



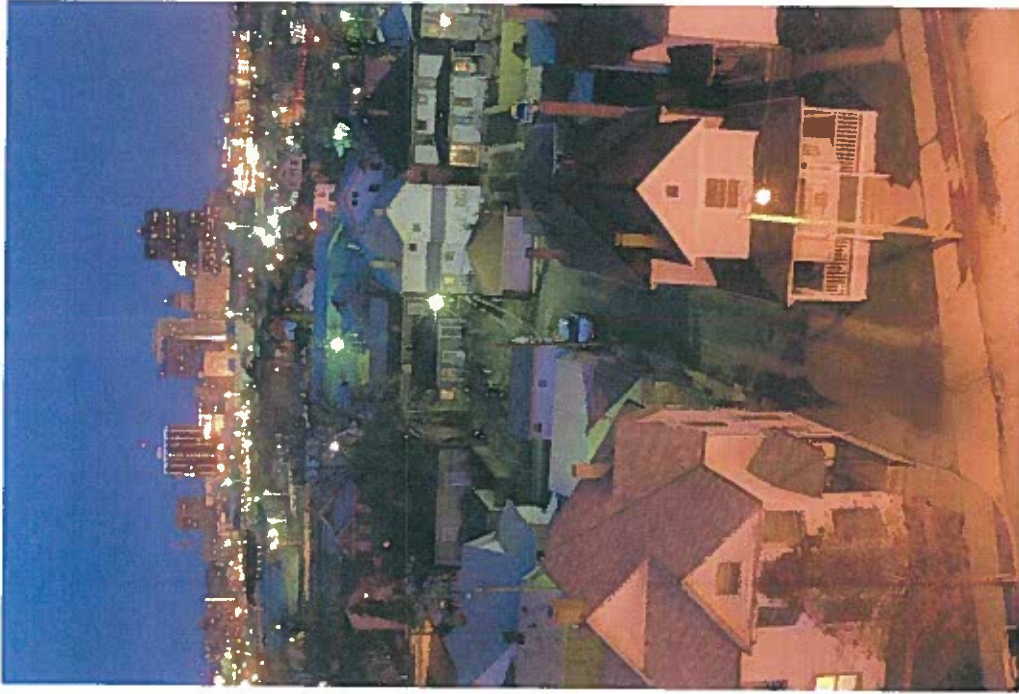
Consumer Affairs Committee Pennsylvania House of Representatives

Public Informational Hearing
February 10, 2011

Stephen Boyle
Manager, Regulatory & Legislative Affairs



Keeping The Lights On





PJM's Role as a Regional Transmission Organization

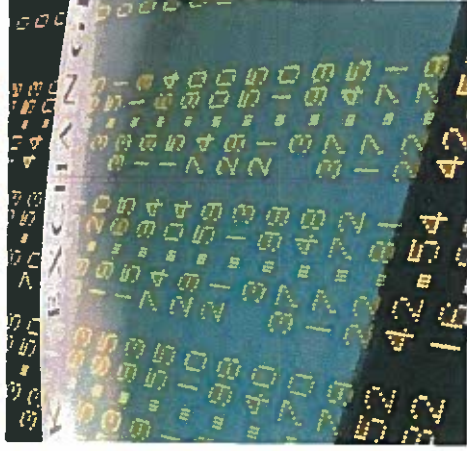
Air Traffic Controllers for the Transmission Grid



Match generation to load



Stock Market for Electricity



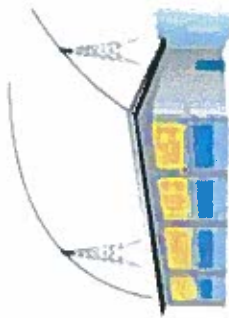
Energy Market Pricing

LMP (Zone)	LMP (Hub)
AE	\$54.09
AEP	\$34.32
APS	\$39.91
BC	\$72.48
COMED	\$33.31
DAYTON	\$35.58
DOM	\$53.88
DPL	\$55.38
DUQ	\$35.01
JC	\$67.92
NE	\$67.89
PE	\$70.53
PEP	\$73.23
PJW	\$49.93
PL	\$54.60
PV	\$42.51
PS	\$66.51
RECO	\$63.40
LMP (Hub)	
AEP GEN HUB	\$32.77
AEP-DAYTON HUB	\$34.08
CHICAGO GEN HUB	\$32.66
CHICAGO HUB	\$33.19
DOMINION HUB	\$48.14
EASTERN HUB	\$71.67
N ILLINOIS HUB	\$32.94
NEW JERSEY HUB	\$64.66
OHIO HUB	\$34.45
WEST INT HUB	\$39.04
WESTERN HUB	\$33.95

