

Energy Efficiency as a Resource

ACEEE 3rd National Conference

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September 26, 2005



Alignment Strategic Plan

Priorities in Meeting Future Energy Needs:

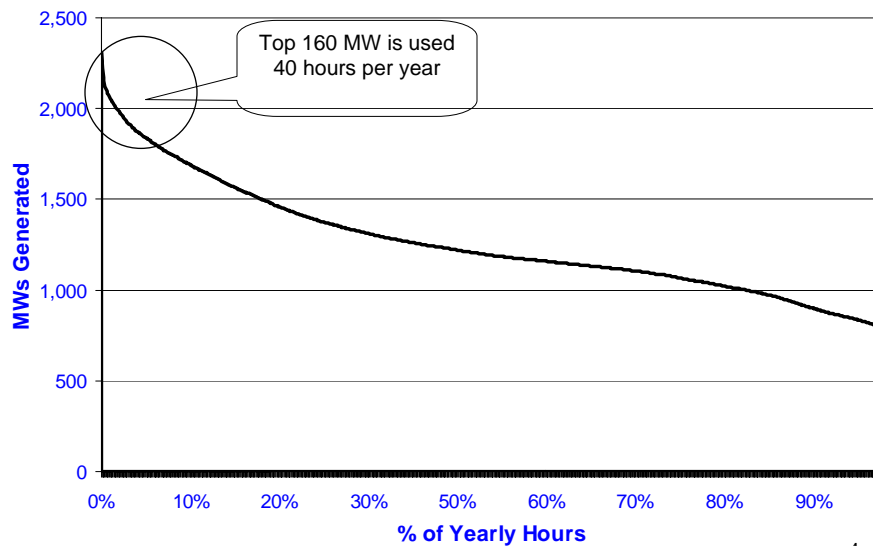
- Demand Side Management & Energy Efficiency Programs
- Renewable Energy
- Minimize Dependency on Natural Gas
- Utilize & Grow AE's Leadership in Innovation and New Technology
- Support binding limits on national power sector CO₂ emissions

Demand-Side Management

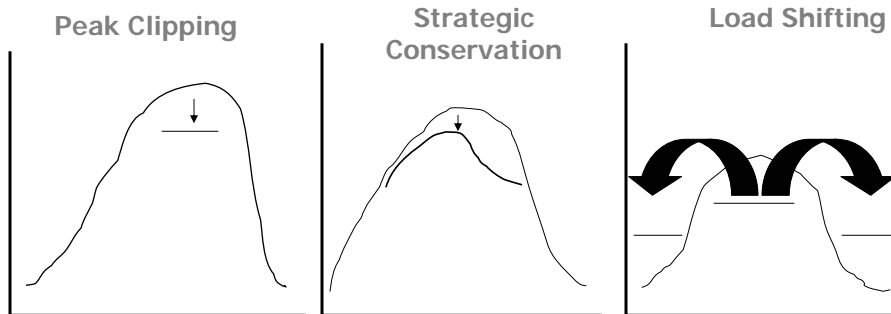
Purpose:

- Modify electrical energy use
- Enhance customer service
- Defer need for new capacity

AE System Load Duration Curve -2004

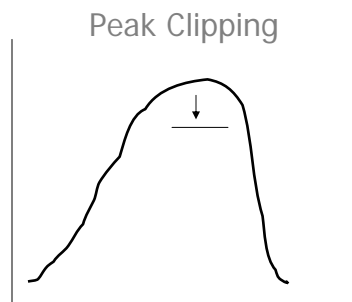


DSM Load Shape Impacts



Generic Load Shape Changes

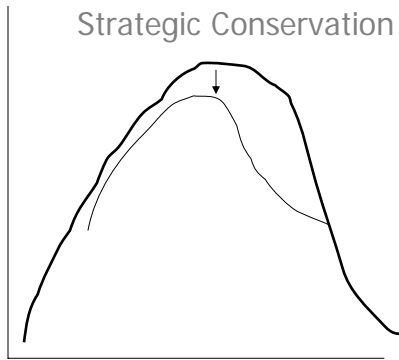
DSM Program Load Shape



- Power Partner Programs**
- A/C Cycling**
- W/H Cycling**
- Load Co-Op**

Represent 39% of new DSM program mix

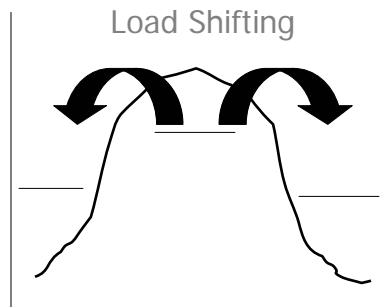
DSM Program Load Shape



Represent 55% of new DSM program mix

- Total Home Efficiency
- Small Business Efficiency
- Green Building Program
- Appliance Efficiency
- Multi-family Rebates
- Commercial Rebates
- Refrigerator Recycling
- Free Weatherization
- Municipal Conservation
- Air Duct Sealing

