

Mid-Atlantic Distributed Resources Initiative

Massachusetts DG Collaborative
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The Regulatory Assistance Project

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MADRI Structure

- Facilitated stakeholder process
 - ❖ Established in 2004
- Addresses Mid-Atlantic region
 - ❖ 4 states and DC
 - ❖ Other states get notice of working group meets.
- Principal financial support by US DOE
- EPA, FERC and PJM are also key supporters



MADRI Meetings

- Steering Committee (states, fed agencies, PJM)
 - ❖ 3-4 times per year
 - ❖ Overall direction, senior state engagement
- Working group
 - ❖ 10 meetings from Sept 04 to Dec 05 in all states
 - ❖ Balance of discussion and learning
- Subgroups
 - ❖ As needed, some live, some by phone



MADRI Rationale

- Objective to identify and remedy retail barriers to the deployment of distributed generation, demand response, and energy efficiency
- Distributed resources should compete with generation and transmission to ensure grid reliability and a fully functioning wholesale market
 - ❖ Deployment appears slower than it should be



MADRI Goals

- Educate stakeholders on distributed resource opportunities, barriers and solutions
 - ❖ Especially State officials
- Develop alternative distributed resource solutions for implementation by states and others
- Pursue regional consensus on preferred solutions



MADRI Activity Areas

- Advanced Metering Infrastructure (AMI)
- Interconnection
- Environment Issues
- Business Models
- Regulation
- MADRI also providing comments to Demand Response Town Meetings and FERC EPACT Sec 1252 inquiry



Current Activities

- State Workshops on Advanced Metering and Interconnection
- Active subgroups developing models for states
 - ❖ Regulation
 - ❖ Business models

