

Walmart Demand Response



Walmart's Presence in Missouri

- 99 Supercenters
20 Discount Stores
16 Sam's Clubs
3 Distribution Centers
- 42,241 associates
- Spent \$6,243,279,692.00 for merchandise and services with 1,532 suppliers in 2009
- Paid more than \$52.3 million in state and local taxes
- Gave more than \$12.4 million in cash and in-kind donations to local organizations in communities

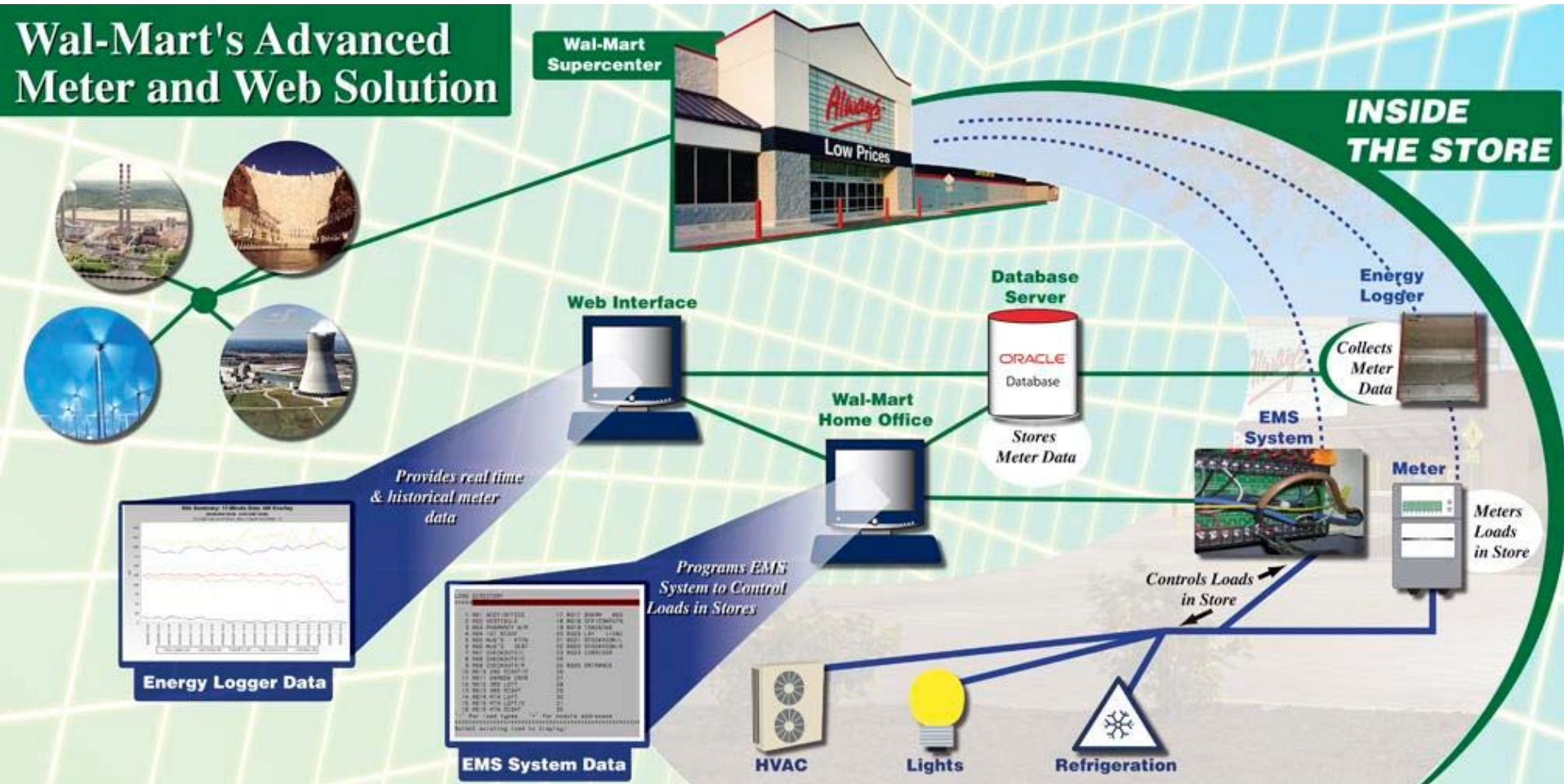


Advanced Metering Systems

- Total WM advanced meters: 1355
- MISO States: 152
- ISO-NE States: 156
- PJM States: 282
- ERCOT: 239
- CALISO: 118
- SPP: 359
- Competitive Markets
 - Competitive Gas States:
 - 18 states
 - 695 meters
 - Competitive Electric States:
 - 14 states
 - 577 meters
- 29 advanced meters in MO



Wal-Mart's Advanced Meter and Web Solution



Order 719

Wholesale Competition in Regions with Organized Electric Markets, 125 FERC ¶ 61,071 at P16-18 (Oct. 17, 2008)("Order 719")

- The Federal Energy Regulatory (FERC) Commission implemented a series of reforms aimed at improving the competitiveness of the organized energy markets, finding that effective wholesale competition protects consumers by:
 - 1) Providing more supply options
 - 2) Encouraging new entry and innovation
 - 3) Spurring deployment of new technologies.
- Benefits that demand response brings to organized wholesale energy markets:
 - 1) Increased competition
 - 2) Lower prices
 - 3) Mitigation of market power
 - 4) Supporting system reliability and resource adequacy.
- The NOPR finds that demand response "can play a critical role in helping the Commission fulfill its mandate under the Federal Power Act ("FPA") to ensure that rates charged for energy are just and reasonable."