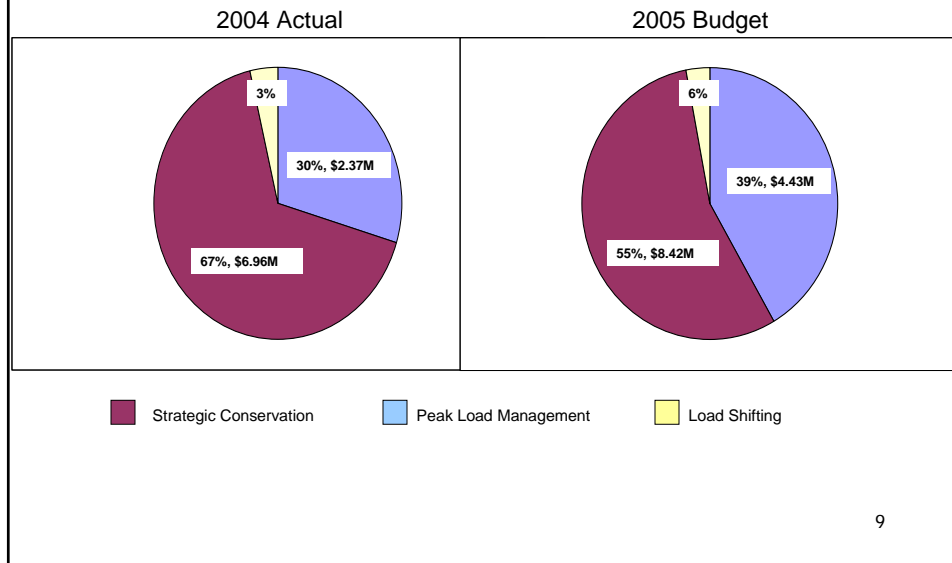
DSM Program Load Shape



**6% of
Mix**

- Time-of-Use Rate
- Thermal Energy Storage Systems

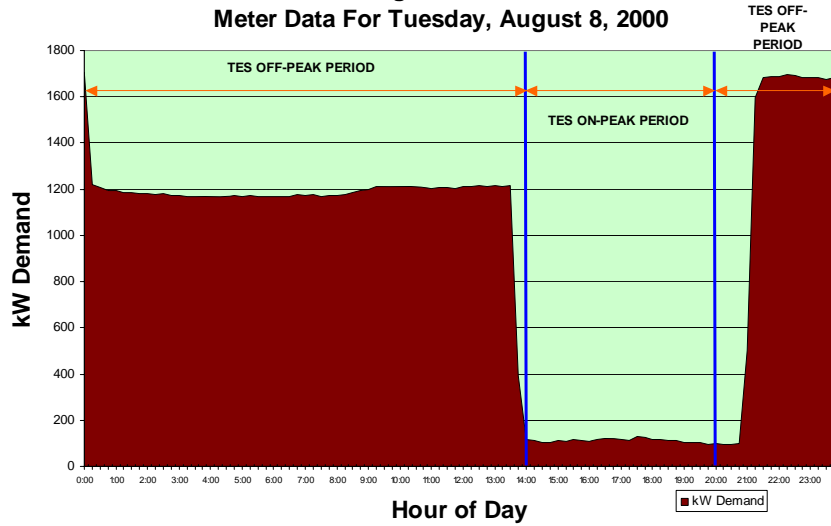
DSM Allocations



How do we know DSM works?