MADRI DR

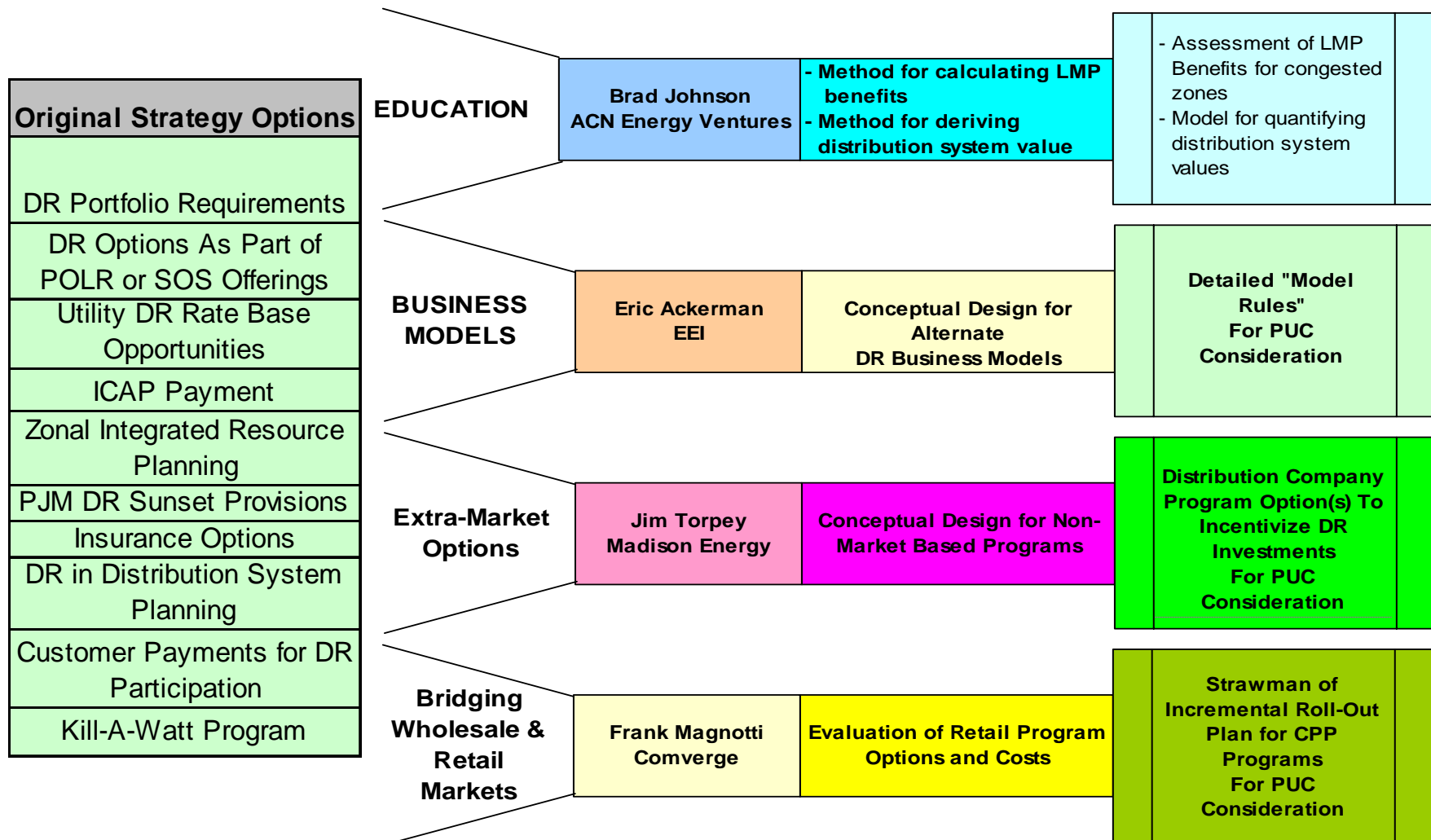
Business Case Focus

How do we realize DR benefits that are not currently monetized?

- Distribution system value of DR
- Value of DR in mitigating wholesale market price spikes (LMP Benefit)

