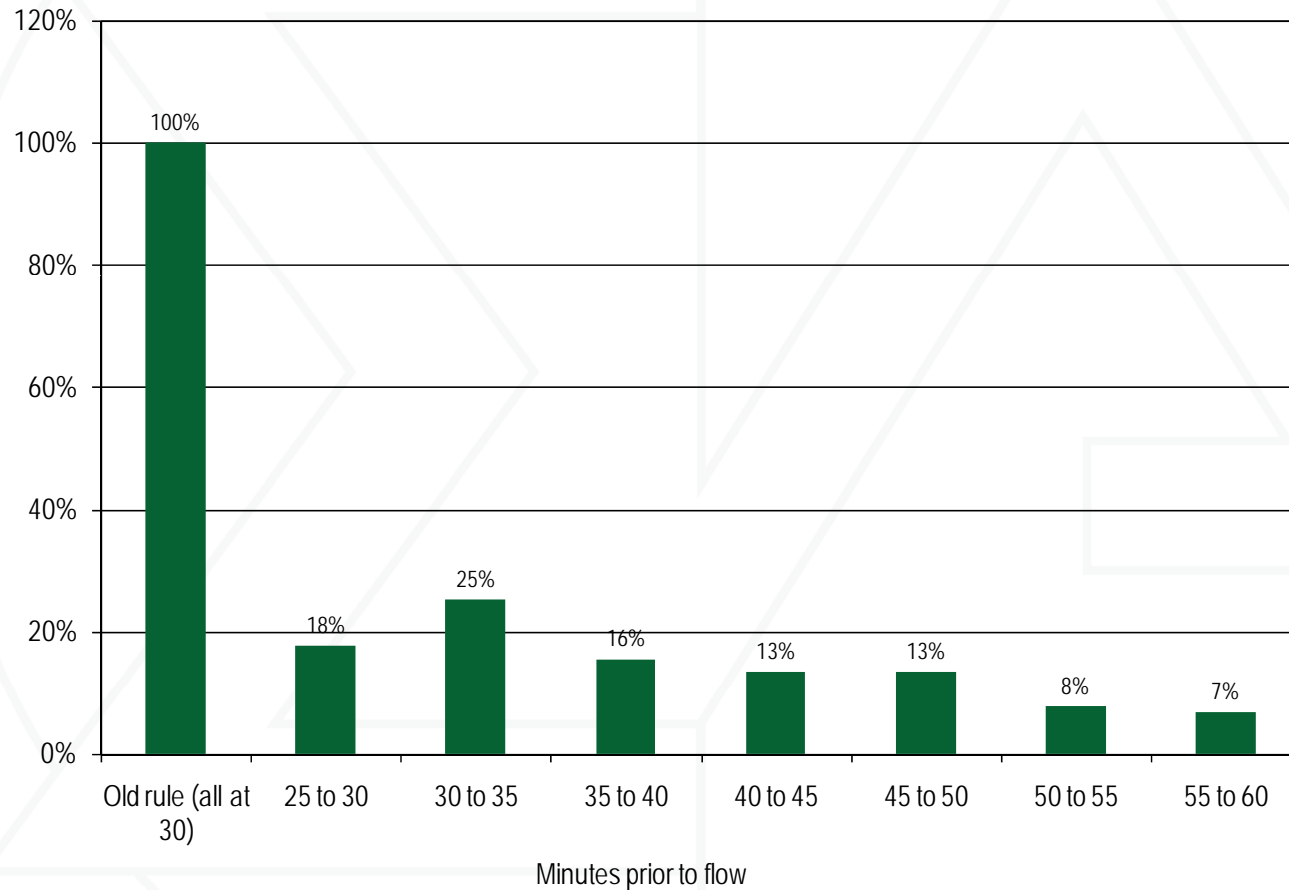
## Real-time average hourly LMP comparison for southeast, southwest, SouthIMP and SouthEXP Interface pricing points: November 1, 2006 through April 2010

	southeast LMP	southwest LMP	SOUTHIMP LMP	SOUTHEXP LMP	Difference southeast LMP - SOUTHIMP	Difference southwest LMP - SOUTHIMP	Difference southeast LMP - SOUTHEXP	Difference southwest LMP - SOUTHEXP
2006	\$42.55	\$37.89	\$38.36	\$42.02	\$4.20	(\$0.47)	\$0.53	(\$4.13)
2007	\$54.35	\$45.48	\$49.09	\$48.48	\$5.26	(\$3.61)	\$5.87	(\$3.01)
2008	\$62.97	\$51.43	\$55.47	\$55.44	\$7.50	(\$4.05)	\$7.53	(\$4.01)
2009	\$35.97	\$31.94	\$33.37	\$33.37	\$2.61	(\$1.42)	\$2.61	(\$1.42)
2010	\$42.70	\$35.73	\$38.59	\$38.59	\$4.10	(\$2.86)	\$4.10	(\$2.86)