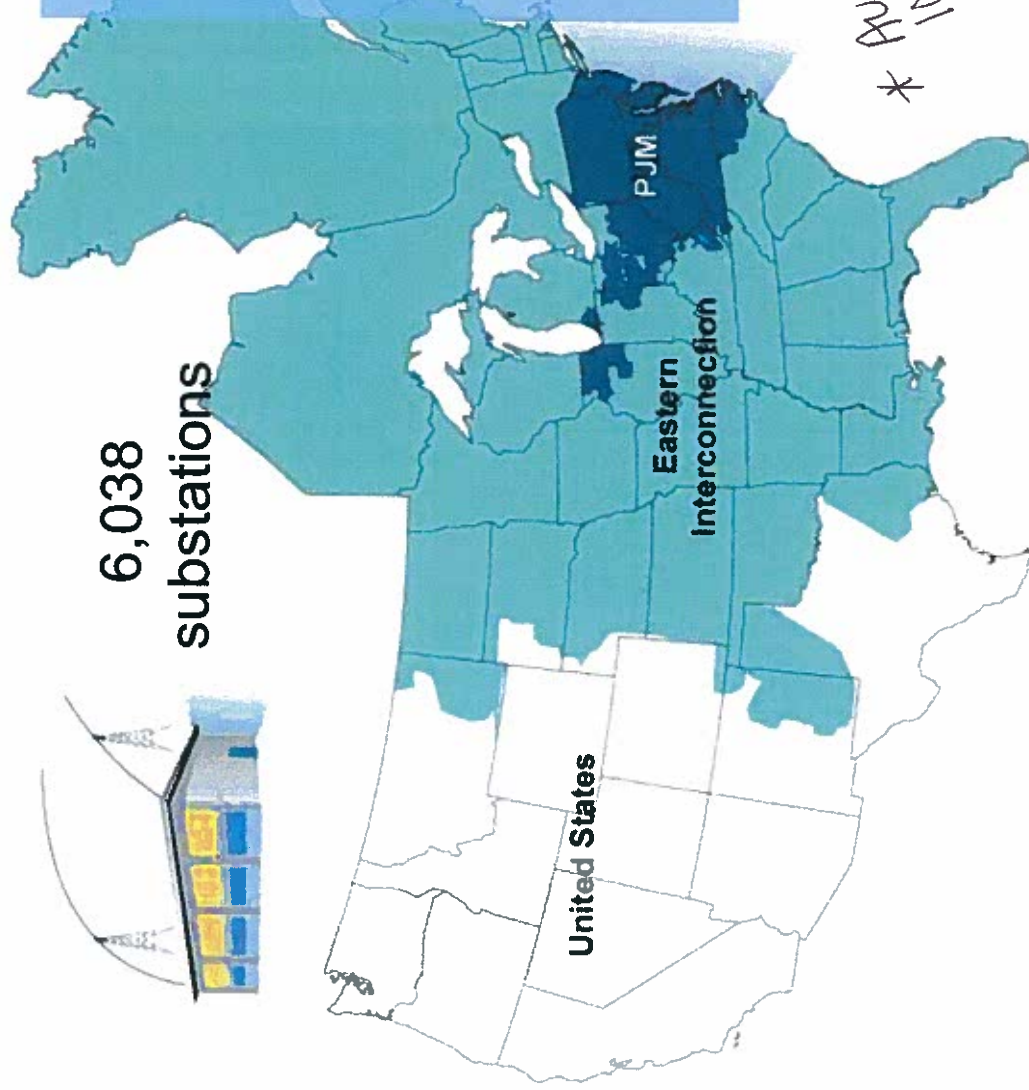
Prices are per megawatt-hour.