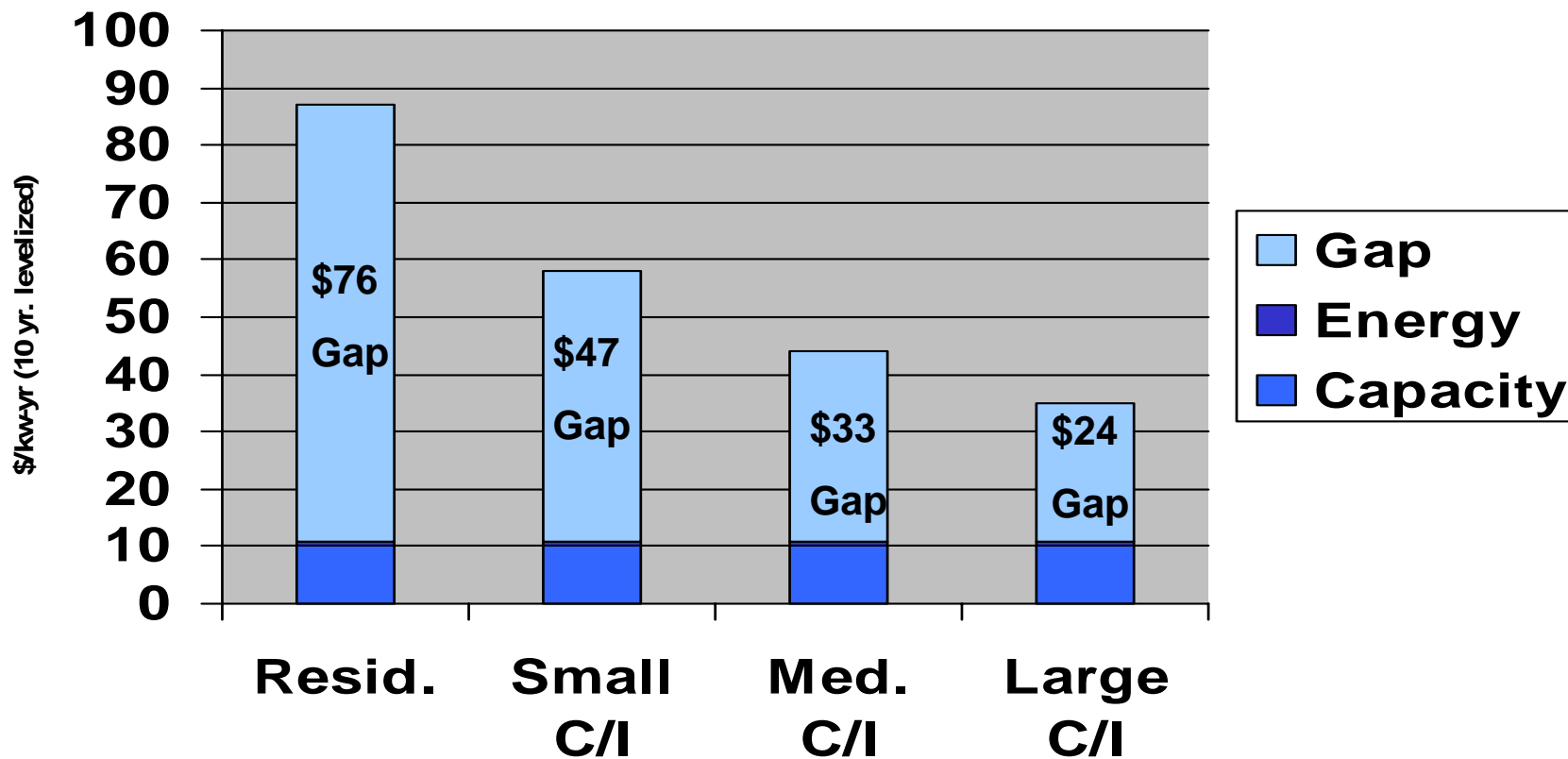
MADRI Business Case Sub-Group Overview

Focus Area	Lead	Activity Overview	Potential Deliverable
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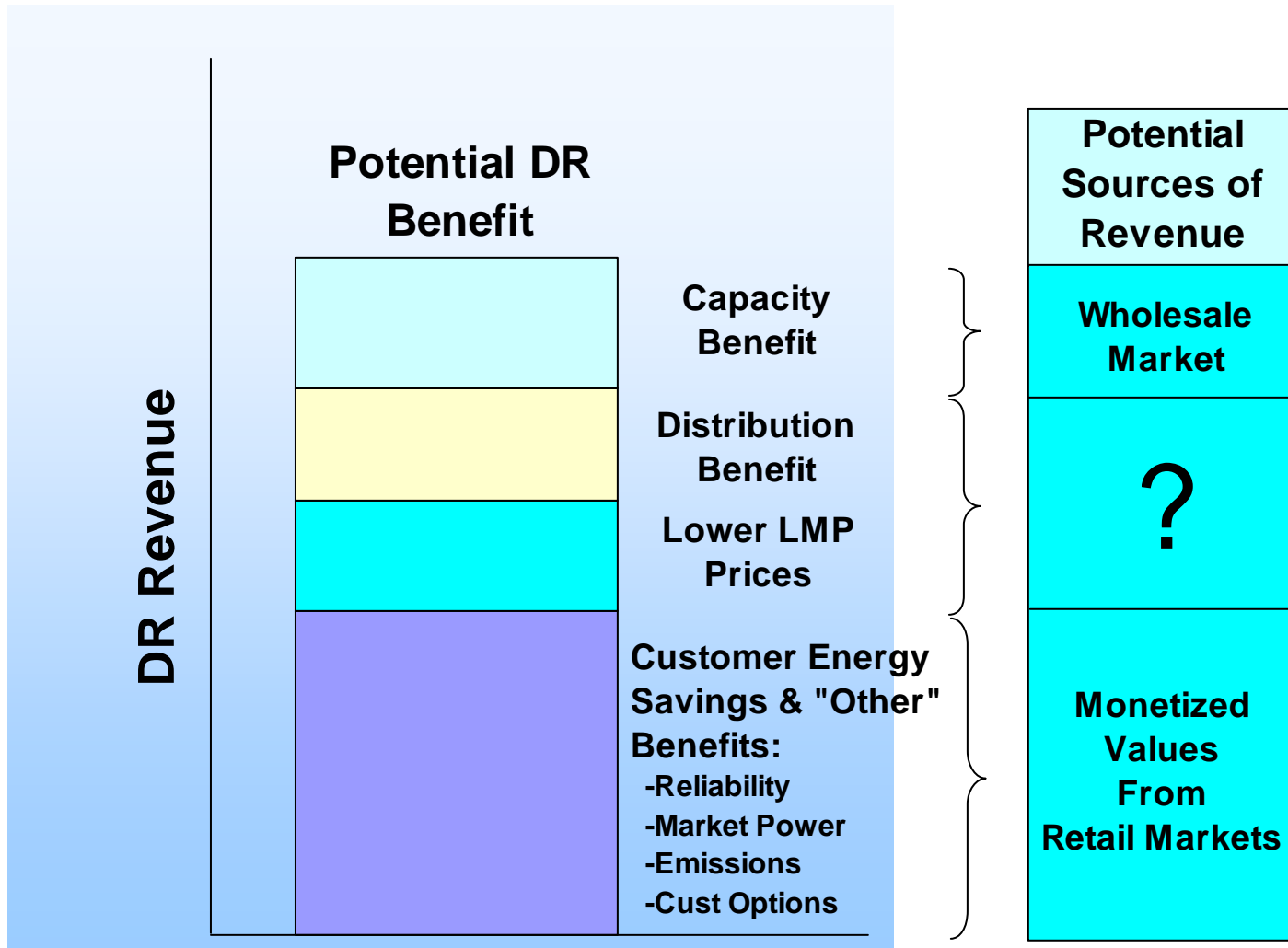