# Spot import service utilization: January through April 2010



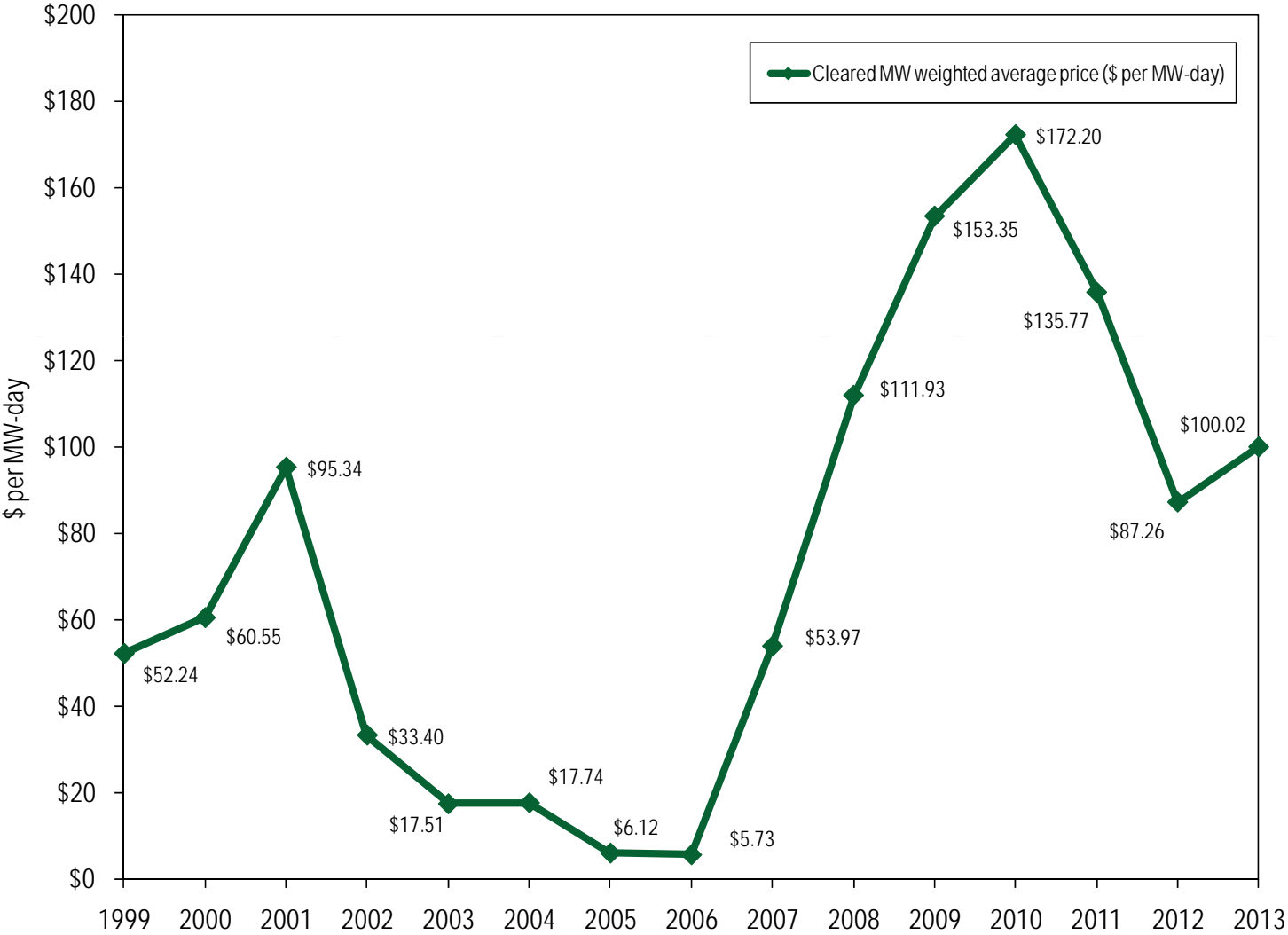
## Distribution of expired ramp reservations in the hour prior to flow (Old rules (Theoretical) and new rules (Actual)) October 2006 through April 2010



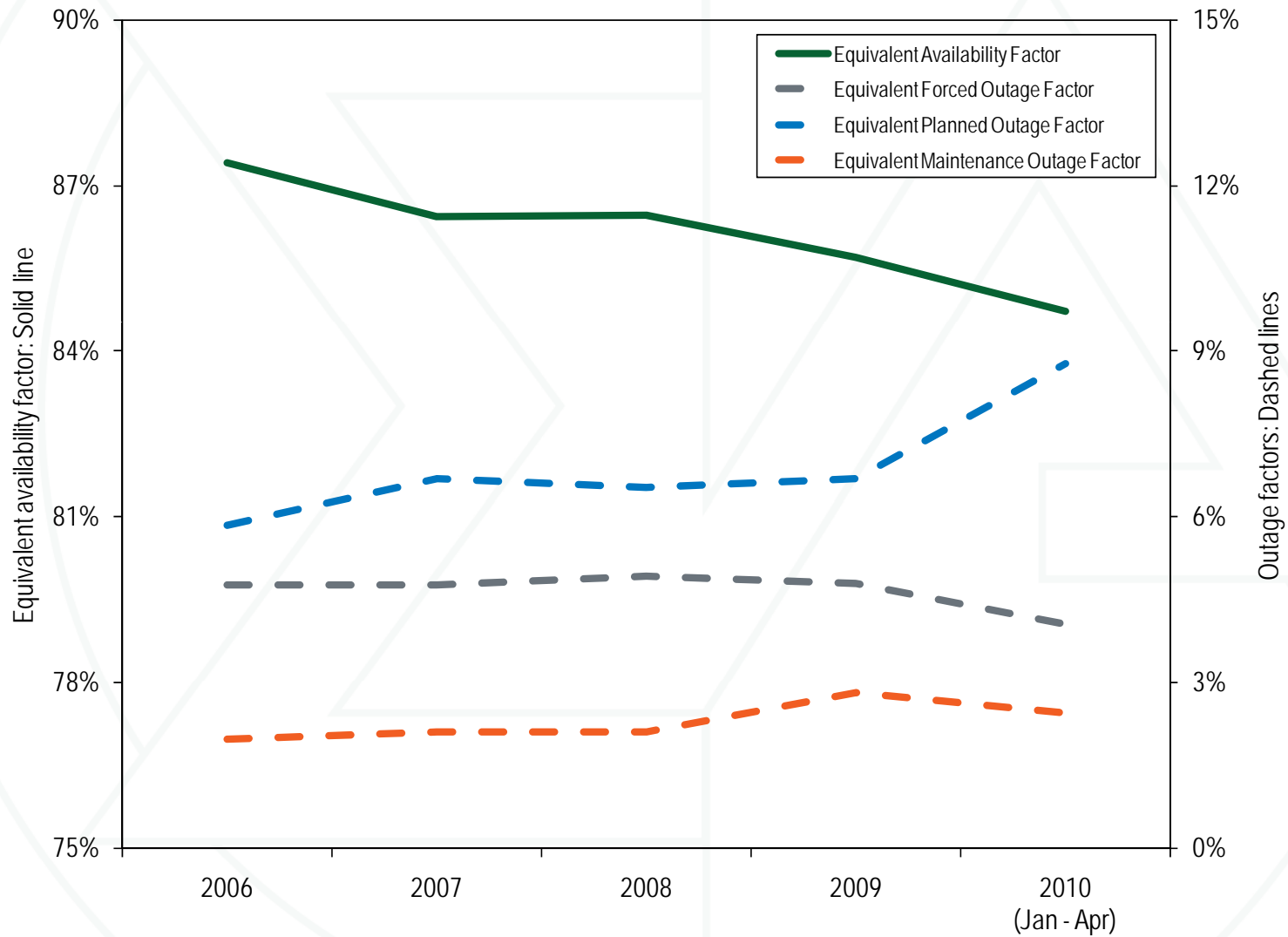
## Capacity prices: 2007/2008 through 2013/2014 RPM Auctions