PJM as Part of the Eastern Interconnection



6,038 substations



KEY STATISTICS

PJM member companies	660+
millions of people served	54
peak load in megawatts	144,644
MW of generating capacity	176,000
miles of transmission lines	56,750
GWh of annual energy	745,000
generation sources	1,340
square miles of territory	168,500
area served	13 states + DC
Internal/external tie lines	250

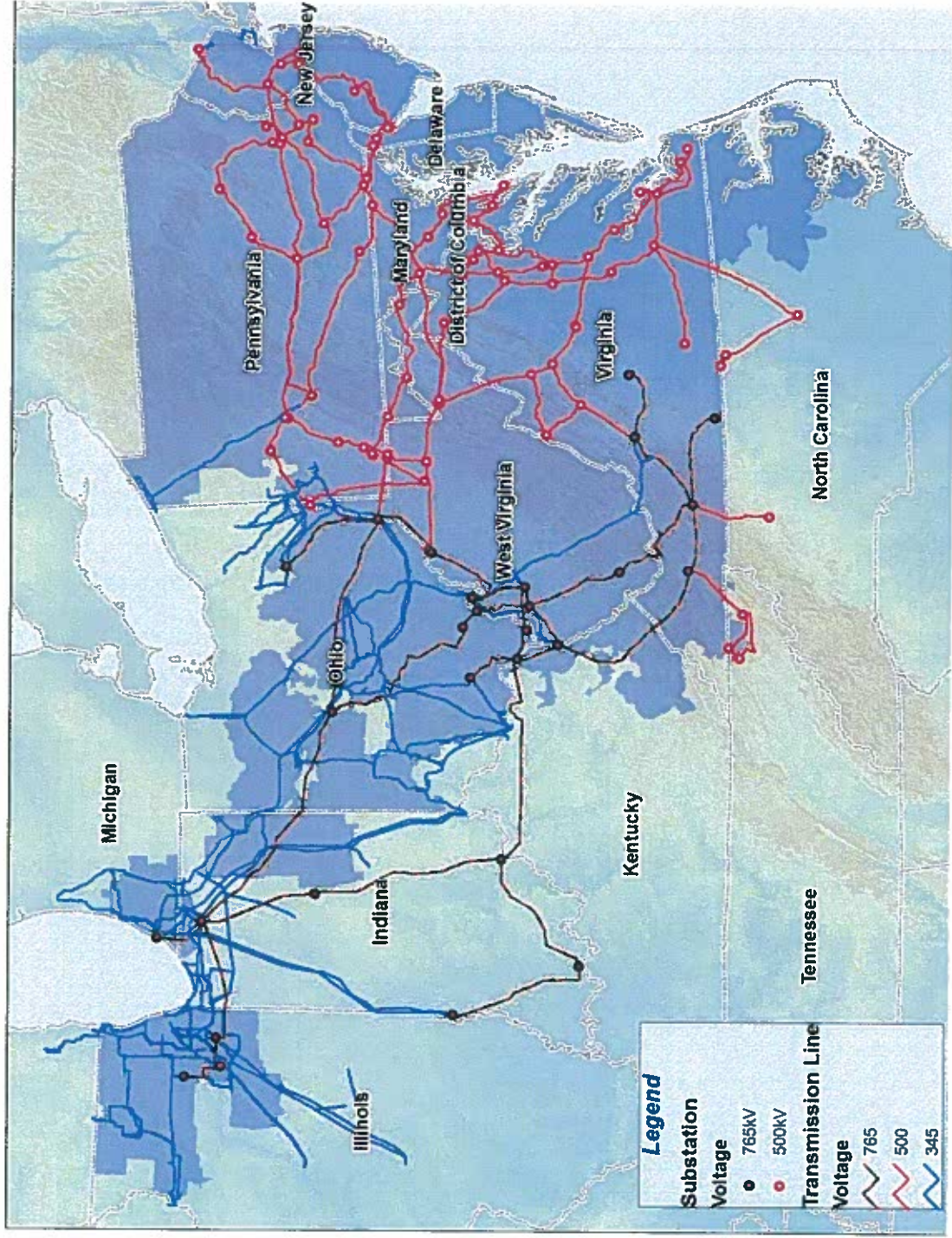
* PJM is 2000 lbs of load for every 1000 lbs of generation in Eastern Interconnection

- 23% of load in Eastern Interconnection

- 19% of transmission assets in Eastern Interconnection
- 20% of U.S. GDP produced in PJM



