MADRI Business Case Sub-Group Update

8^{th} MADRI Working Group Meeting

August 10, 2005

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3 Questions Being Considered by Business Case Sub-Group

1. What does the market environment for DR look like?
2. Is there a business case for DR in the MADRI region?
3. What options might states consider for enhancing the DR business case?

In 2004, PJM New Capacity Additions Totaled ~ 10% Of Installed Summer Capacity

Table 6: 2004 Reserve Margins

	Summer Reserve Margin %		Summer Reserve Margin %
New England	30%	SPP	20%*
New York	25%	ERCOT	26%
PJM	36%	Northwest	23%
Midwest	16%	Southwest	29%
Southeast	32%*	California	22%

* Reserve margins include uncommitted capacity not included in the regional market profiles. They also exclude all derates, which may overstate the available reserves in some regions.

Source: FERC 2004 State of the Market Report

Net Revenues Do Not Support New Capacity Additions

Table 7: Net Revenue

Region	Point	CC Net Revenue (as % of Target Revenue)	CT Net Revenue (as % of Target Revenue)
New England	Mass Hub	59%	NA
New York	NYC (J)	285%	246%
	Hud Val (G)	83%	27%
PJM	West Hub	34%	9%
Midwest	Cinergy	13%	0%
Southeast	Southern	32%	0%
SPP	SPP	32%	1%
ERCOT	ERCOT	30%	0%
Northwest	COB	48%	1%
Southwest	Palo Verde	48%	2%
California	SP-15	68%	3%
	NP-15	58%	1%

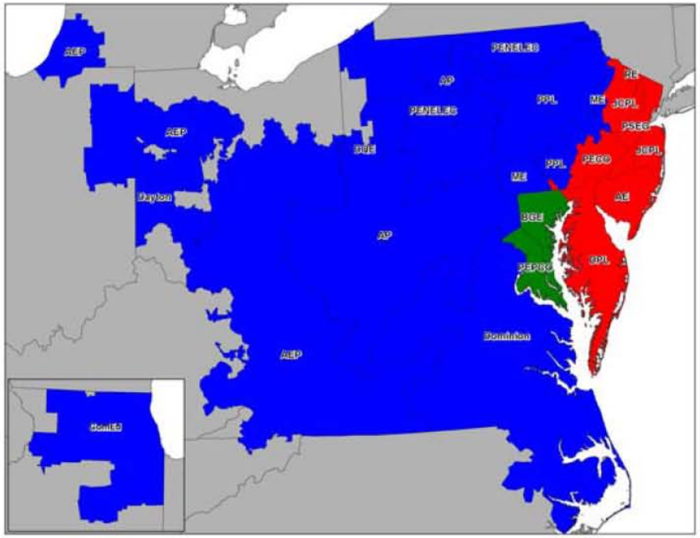
Net Revenue Calculation

ADD the market-related revenue streams a generator could have received in 2004 (The estimates reported here include spot market revenues for all hours when financially feasible to operate and capacity payments from RTO capacity markets, when relevant, but not ancillary service payments.); ***SUBTRACT*** variable costs (fuel and variable operation and maintenance);

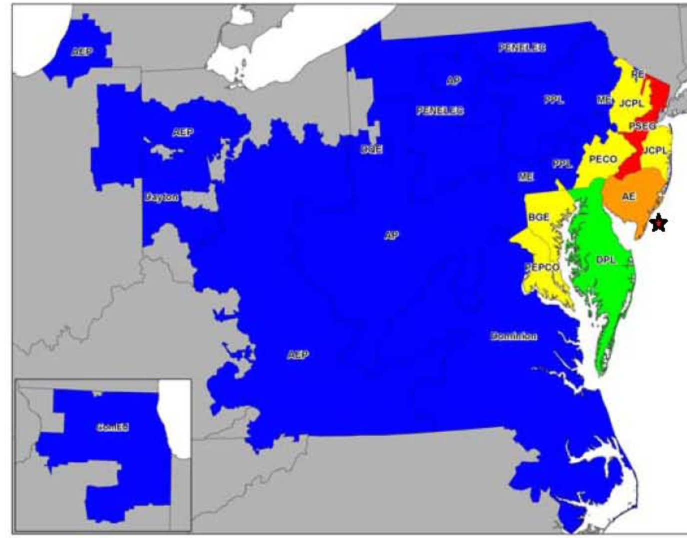
Source: FERC 2004 State of the Market Report