	RPM Clearing Price (\$ per MW-day)							
	RTO	MAAC+APS	MAAC	EMAAC	SWMAAC	DPL South	PSEG North	Pepco
2007/2008 BRA	\$40.80			\$197.67	\$188.54			
2008/2009 BRA	\$111.92			\$148.80	\$210.11			
2008/2009 Third IA	\$10.00				\$223.85			
2009/2010 BRA	\$102.04	\$191.32			\$237.33			
2009/2010 Third IA	\$40.00	\$86.00						
2010/2011 BRA	\$174.29					\$186.12		
2010/2011 Third IA	\$50.00							
2011/2012 BRA	\$110.00							
2011/2012 First IA	\$55.00							
2011/2012 ATSI FRR Integration Auction	\$108.89							
2012/2013 BRA	\$16.46		\$133.37	\$139.73		\$222.30	\$185.00	
2012/2013 ATSI FRR Integration Auction	\$20.46							
2013/2014 BRA	\$27.73		\$226.15	\$245.00				\$247.14

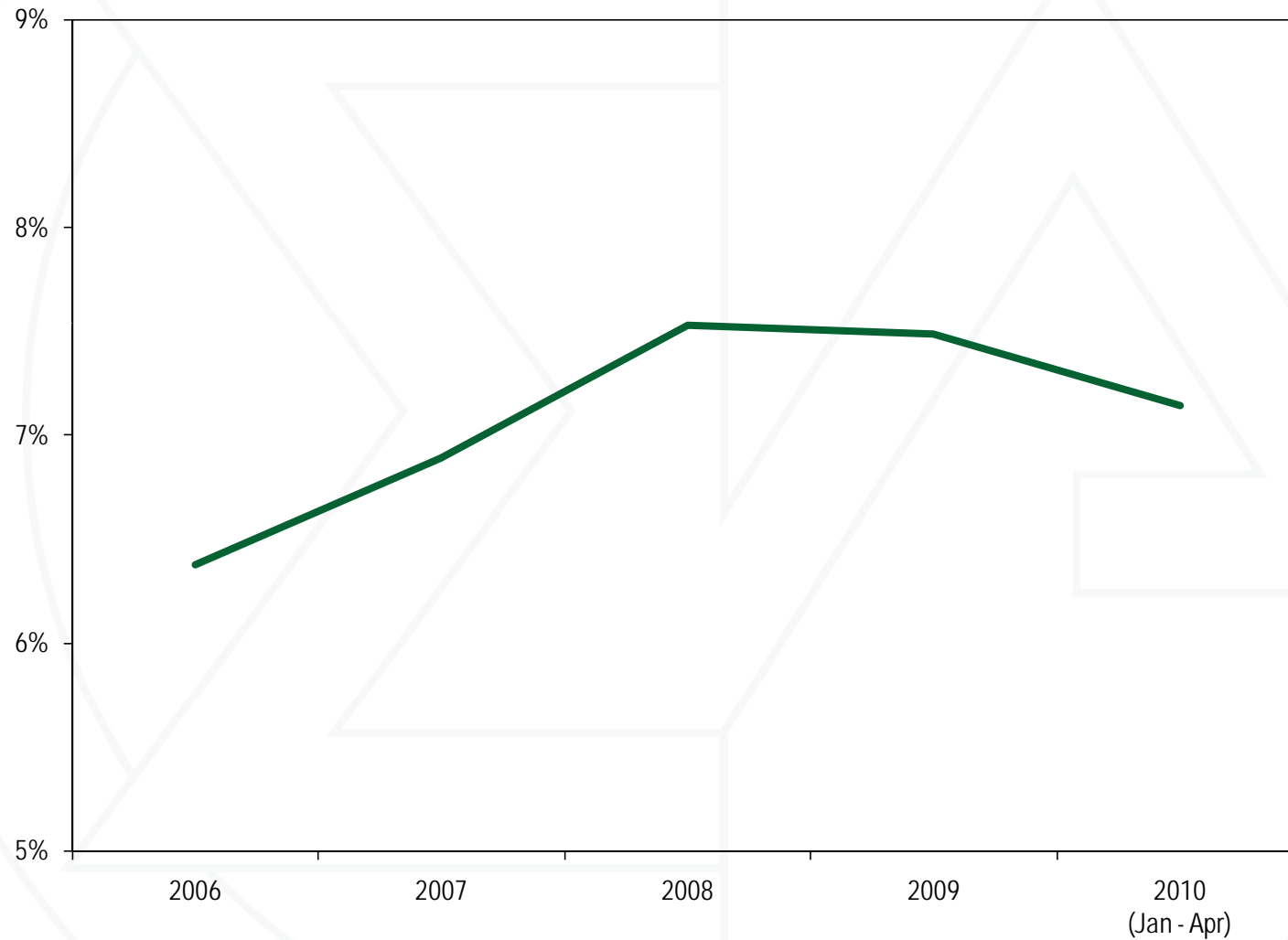
# History of capacity prices: Calendar year 1999 through 2013