PJM Backbone Transmission System



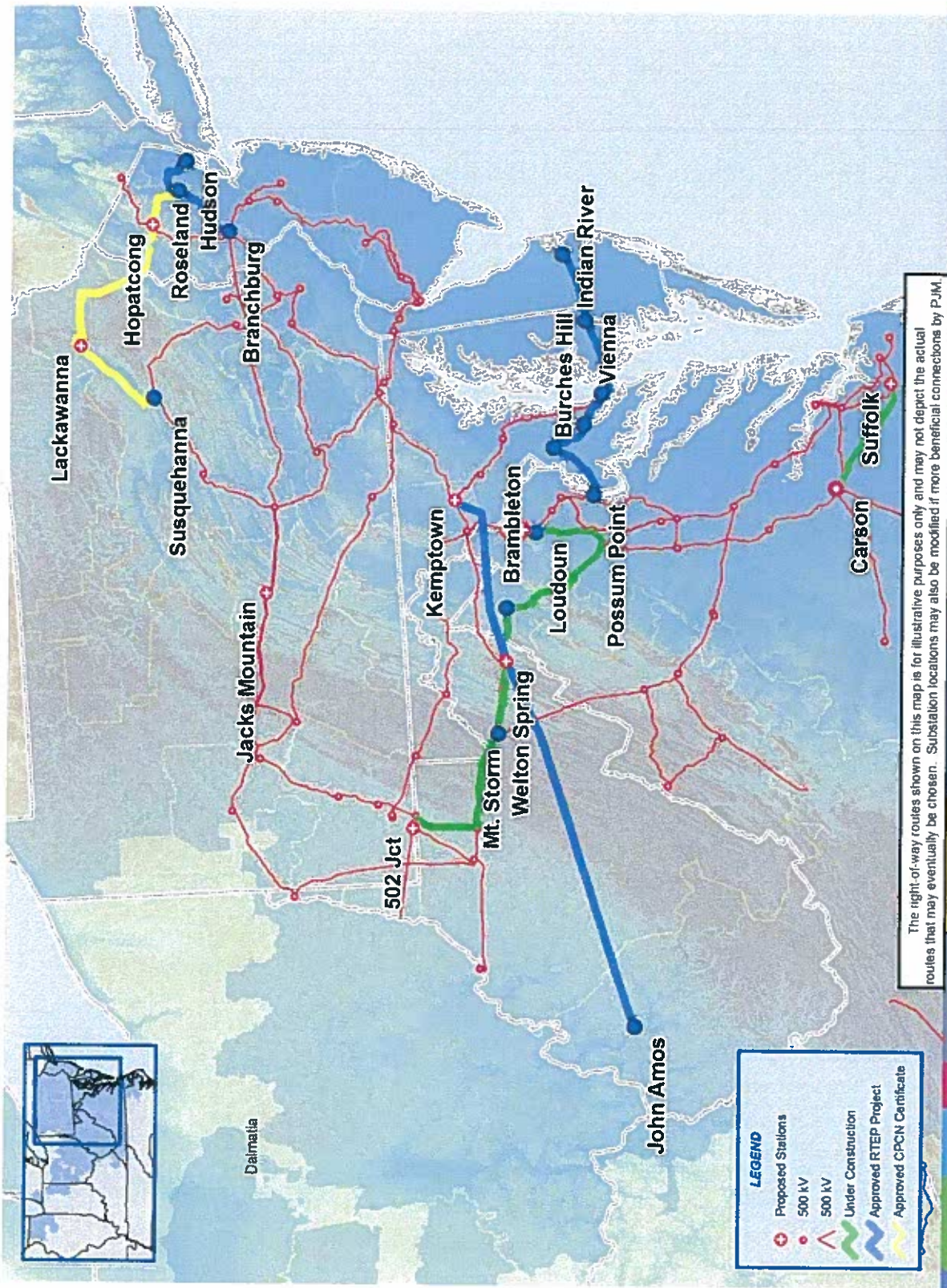


Regional Transmission Expansion Plan (RTEP) Development Drivers

- Reliability Criteria
 - Load Growth (e.g. economic forecasts)
 - Generator Interconnections/Deactivations
 - Market Efficiency
 - Operational Analysis
 - Inter RTO/ISO Coordinated Planning