RPM Simulation results

June 2007 – May 2008



June 2008 – May 2009



Value of Capacity ($/kW/Yr)

$7.30 - $14.24=

$14.60 - $21.54=

$21.90 - $28.84=

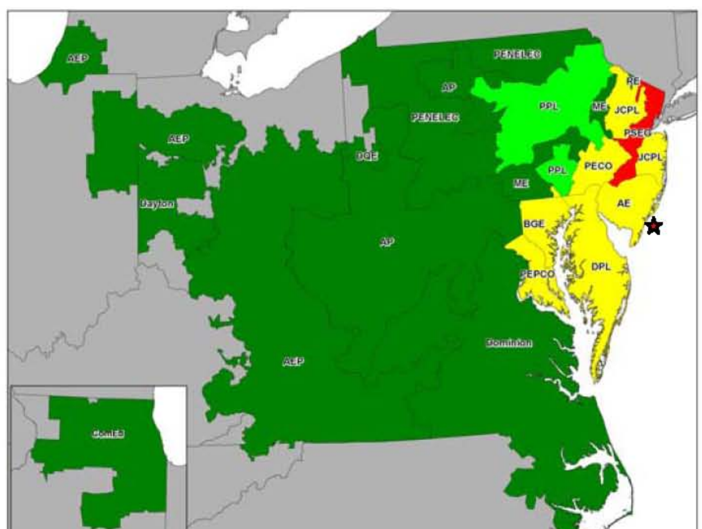
$29.20 - $36.14=

$36.50 - $43.44=

$43.80 - $50.74=

$51.10 - $58.04=

June 2009 – May 2010



★The increase Capacity Import Capability into Southern NJ is due to Transmission upgrades effective May 2009

Volatility Makes Financing Difficult

PJM Locational Revenue Simulations

High Retirement Case - $/kW/YR

	Simulation Years			
	06/07	07/08	08/09	09/10
Market	$ 24.68	$ 10.31	$ 20.16	$ 16.29
Eastern MAAC		$ 56.58		
Southwest MAAC		$ 26.52	$ 37.96	$ 32.60
AE			$ 49.88	$ 22.20
DPL			$ 31.72	$ 32.60
PECO			$ 41.36	$ 41.99
PSE&G			$ 54.23	$ 23.10
JCP&L			$ 41.54	$ 16.29
Net Energy & Ancillary Service	$ 28.25	$ 28.25	$ 28.25	$ 28.25

Capacity

Energy

Source: PJM Reliability Pricing Model Simulation 1/26/05

Reference: PJM Estimates Carrying Cost of CT @ ~ $73/kW/YR

Substantial New Incentives for Supply Resources – e.g Nuclear

- $1.5 billion in direct subsidies
- Potential for "billions more" in government commitments to ensure that plants get financing
- Caps on liability exposure ($9 billion)
- Up to $500 million for 1st 6 plants to cover delays caused by regulatory logjams
- Production tax credits (similar to wind)
- $1.2 billion to ensure that plants can be torn down

Source: Wall Street Journal

PRELIMINARY RESULTS

IS THERE A BUSINESS CASE FOR RESIDENTIAL DEMAND RESPONSE IN THE MADRI AREA?

JIM TORPEY

MADISON ENERGY CONSULTANTS

JULY 22, 2005 DRAFT FOR COMMENT

SIMPLIFIED REVENUE VS. COST ANALYSIS

- **Revenue-** PJM capacity, PJM economic DR program & distribution benefits
- **Costs-**capital for infrastructure, marketing, installation, program management, dispatch management
- **Margin-** Overheads, profit, taxes, risk

ASSUMED VALUES FOR A MULTI-SCENARIO ANALYSIS- LOW/ MEDIUM/ HIGH CASES FOR FULL AND PILOT DEPLOYMENT

Capital Cost Assumptions Residential DR Program

	Pilot Project	Full Deployment
One way switch	$250	$125
One way enhanced thermostat	$300	$150
Two way multi feature	$850	$425

Costs are $/customer for installed cost of equipment including network. One customer = one kw. reduction