## PJM equivalent outage and availability factors: Calendar years 2006 to April 2010

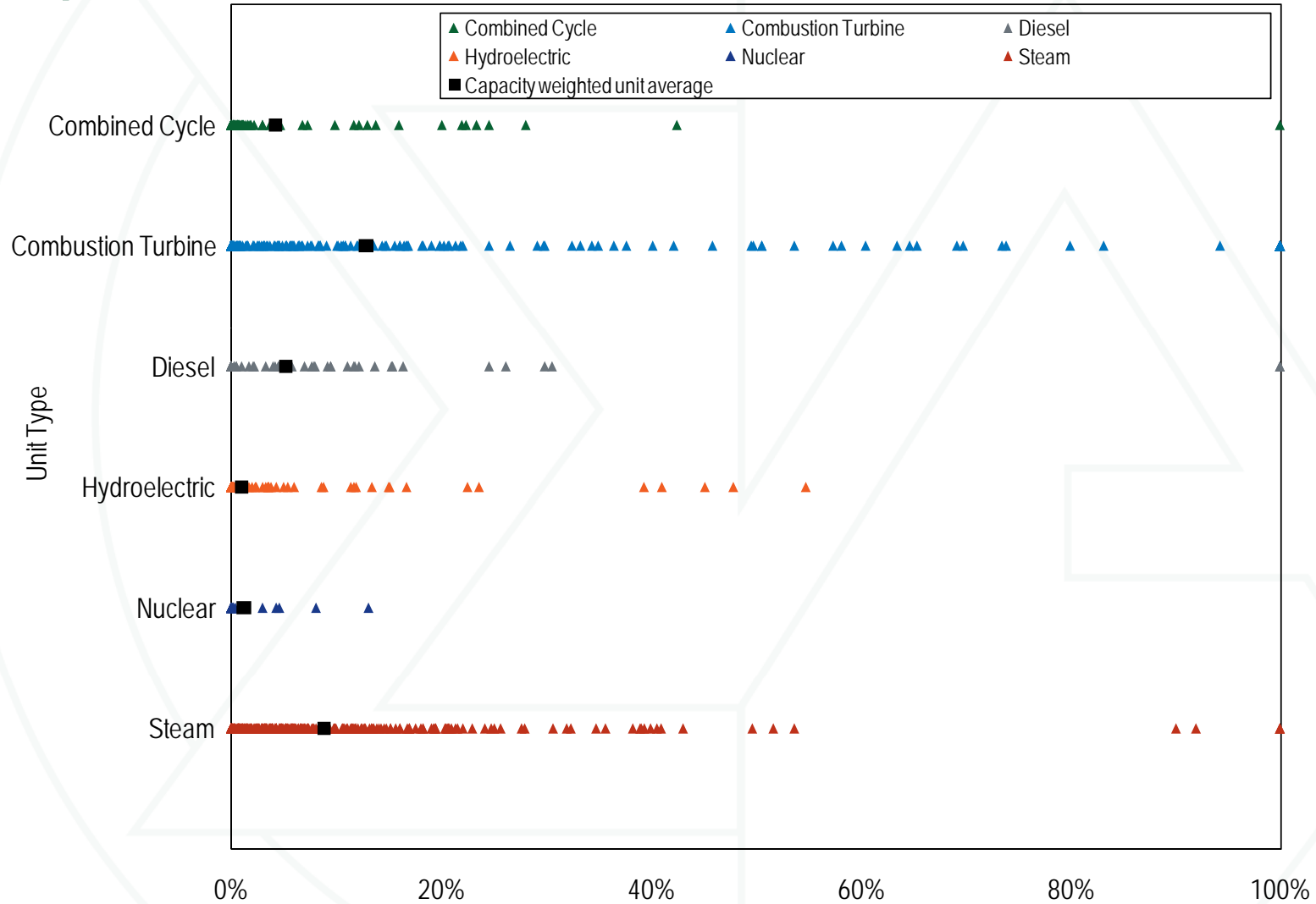


## Trends in the PJM equivalent demand forced outage rate (EFORd): Calendar years 2006 to April 2010





# PJM Distribution of EFORd data by unit type: January through April 2010



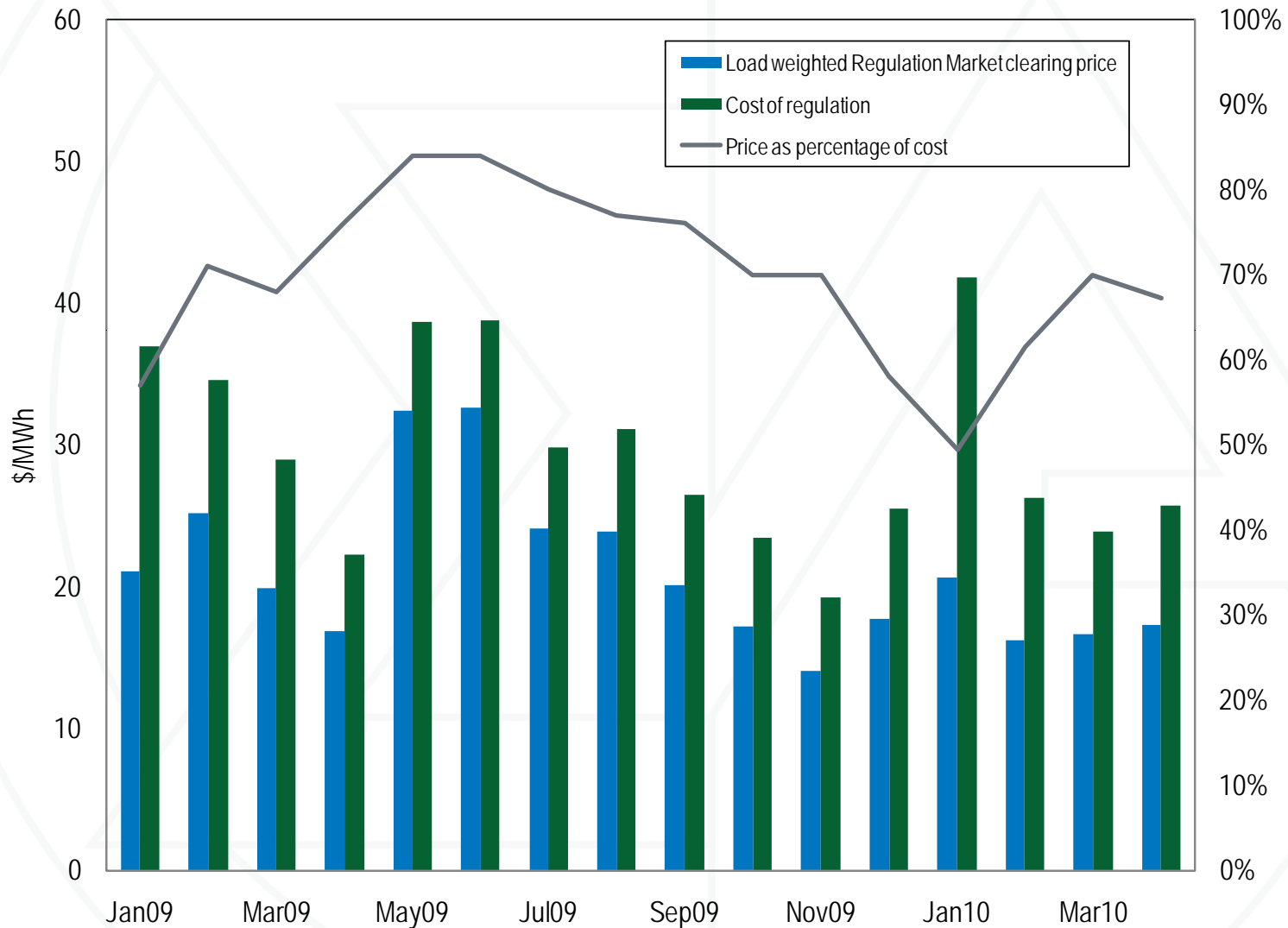
## Contribution to PJM EFORd, XEFORd and EFORp by unit type: January through April 2010