Approved PJM Backbone Facilities





Generation Interconnection Process

275,000 MW of requests since 1997

22,000 MW of new generation

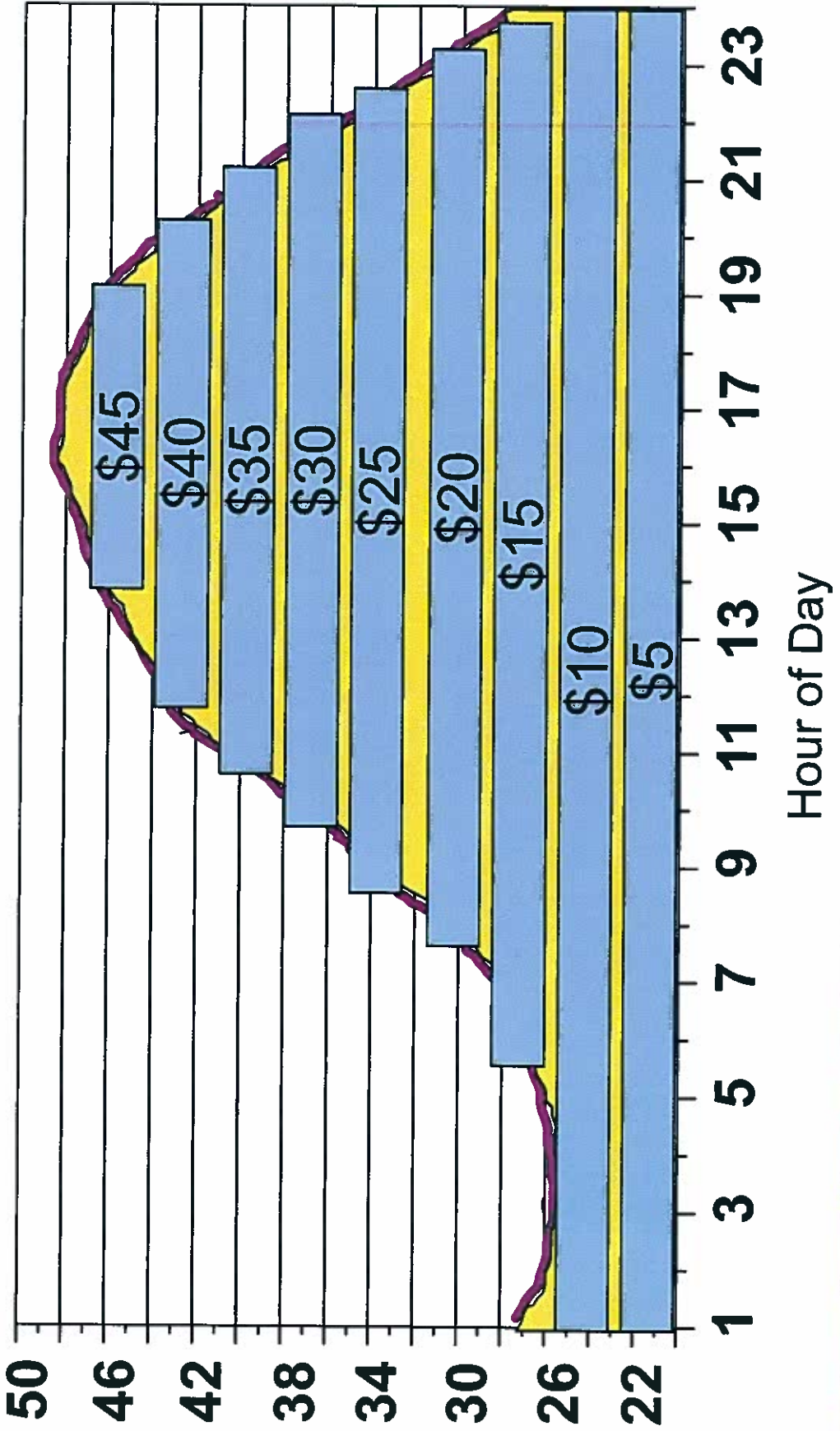
240 generation projects in service

- PJM's RTEP process has received requests to interconnect over 275,000 MW since 1997
- PJM coordinated system enhancements have accommodated over 22,000 MW of new generation
- 240 generation projects have gone into service