- A. Equipment changes –
 “**not**” behavior modification
- B. Inspection of installation work
- C. Consumption verification
- D. Independent verification

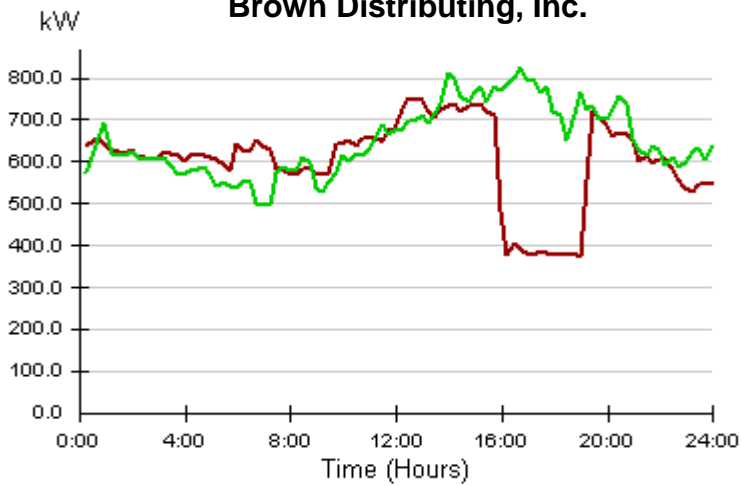
**Austin Bergstrom International Airport
Thermal Storage KW Demand Profile
Meter Data For Tuesday, August 8, 2000**



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Load Coop Curtailment

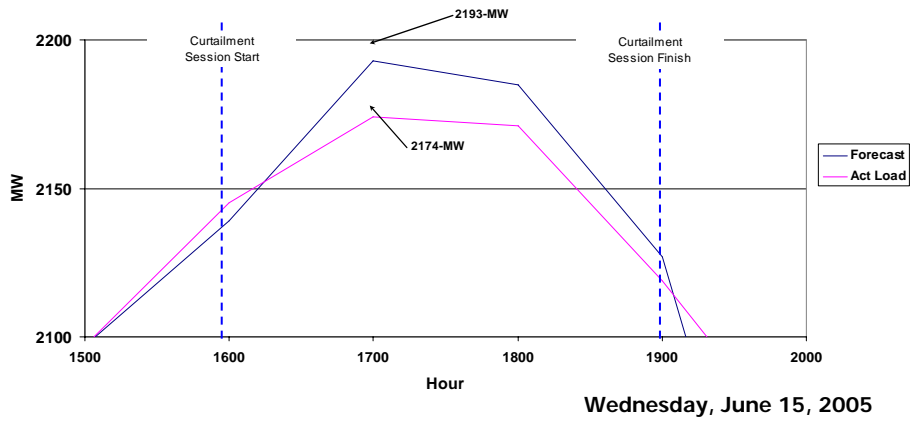
Brown Distributing, Inc.



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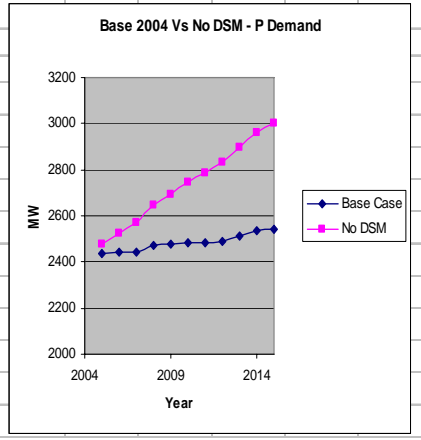
Power Partner Program Cycling Session

Forecast vs Actual Load

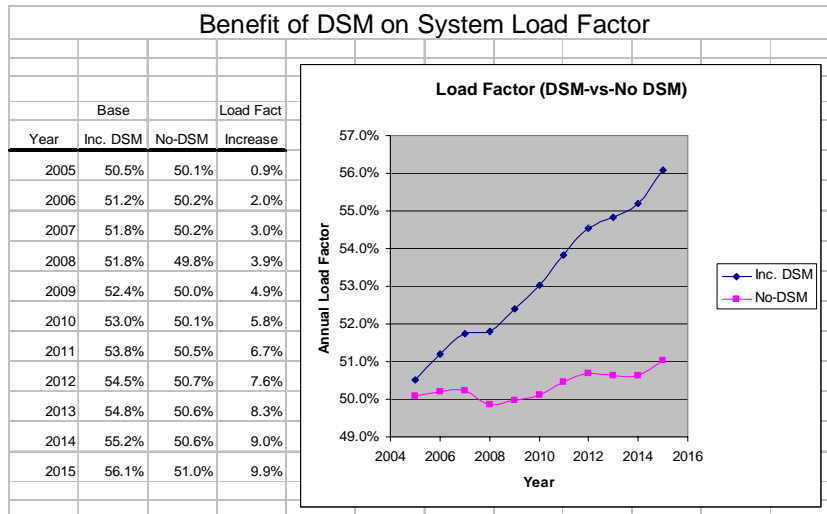


**How do we incorporate
DSM into the
load forecast?**

Base 2004 Vs No DSM - P-Demand				
Year	MW	MW	Cumulative	Incremental
	Base Case	No DSM	MW	MW
2005	2435	2476	41	41
2006	2442	2527	85	44
2007	2443	2572	129	44
2008	2471	2644	173	44
2009	2477	2693	216	43
2010	2486	2746	260	44
2011	2486	2788	302	42
2012	2490	2833	343	41
2013	2515	2898	383	40
2014	2535	2959	424	41
2015	2539	3004	465	41