	EFORd	XEFORd	EFORp
Combined Cycle	4.2%	4.1%	1.9%
Combustion Turbine	12.9%	8.6%	2.4%
Diesel	5.2%	3.2%	3.5%
Hydroelectric	1.0%	0.7%	0.5%
Nuclear	1.2%	1.2%	1.0%
Steam	8.8%	7.2%	6.0%
Total	7.1%	5.7%	3.8%

## Regulation market monthly three pivotal supplier results: Calendar year 2009 through April 2010

Year	Month	Percent of Hours With Three Pivotal Suppliers
2009	Jan	84%
2009	Feb	61%
2009	Mar	42%
2009	Apr	39%
2009	May	31%
2009	Jun	37%
2009	Jul	39%
2009	Aug	35%
2009	Sep	47%
2009	Oct	64%
2009	Nov	62%
2009	Dec	80%
2010	Jan	74%
2010	Feb	70%
2010	Mar	81%
2010	Apr	82%

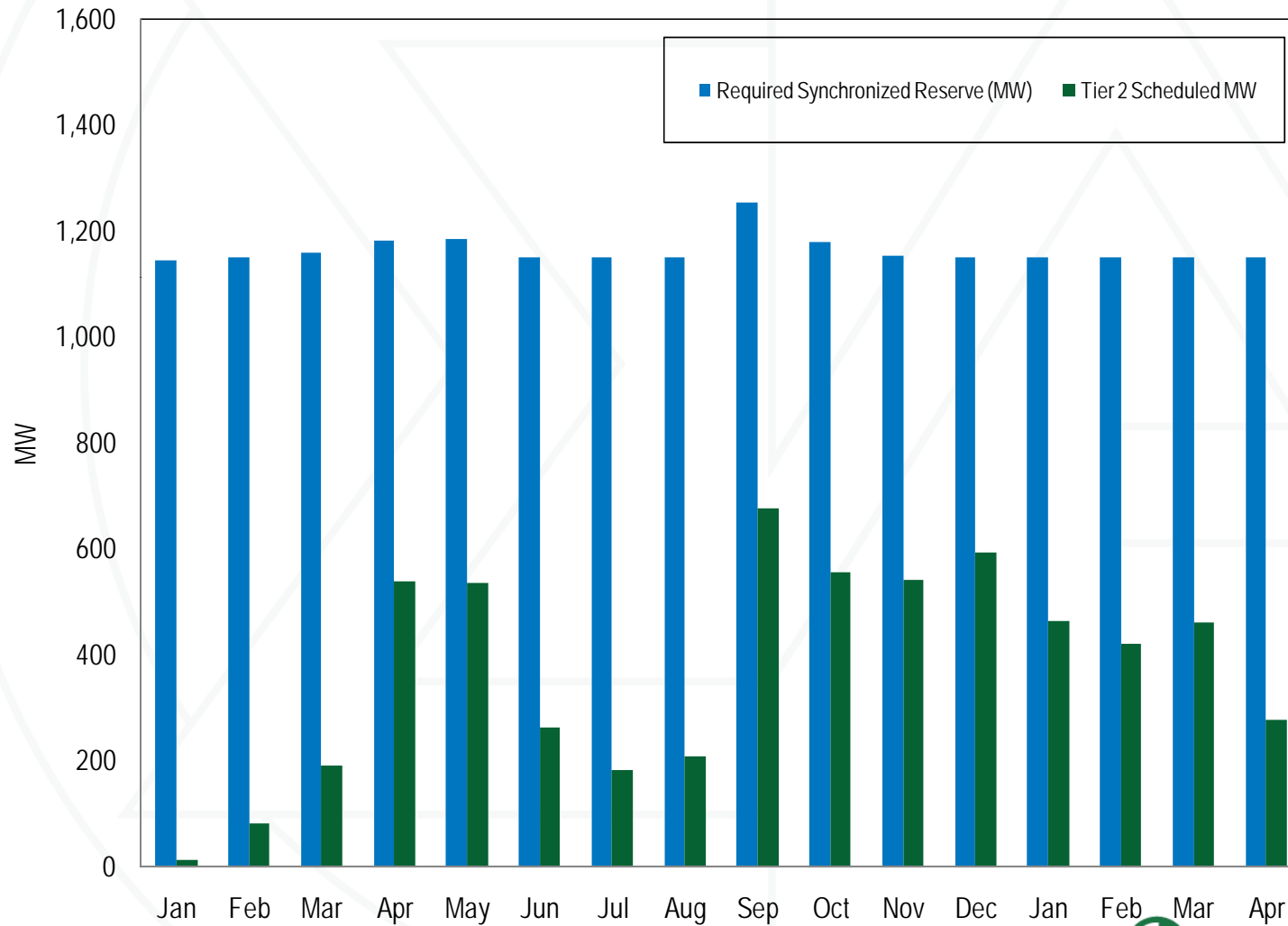
## Monthly load weighted, average regulation cost and price: Calendar year 2009 through April 2010



## Regulation Market pivotal supplier test results: January through April 2010, December 2008 through December 2009 and December 2007 through December 2008

Year	Month	Percent of Hours With Three Pivotal Suppliers	Year	Month	Percent of Hours With Three Pivotal Suppliers
2008	Dec	92%	2007	Dec	79%
2009	Jan	84%	2008	Jan	84%
2009	Feb	61%	2008	Feb	83%
2009	Mar	42%	2008	Mar	89%
2009	Apr	39%	2008	Apr	88%
2009	May	31%	2008	May	97%
2009	Jun	37%	2008	Jun	77%
2009	Jul	39%	2008	Jul	75%
2009	Aug	35%	2008	Aug	80%
2009	Sep	47%	2008	Sep	74%
2009	Oct	64%	2008	Oct	89%
2009	Nov	62%	2008	Nov	59%
2009	Dec	80%	2008	Dec	92%
2010	Jan	74%	2009	Jan	84%
2010	Feb	70%	2009	Feb	61%
2010	Mar	81%	2009	Mar	42%
2010	Apr	82%	2009	Apr	39%