Wholesale Market Operations

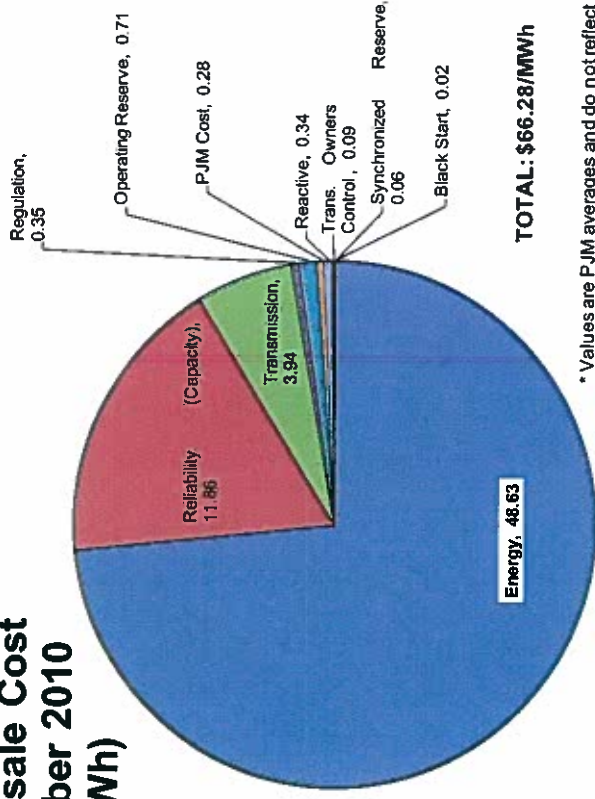
Economic Dispatch of Generation to Meet Demand





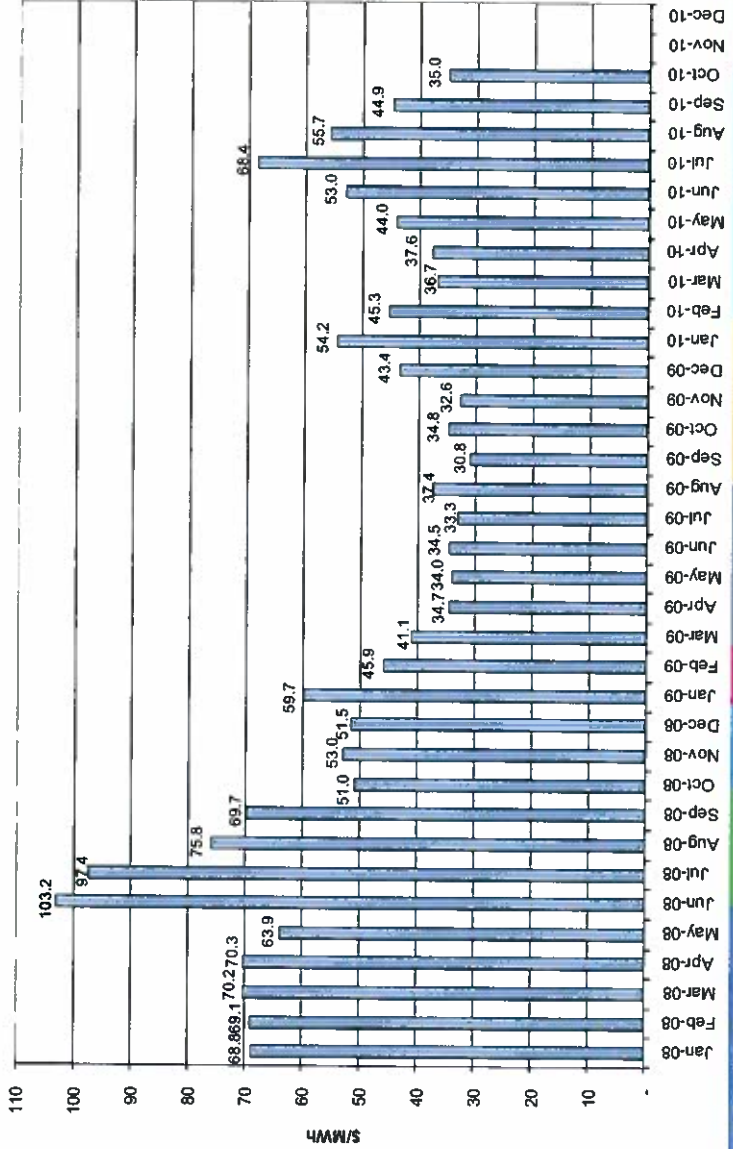
PJM Market Results

PJM Wholesale Cost YTD October 2010 (\$/MWh)