DR Business Case is Not Supported in The Mid-Atlantic – MADRI “Gap” Analysis

DR Gap Analysis by Market Segment
(Annualized level 10 yr NPV \$/kW/Yr)



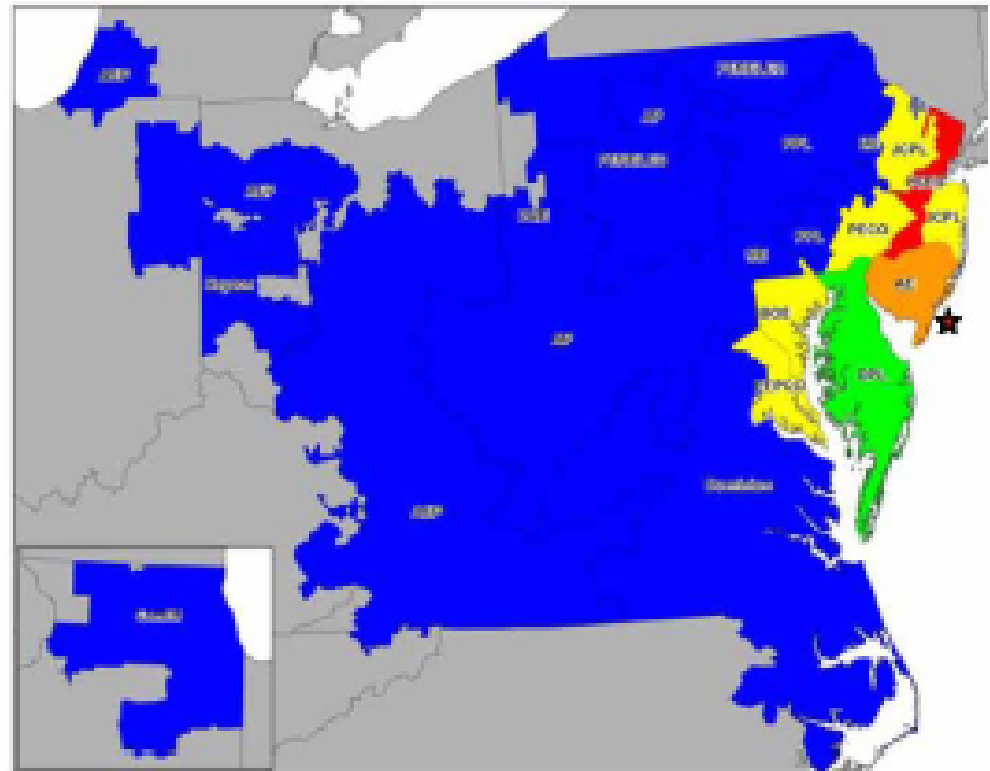
Putting the DR Value Chain Back Together Will Be Challenging



PJM Simulations Show a Higher Value For Capacity In Eastern PJM

Projected Capacity Value June 2008 – May 2009

Value of Capacity (\$/kW/Yr)