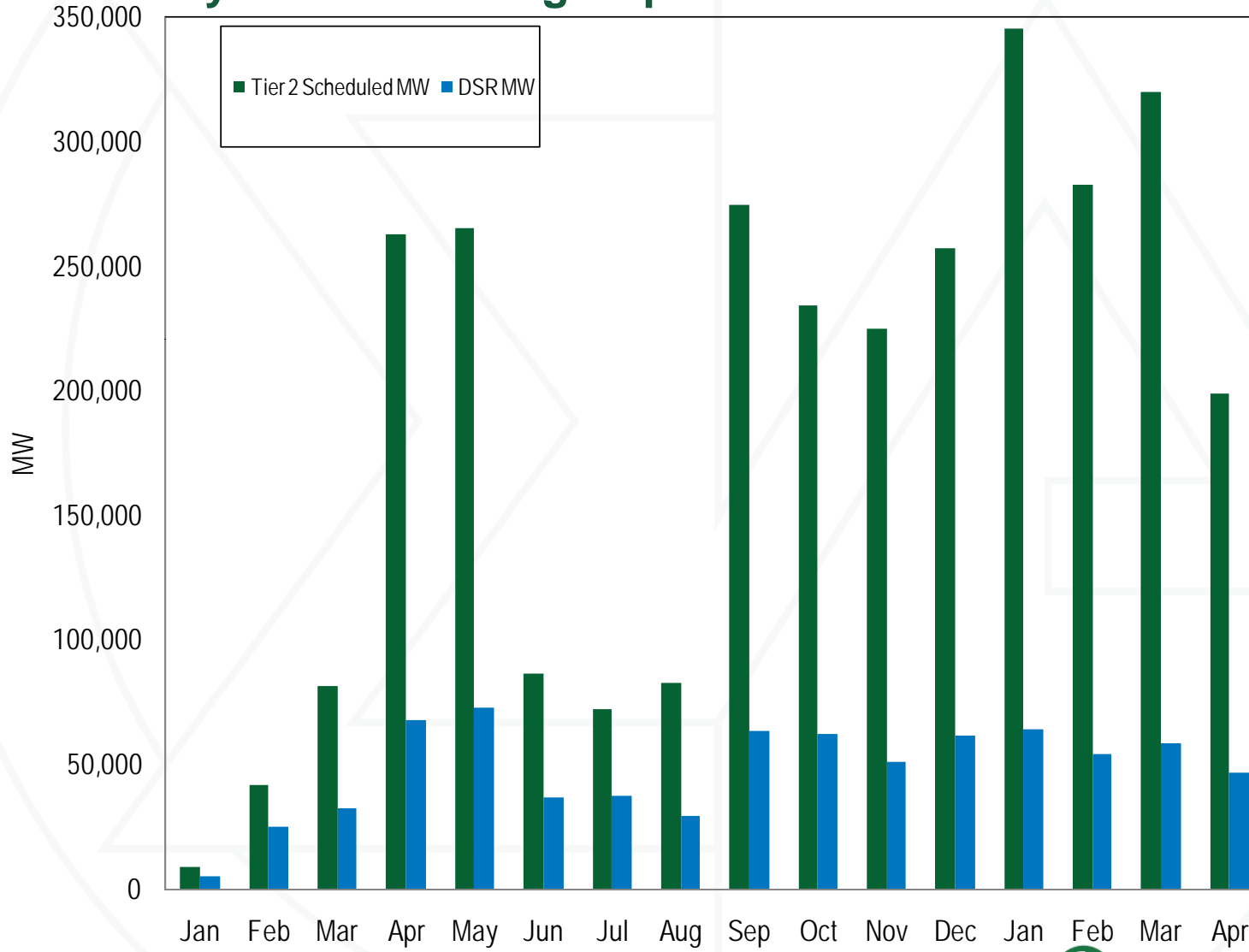
## RFC Synchronized Reserve Zone, Mid-Atlantic Subzone average hourly synchronized reserve required vs. Tier 2 scheduled: Calendar year 2009 through April 2010



## Average RFC SRMCP when all cleared synchronized reserve is DSR, average SRMCP, and percent of all cleared hours that all cleared synchronized reserve is DSR: Calendar year 2009 through April 2010

Year	Month	Average SRMCP when all cleared synchronized reserve is DSR	Average SRMCP	Percent of cleared hours all synchronized reserve is DSR
2009	Jan	\$1.24	\$5.90	43%
2009	Feb	\$2.01	\$5.09	47%
2009	Mar	\$1.98	\$5.50	26%
2009	Apr	\$2.49	\$7.12	9%
2009	May	\$1.91	\$7.56	12%
2009	Jun	\$1.76	\$5.97	27%
2009	Jul	\$1.95	\$5.41	31%
2009	Aug	\$1.36	\$5.37	13%
2009	Sep	\$1.77	\$7.65	2%
2009	Oct	\$1.37	\$5.94	0%
2009	Nov	\$0.50	\$6.47	1%
2009	Dec	\$1.05	\$7.11	1%
2010	Jan	\$2.03	\$5.84	4%
2010	Feb	\$0.10	\$5.97	1%
2010	Mar	\$2.01	\$8.45	6%
2010	Apr	\$1.86	\$7.84	17%

## PJM RFC Zone Tier 2 synchronized reserve scheduled MW: Calendar year 2009 through April 2010





## PJM, Day-Ahead Scheduling Reserve Market MW and clearing prices: Calendar year 2009 through April 2010

Year	Month	Average Required Hourly DASR (MW)	Minimum Clearing Price	Maximum Clearing Price	Average Load Weighted Clearing Price	Total DASR MW Purchased	Total DASR Credits
2009	Jan	5,875	\$0.00	\$0.50	\$0.09	4,103,463	\$381,735
2009	Feb	5,517	\$0.00	\$0.25	\$0.05	3,510,983	\$180,767
2009	Mar	5,068	\$0.00	\$1.00	\$0.03	3,499,722	\$113,507
2009	Apr	4,910	\$0.00	\$0.50	\$0.03	3,354,999	\$92,158
2009	May	4,957	\$0.00	\$0.07	\$0.02	3,478,374	\$77,850
2009	Jun	5,936	\$0.00	\$0.75	\$0.05	4,006,547	\$191,578
2009	Jul	6,071	\$0.00	\$0.50	\$0.04	4,191,307	\$155,790
2009	Aug	6,725	\$0.00	\$4.00	\$0.13	4,773,330	\$620,430
2009	Sep	5,438	\$0.00	\$0.42	\$0.02	3,764,923	\$77,945
2009	Oct	5,023	\$0.00	\$0.42	\$0.03	3,610,812	\$102,984
2009	Nov	5,188	\$0.00	\$0.42	\$0.03	3,556,557	\$113,027
2009	Dec	5,992	\$0.00	\$0.50	\$0.05	3,921,732	\$191,599
2010	Jan	6,246	\$0.00	\$0.75	\$0.05	4,647,334	\$119,451
2010	Feb	6,191	\$0.00	\$0.50	\$0.06	4,160,064	\$171,919
2010	Mar	5,441	\$0.00	\$0.50	\$0.03	4,042,540	\$110,074
2010	Apr	4,871	\$0.00	\$0.42	\$0.01	3,789,115	\$45,195