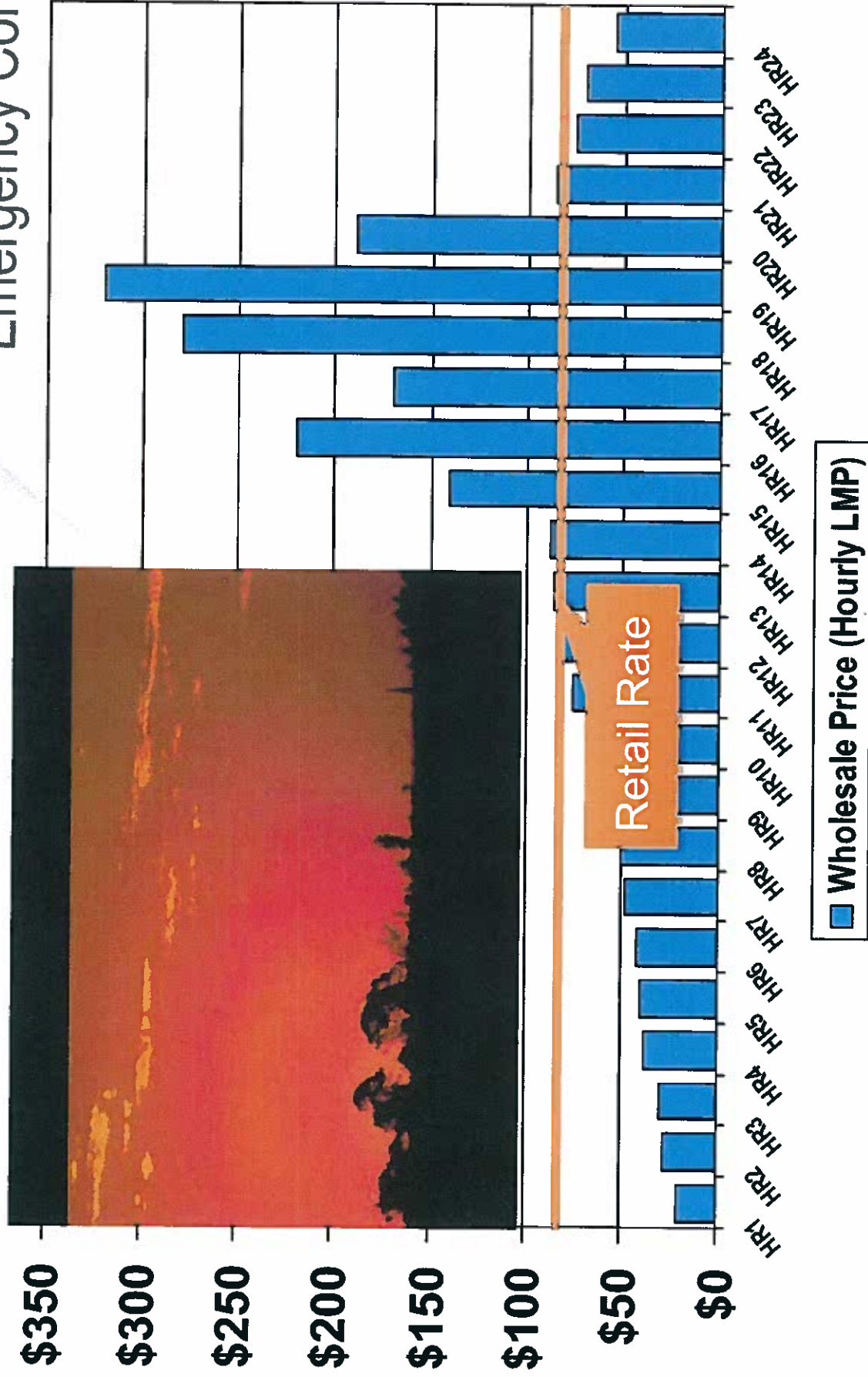
* Values are PJM averages and do not reflect potential locational cost differences.