Source: PJM PRM Simulations 2005



MADRI Regulation Subgroup Overview

- Model Rate Rider to accomplish decoupling
- Time Sensitive Pricing (model tariff)
- Distribution System Planning
- Forward Energy Reserve
 - ❖ Do customers “own” the rights of consumption?
And can they sell those rights through PJM?
- For meter data, can RTO be a data warehouse, providing a data standard



Decoupling: Model Rate Rider

- Adapt mechanism used by BG&E for gas
- Monthly rate adjustment
- A structure on which other risk issues can be negotiated to balance public and utility interest
- A new version will be circulated next week (so these slides are indicative by outdated)



Basic Structure

- Begin with Test Year data used to set current tariffs
- Use data to compute average use per customer for each tariff component
- Average use multiplied number of customers in any period represents the “target revenues” for utility
- Each tariff component is calculated separately (customer charge, demand charge and energy charge)
- Visit <http://www.raponline.org/MADRI/> for spreadsheets

Timeline



Three Different “Months”

- Filing Month is the month in which an adjustment factor filing is made with Commission (e.g. October)
- Reference Month is a prior month for which actual data is available. In draft model this is two months prior to the Filing Month (e.g. August)
- Billing Month is the month during which the adjustment factor in the filing will be applied to customers' bills. In the draft model, this is two months after the Filing Month (e.g. December)



Customer Charge Calculation: Always Computes to Zero

Line #	Test Year Data*	Reference Month Data†	Billing Month Data‡
Customer Charge Adjustment Factor Calculation			
1 Customer charge Billing Units (Input)	1000	1010	1020
2 Number of Customer (Input)	1000	1010	1020
3 Average Billing Units Per Customer (L1 ÷ L4)	1	1	1
4 Tariff Rate (Input)	\$ 110.00	\$ 110.00	\$ 110.00
5 Total Revenues (L1 X L4)	\$ 110,000.00	\$ 111,100.00	\$ 112,200.00
6 Target Revenues (Test Year L3 X Test Year L4 X Reference Month L2)		\$ 111,100.00	
7 Change in Customer Charge Revenues (L6 - L5)		\$ -	
8 Estimated Customer Charge Billing Units for Billing Month (Input)			1020
9 Customer Charge Adjustment Factor (Reference Month L7 ÷ Billing Month L8)			\$ -



Demand Charge Calculation

Line #	Test Year Data*	Reference Month Data†	Billing Month Data‡
Demand Charge Revenue Stability Adjustment Factor Calculation			
18 Billing Units (Input)	60000	60570	61140
19 Number of Customers (= L1)	1000	1010	1020
20 Average Billing Units Per Customer (L18 ÷ L19)	60	59.97	
21 Tariff Rate (Input)	\$ 1.05	\$ 1.05	
22 Total Revenues (L18 X L21)	\$ 63,000.00	\$ 63,598.50	
23 Target Revenues (Test Year L20 X Test Year L21 * Reference Month L19)		\$ 63,630.00	
24 Change in Demand Charge Revenues (L23 - L22)		\$ 31.50	
25 Estimated Demand Charge Billing Units for Billing Month (Input)			61139.71782
26 Demand Charge Adjustment Factor (Reference Month L24 ÷ Billing Month L25)			\$ 0.000515



Energy Charge Calculation

Line #	Test Year Data*	Reference Month Data†	Billing Month Data‡
Energy Charge Revenue Stability Adjustment Factor Calculation			
35 Billing Units (Input)	21,900,000	22,085,000	22,260,000
36 Number of Customers (Input)	1000	1010	1020
37 Average Billing Units Per Customer (L35 ÷ L36)	21,900	21,866	21,824
38 Tariff Rate (Input)	\$ 0.0919	\$ 0.0919	\$ 0.0919
39 Total Revenues (L35 X L38)	\$ 2,012,610.00	\$ 2,029,611.50	\$ 2,045,694.00
40 Target Revenues (Test Year L37 X Test Year L38 X Reference Month L36)		\$ 2,032,736.10	
41 Change in Energy Charge Revenues (L40 - L39)		\$ 3,124.60	
42 Estimated Energy Charge Billing Units for Billing Month (Input)			22,260,000
43 Energy Charge Revenue Stability Adjustment Factor (L41 ÷ L42)			\$ 0.000140