## Black Start yearly zonal charges for network transmission use: January through April 2010

Zone	Network Charges
AECO	\$124,991
AEP	\$247,584
AP	\$45,796
BGE	\$162,245
ComEd	\$1,246,056
DAY	\$49,220
DLCO	\$8,980
DPL	\$131,411
JCPL	\$146,974
Met-Ed	\$136,652
PECO	\$244,425
PENELEC	\$113,881
Pepco	\$75,090
PPL	\$52,128
PSEG	\$318,862

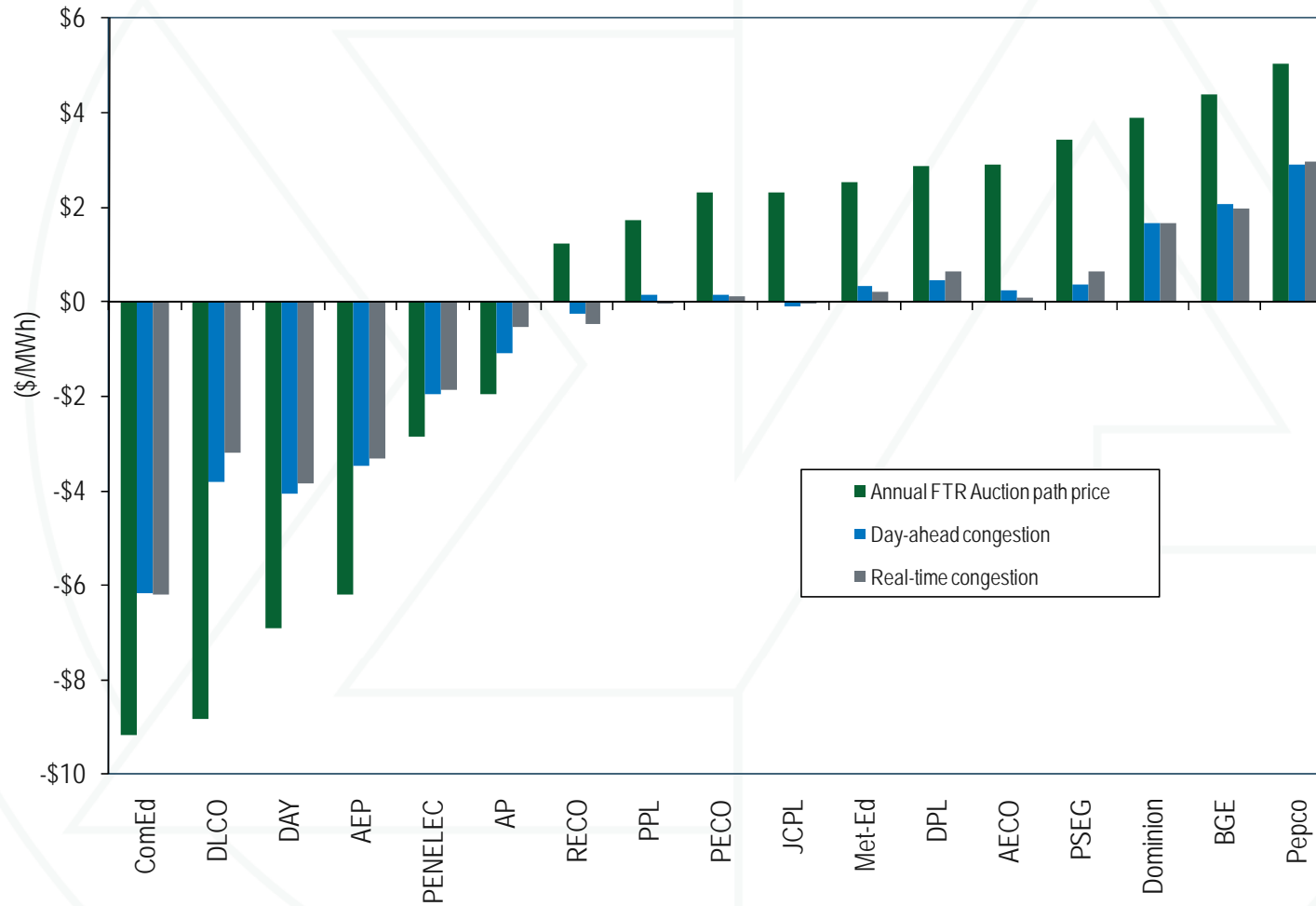
## Total monthly PJM congestion (Dollars (Millions)): Calendar years 2008 through April 2010

	2008	2009	2010
Jan	\$231.0	\$149.3	\$218.5
Feb	\$168.1	\$83.0	\$106.4
Mar	\$86.4	\$74.6	\$20.4
Apr	\$126.2	\$25.6	\$42.6
May	\$182.8	\$25.9	
Jun	\$436.4	\$49.8	
Jul	\$359.8	\$39.4	
Aug	\$127.4	\$72.1	
Sep	\$124.8	\$23.9	
Oct	\$102.2	\$42.7	
Nov	\$93.0	\$36.3	
Dec	\$78.4	\$96.4	
Total	\$2,116.6	\$719.0	\$387.9

## Monthly Balance of Planning Period FTR Auction patterns of ownership by FTR direction: January through April 2010

Organization Type	FTR Direction		
	Prevailing Flow	Counter Flow	All
Physical	31.5%	18.8%	25.8%
Financial	68.5%	81.2%	74.2%
Total	100.0%	100.0%	100.0%