Order 719

- The FERC recognized that inadequate demand response compensation materially contributes to the unrealized potential of demand response and, to remedy the situation, proposes to add section 35.18(g)(1)(v) to its regulations to require that each RTO implement tariff provisions providing for compensation to demand resources at the prevailing market-clearing prices for all hours.



Complaint proceeding brought by PJM Interconnection, LLC ("PJM")(*"PJM Complaint"*).

- In the *PJM Complaint* proceeding, Demand Response Supporters presented to the Commission legal and policy arguments, and substantial evidence, to support a full LMP approach as the appropriate level of compensation for demand responders.
- Rules should require comparable treatment and compensation for demand response in all RTO-coordinated markets.
- The PJM Proceeding was enveloped into the recent FERC NOPR on Demand Response Compensation.



Order 719-A

Wholesale Competition in Regions with Organized Electric Markets, 125

**FERC ¶ 61,071, order on reh'g,
128 FERC ¶ 61,059 (2009)("Order 719-A")**

- As in the NOPR, the Commission identified multiple ways in which demand response benefits the wholesale markets
 - a) Lessening price volatility
 - b) Aiding system reliability
 - c) Lowering wholesale prices
 - d) Reducing potential exercises of market power; and increasing competition.
- Greater participation by demand response resources will:
 - a) "smooth" system load duration curves
 - b) reduce peak load forecasts and increase the system load factor
 - c) which in turn, will reduce capacity requirements and contribute to system reliability.



Order 719-A

Wholesale Competition in Regions with Organized Electric Markets, 125

**FERC ¶ 61,071, order on reh'g,
128 FERC ¶ 61,059 (2009)("Order 719-A")**

- The Commission's general findings, in Order 719-A and elsewhere, reflect the studies and analysis that have been conducted over the past few years. There is substantial evidentiary support for the Commission's conclusions that demand response is currently undercompensated (relative to its value) in organized wholesale electricity markets.



**United States Department of Energy, *Benefits of Demand Response in Electricity Markets*
and Recommendations for Achieving Them, A Report to the United States
Congress Pursuant to Section
1252 of the Energy Policy Act (Feb. 2006)("DOE Report")**

- “Most important benefit of demand response is resource-efficiency of electricity production.”
- The DOE Report also concludes that demand response results in:
 - 1) Participant financial benefits, through bill savings and incentive payments
 - 2) Market-wide financial benefits, due to lower wholesale market prices caused by demand response lessening the need for costly-to-run generators during periods of high demand and longer-term wholesale market benefits such as lower production costs and lower prices
 - 3) Reliability benefits, because demand response lowers the likelihood and consequences of forced outages that would impose financial costs and inconvenience to customers
 - 4) Market performance benefits, or demand response's value in mitigating suppliers' ability to exercise market power.

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- Consistent with its statutory mandate to ensure just and reasonable rates and to protect customers from exploitation, the Commission should require that organized wholesale electricity markets subject to its regulation include rules to compensate demand response resources at full LMP.
- All other things being equal, the question for the operator is whether the decrement in demand or the increment in generation achieves the goal of a balanced grid at the lowest cost or price.
- Consumers need real incentive for demand response to participate in energy market.



Orders 719 and 719-A

- The principle of comparability among resources is emphasized
- Paying less than full LMP yields lesser amounts of demand response, lesser market efficiency, and less-than optimal outcomes (for customers).
- The Commission's statutory responsibility is to ensure just and reasonable rates. Undercutting demand response compensation by paying less than full LMP and discriminating against demand response by paying less than what is paid to generation run afoul of the Commission's obligation to ensure just and reasonable and not unduly discriminatory rates.



QUESTIONS FROM THE COMMISSION

- How would a utility's long-term load forecasting process change if a single retail customer or an ARC bid demand response directly into SPP's or MISO's organized energy market?
- What would be the effect on utility rate design?
- What would be the effect on utility revenue collection?
- How would a utility's budgeting process change?



QUESTIONS FROM THE COMMISSION

- Q. How does the concept of allowing ARCs to bid demand response resources directly into the RTO and ISO wholesale energy and ancillary services markets work?
- Q: How does it affect the reliability of the system, if at all?
- Q: What are the costs/benefits of allowing ARCs to bid demand response resources directly into the RTO and ISO whole energy and ancillary services markets?
- Q: What happens when an ARC demand response resource “clears” the market?
- Q: What role does the ratepayer, and specifically, the large industrial users, play in the concept?
- Q: What experiences and “lessons learned” with ARCs in other areas of the country?
- Q: Are there issues or concerns with both demand and supply side ARCs operating in the same service territory?
- Q: Are there issues or concerns with two competing ARCs, either demand or service side operating in the same service territory?

Demand Response

- Consistent Rules Across All Jurisdictions
- Consistent Methods of Notification
- Customer Choice and Innovation
- Meter Data Ownership



Benefits of Demand Response

What's Driving Demand Response

- Help reduce overall peak and demand loads.
- Increase available energy supply.
- Help reduce the need for fossil burning generation plants.
- Help create a more reliable power grid.
- Need for new generation
- Transmission constraints
- Sustainability/Conservation
- Customer involvement
- Improved technology



Consumer **Demand Response** Interests

- Participation
- Markets
- Consistency
- Business ROI
- Consumer Input
- Standard Measurement
- Method of Notification