Month Three

Demand Charge Adjustment

	Test Year Data	Reference Month Data	Billing Month Data
Demand Charge Revenue Stability Adjustment Factor Calculation			
18 Billing Units (Input)	60000	6055	6107
19 Number of Customers (= L1)	1000	1010	1030
20 Average Billing Units Per Customer (L18 ÷ L19)	60	5.995049505	
21 Tariff Rate (Input)	1.05		
22 Total Revenues (L18 X L21)	63000	\$ 6,056.05	
Target Revenues (Test Year L20 X Test Year L21			
23 * Reference Month L19)		\$ 63,630.00	
24 Change in Demand Charge Revenues (L23 - L22)		\$ 57,573.95	
Estimated Demand Charge Billing Units for Billing			
25 Month (Input)			6107
Demand Charge Adjustment Factor			
26 (Reference Month L24 ÷ Billing Month L25)		\$	9.427534



Reconciliation of Month One Demand Adjustment Revenues

	Test Year Data	Reference Month Data	Billing Month Data
Reconciliation of Expected and Actual Billing Units in Reference Month			
Expected Demand Charge Adjustment Factor 27 Revenues (L34 Two Months Previous)			\$ 31.50
Actual Demand Charge Adjustment Factor Revenues (Reference Month L18 X L32 Two 28 Months Previous)			\$ 3.12
29 Under(Over)Recovery (L27 - L28)			\$ 28.38
Estimated Demand Charge Billing Units for Billing 30 Month (Input)			6107
31 Reconciliation Factor (L29 ÷ L30)			0.004647189
Demand Charge Revenue Stability Adjustment 32 Factor (L26 + L31)			9.432181166
Estimated Demand Charge Billing Units for Billing 33 Month (Input)			6107
Expected Demand Charge Revenue Stability 34 Adjustment Factor Revenues (L32 * L33)			\$ 57,602.33

Month Three

Energy Charge Adjustment

	Test Year Data	Reference Month Data	Billing Month Data
Energy Charge Revenue Stability Adjustment Factor Calculation			
35 Billing Units (Input)	21,900,000	22,085,000	22,260,000
36 Number of Customers (Input)	1000	1010	1030
37 Average Billing Units Per Customer (L35 ÷ L36)	21,900	21,866	
38 Tariff Rate (Input)	\$ 0.0919	\$ 0.0919	
39 Total Revenues (L35 X L36)	2,012,610.00	2,029,611.50	
Target Revenues (Test Year L37 X Test Year L38 40 X Reference Month L36)		\$ 2,032,736.10	
41 Change in Energy Charge Revenues (L40 - L39)		\$ 3,124.60	
Estimated Energy Charge Billing Units for Billing 42 Month (Input)			22260000
Energy Charge Revenue Stability Adjustment 43 Factor (L41 ÷ L42)			\$ 0.000140



Reconciliation of Month One Energy Adjustment Revenues

	Test Year Data	Reference Month Data	Billing Month Data
Reconciliation of Expected and Actual Billing Units in Reference Month			
Expected Energy Charge Adjustment Factor			
44 Revenues (L51 two months previous)			\$ 3,124.60
Actual Energy Charge Adjustment Factor			
Revenues (Reference Month L35 X L49 two			
45 months previous)			\$ 3,100.04
46 Under(Over)Recovery (L44 - L45)			\$ 24.56
Estimated Energy Charge Billing Units for Billing			
47 Month (Input)			22,260,000
48 Reconciliation Factor (L46 ÷ L47)			\$ 0.000001104
Energy Charge Revenue Stability Adjustment			
49 Factor (L43 + L48)			\$ 0.000141
Estimated Energy Charge Billing Units for Billing			
50 Month (Input)			22,260,000
Expected Energy Charge Revenue Stability			
51 Adjustment Factor Revenues (L49 X L50)			\$ 3,149.16



Dynamic Pricing

- There is significant interest in critical peak pricing
- MADRI is working toward a model tariff



Thanks for your attention

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- ❖ RAP Mission: *RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, assure system reliability, and allocate system benefits fairly to all customers.*