# Annual FTR Auction prices vs. average day-ahead and real-time congestion for all control zones relative to the Western Hub: Planning period 2009 to 2010 through April 30, 2010



## ARR and self scheduled FTR congestion hedging by control zone: Planning period 2009 to 2010, through April 2010

Control Zone	ARR Credits	Self-Scheduled FTR Credits	Total Revenue	Congestion	Total Revenue - Congestion Difference	Percent Hedged
AECO	\$16,334,067	\$548,816	\$16,882,883	\$15,306,536	\$1,576,346	>100%
AEP	\$4,284,698	\$138,589,362	\$142,874,060	\$113,396,655	\$29,477,405	>100%
AP	\$45,451,856	\$164,412,842	\$209,864,698	\$40,618,349	\$169,246,349	>100%
BGE	\$46,459,694	\$2,587,471	\$49,047,165	\$7,542,087	\$41,505,078	>100%
ComEd	\$14,549,758	\$28,779,773	\$43,329,531	\$65,384,670	(\$22,055,139)	66.3%
DAY	\$6,207,117	\$709,605	\$6,916,722	\$9,190,753	(\$2,274,031)	75.3%
DLCO	\$2,450,918	\$2,470	\$2,453,388	\$17,499,804	(\$15,046,415)	14.0%
Dominion	\$16,378,603	\$719,127	\$17,097,730	\$61,025,068	(\$43,927,338)	28.0%
DPL	\$6,134,065	\$132,185,838	\$138,319,903	\$26,111,447	\$112,208,456	>100%
JCPL	\$28,119,166	\$612,542	\$28,731,708	\$18,964,428	\$9,767,280	>100%
Met-Ed	\$108,900	\$10,642,906	\$10,751,806	\$17,608,188	(\$6,856,381)	61.1%
PECO	\$1,932,121	\$15,816,480	\$17,748,601	(\$19,952,508)	\$37,701,110	>100%
PENELEC	\$22,966,832	\$10,284,590	\$33,251,422	\$8,028,101	\$25,223,321	>100%
Pepco	\$21,798,040	\$1,583,163	\$23,381,203	\$128,339,434	(\$104,958,231)	18.2%
PJM	\$7,727,385	(\$288,346)	\$7,439,039	\$1,979,193	\$5,459,846	>100%
PPL	\$1,102,352	\$13,225,327	\$14,327,679	(\$22,907,946)	\$37,235,624	>100%
PSEG	\$83,906,675	\$2,855,002	\$86,761,677	\$9,155,346	\$77,606,332	>100%
RECO	(\$41,455)	\$0	(\$41,455)	\$1,163,135	(\$1,204,590)	0%
	\$325,870,792	\$523,266,970	\$849,137,762	\$498,452,740	\$350,685,022	>100%

## ARR and FTR congestion hedging by control zone: Planning period 2009 to 2010, through April 2010

Control Zone	ARR Credits	FTR Credits	FTR Auction Revenue	Total ARR and FTR Hedge	Total ARR and FTR Congestion	Total Hedge - Congestion Difference	Percent Hedged
AECO	\$19,253,322	\$4,206,805	\$24,363,404	(\$903,277)	\$11,513,301	(\$12,416,578)	0%
AEP	\$223,262,229	\$152,542,440	\$217,856,097	\$157,948,572	\$113,820,374	\$44,128,198	>100%
AP	\$365,048,488	\$167,272,907	\$329,057,624	\$203,263,771	\$126,169,065	\$77,094,706	>100%
BGE	\$52,131,739	\$27,442,697	\$36,112,263	\$43,462,173	\$37,636,381	\$5,825,792	>100%
ComEd	\$27,261,279	\$56,953,943	\$13,917,168	\$70,298,054	\$198,974,984	(\$128,676,930)	35.3%
DAY	\$7,505,314	\$1,126,243	\$177,454	\$8,454,103	\$7,315,658	\$1,138,445	>100%
DLCO	\$2,454,337	\$8,077,687	(\$3,105,657)	\$13,637,681	\$23,152,035	(\$9,514,354)	58.9%
Dominion	\$213,840,239	\$140,044,483	\$233,932,094	\$119,952,628	\$141,898,580	(\$21,945,952)	84.5%
DPL	\$17,792,090	\$12,310,216	\$35,117,877	(\$5,015,571)	\$27,070,652	(\$32,086,223)	0%
JCPL	\$34,924,192	(\$269,643)	\$43,605,250	(\$8,950,701)	\$18,032,967	(\$26,983,668)	0%
Met-Ed	\$27,312,021	\$14,006,299	\$33,226,140	\$8,092,180	\$3,517,434	\$4,574,746	>100%
PECO	\$49,863,646	\$18,566,678	\$55,530,032	\$12,900,292	(\$22,828,165)	\$35,728,457	>100%
PENELEC	\$49,412,326	\$48,140,534	\$69,786,304	\$27,766,556	\$51,480,628	(\$23,714,072)	53.9%
Pepco	\$23,702,306	\$98,887,853	\$91,969,382	\$30,620,777	\$59,571,625	(\$28,950,848)	51.4%
PJM	\$9,979,482	(\$4,977,771)	(\$4,244,738)	\$9,246,449	(\$5,066,022)	\$14,312,471	>100%
PPL	\$55,143,860	\$19,755,489	\$61,134,734	\$13,764,615	(\$8,467,588)	\$22,232,203	>100%
PSEG	\$94,609,270	\$33,705,989	\$112,851,410	\$15,463,849	\$676,140	\$14,787,709	>100%
RECO	(\$41,455)	(\$1,105,170)	(\$2,841,124)	\$1,694,499	\$1,295,331	\$399,168	>100%
	\$1,273,454,685	\$796,687,680	\$1,348,445,714	\$721,696,651	\$785,763,380	(\$64,066,729)	91.8%

## ARR and FTR congestion hedging: Planning periods 2008 to 2009 and 2009 to 2010, through April 2010

Planning Period	ARR Credits	FTR Credits	FTR Auction Revenue	Total ARR and FTR Hedge	Congestion	Total Hedge - Congestion Difference	Percent Hedged
2008/2009	\$2,361,292,807	\$1,748,201,585	\$2,489,609,470	\$1,619,884,922	\$1,489,647,665	\$130,237,257	>100%
2009/2010*	\$1,168,436,632	\$796,706,374	\$1,252,086,557	\$713,056,449	\$748,493,943	(\$35,437,494)	95.3%

\* Shows eleven months ended 30-Apr-10