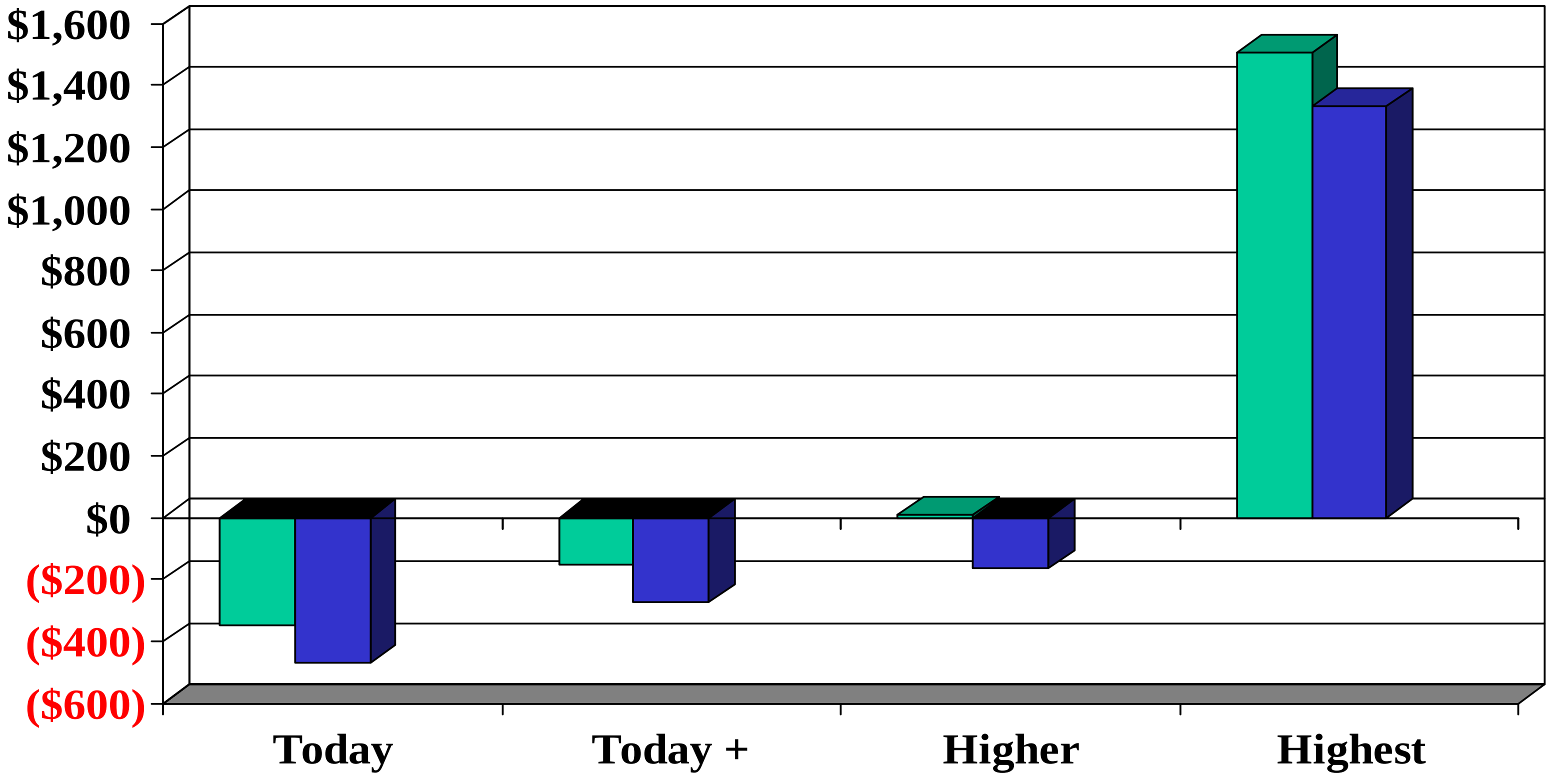
Operating Cost Assumptions Residential DR Program

	Pilot Project	Full Deployment
Marketing, Maintenance	$30	$20
Dispatch Operations	$10	$10
OH, Taxes, Profit, Risk	$20	$20