PJM Load-Weighted Average LMP 2008-2010



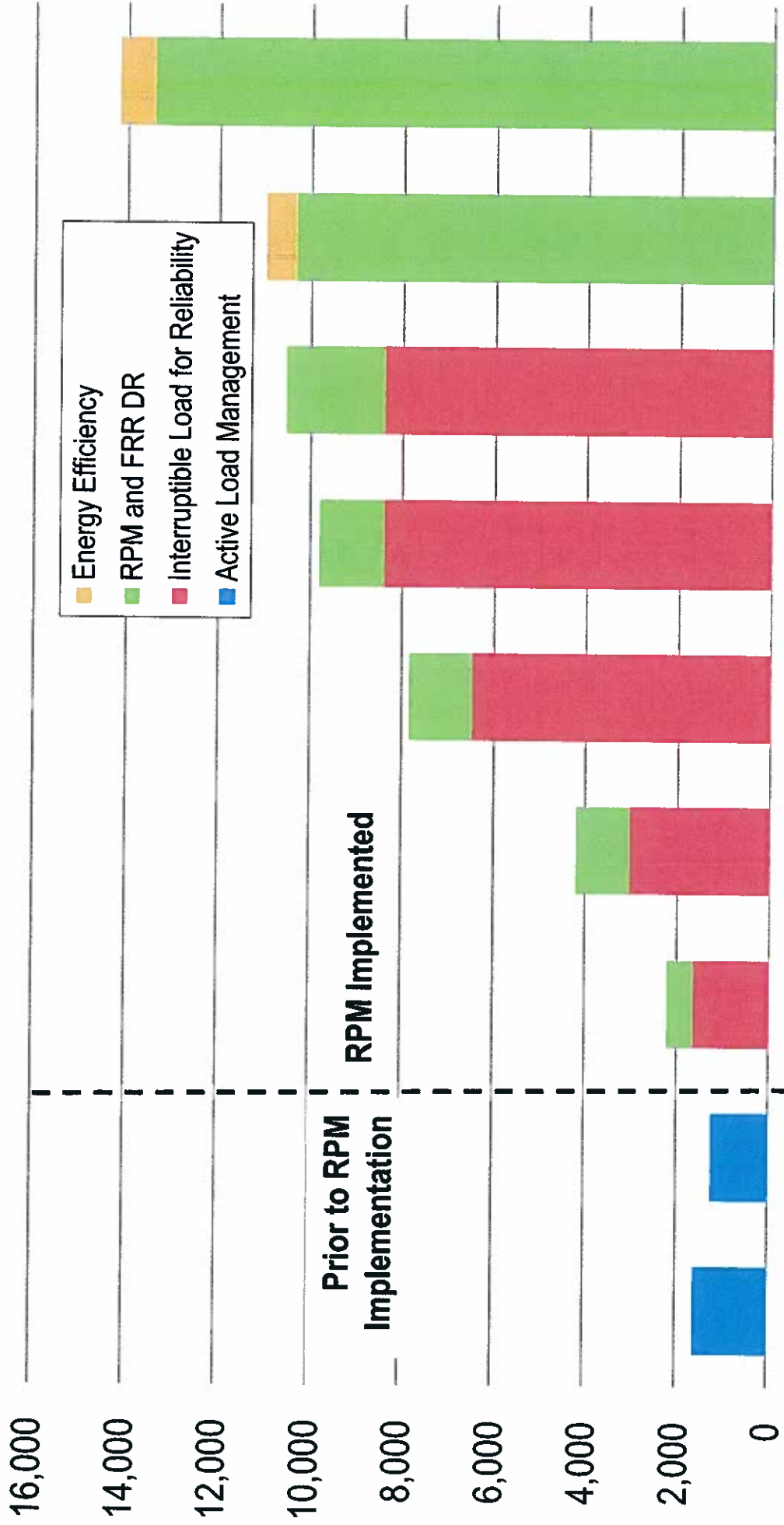


Demand Response - Responding to Wholesale Prices or Emergency Conditions





Offers of Demand-Side Resources as Capacity in PJM by Delivery Year



2005/2006 2006/2007 2007/2008 2008/2009 2009/2010 2010/2011* 2011/2012* 2012/2013 2013/2014



Demand Resource and Energy Efficiency in the Capacity Market-2013/2014

Demand Resources



9,282 MW or enough
power for 5 million
people or half the
number of households
in the state of Michigan

Energy Efficiency



679 MWs or enough to
power 115,000 households
about the number of
households in the city of
Pittsburgh





Regional Market Benefits

Reliability –

resolving constraints and economic efficiency— **from \$470 million to \$490 million in annual savings**



Generation investment –

decreased need for infrastructure investment – **from \$640 million to \$1.2 billion in annual savings**



Energy production cost –

efficiency of centralized dispatch over a large region – **from \$340 million to \$445 million in annual savings**



Grid services –

cost-effective procurement of synchronized reserve, regulation – **from \$134 million to \$194 million in annual savings**



\$2.2 billion in annual savings



PJM's Control Room