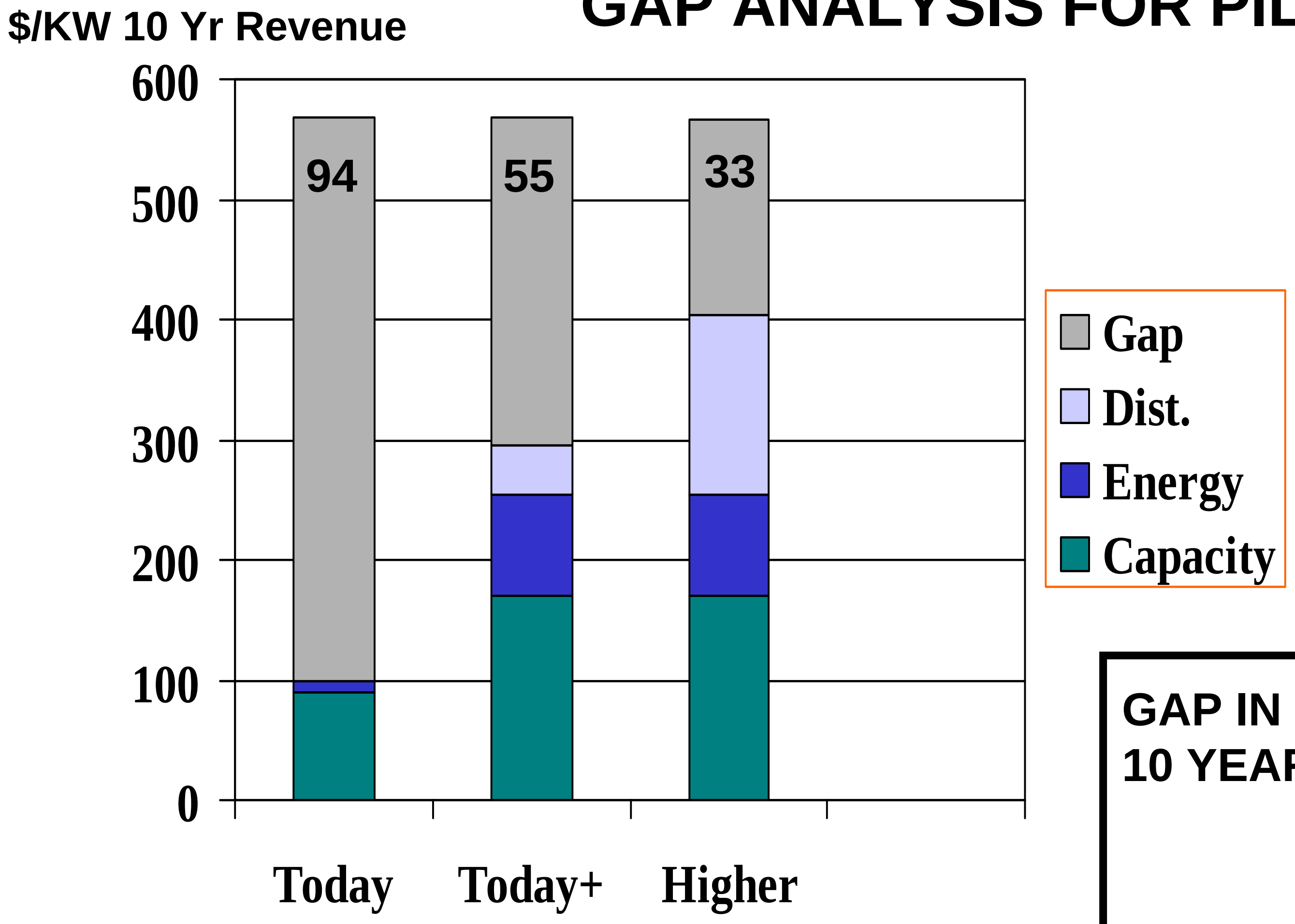
Results in $/kw for operating and dispatching for economic benefits

10 Year NPV of Thermostat based Residential DR System Full

(Deployment vs. Pilot)



RESIDENTIAL DEMAND RESPONSE GAP ANALYSIS FOR PILOTPROGRAM



One-way thermostat deployed as pilot

GAP IN $/KW LEVELIZED FOR 10 YEARS

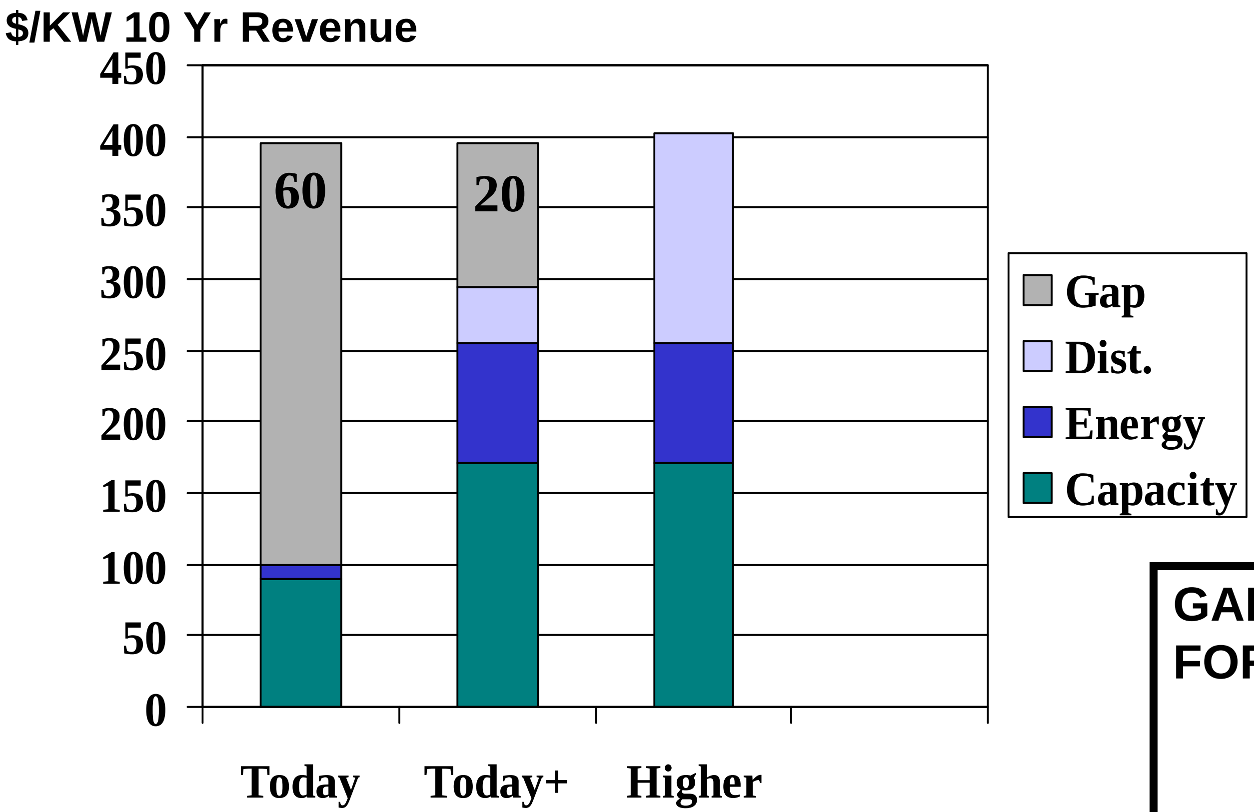
Today- $94

Today+-$55

Higher- $33

Highest- $0

RESIDENTIAL DEMAND RESPONSE GAP ANALYSIS FOR FULL DEPLOYMENT



One-way thermostat deployed at full scale

GAP IN $/KW LEVELIZED FOR 10 YEARS

Today-$60

Today+-$20

Higher-$0

WHAT DOES IT ALL MEAN?

- A residential DR business is not supported by the PJM market today.
- A business case may be supportable if prices increase within conceivable ranges in the near future.

How Might States Enhance DR Business Case?

- DR PORTFOLIO REQUIREMENTS
- DR OPTIONS AS PART OF POLR OR SOS OFFERINGS
- PROVIDE UTILITIES WITH RATE BASE OPPORTUNITIES FOR DR
- ICAP PAYMENTS
- ZONAL INTEGRATED RESOURCE PLANNING

- ***HELP FOR CURTAILMENT SERVICE PROVIDERS RE: PJM SUNSET PROVISIONS***
- INSURANCE OPTIONS
- INCORPORATING DR IN UTILITY SYSTEM PLANNING PROCESS
- CUSTOMER PAYMENTS FOR DR OPTIONS
- KILL A WATT PROGRAM CONCEPT