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AE Cost-Benefit Analysis for DSM

- Based on standardized procedures for evaluating cost-effectiveness of DSM programs.
- Procedures based on, "Standard Practice for Cost-Benefit Analysis of Conservation and Load Management Programs", first published by the CEC in 1983.

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FY 2006 Cost Benefit Analysis for Residential, Commercial, and Green Building

SUMMARY RESULTS		DATE:	21-Jun-05	
	PROGRAM NAME: All Programs - Less Solar			10 YEARS ANALYSIS
	RUN NAME: Projected FY 2006			
	BENEFITS PV	COSTS PV	NPV	B/C RATIO
IMPACT ON ELEC. REV REQUIREMENT	\$34,579,155	\$18,888,011	\$15,691,144	1.83
IMPACT ON ELECT. RATES	\$34,579,155	\$74,071,179	(\$39,492,024)	0.47
IMPACT ON GAS REV REQUIREMENT	\$0	\$0	\$0	NA
IMPACT ON GAS RATES	\$0	\$0	\$0	NA
PARTICIPANT PERSPECTIVE	\$54,242,645	\$20,000,000	\$34,242,645	2.71
SOCIETAL or TRC PERSPECTIVE	\$29,814,847	\$24,287,327	\$5,527,520	1.23
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PV \$ PER KW SAVED	\$507.77			
Levelized CENTS PER KWH SAVED over life	2.45			
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Residential Programs FY 2004

Program	Societal Perspective	Utility Perspective	Participant Perspective
Appliance Efficiency	1.19	1.75	1.60
Home Energy Loan	1.02	1.43	1.40
Whole House	1.44	1.37	2.21
Free Weatherization	1.18	0.68	NA
Multifamily	1.04	2.23	1.41
Duct Leakage Sealing	1.56	1.10	3.18
Power Partner	2.46	2.45	NA
Cycle Saver	1.27	1.21	NA
CFLs	2.59	2.69	6.29

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Commercial Programs FY 2006

Program	Societal Perspective	Utility Perspective	Participant Perspective
Commercial Rebates	1.29	3.14	2.34
Small Business Lighting	2.05	2.71	4.18
Commercial Power Partner	1.29	1.29	1.03
Municipal Power Partner	1.29	1.29	1.09
Municipal Energy Efficiency	NA	NA	NA
Commercial Smart Vending	1.46	1.34	3.51

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What is the cost-effectiveness of the conservation programs for the utility?

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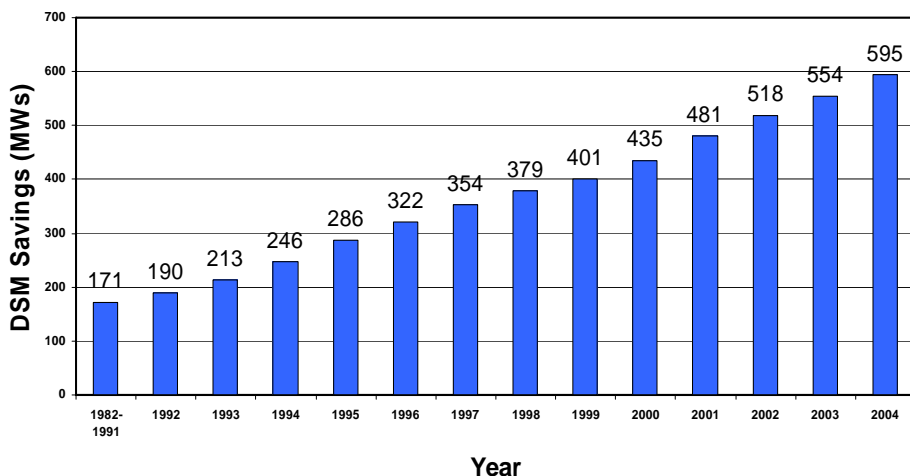
Commercial Efficiency Program Economic Conservation Programs

FY 2004- Financial Incentives - Cost per KW

Program Name	Incentives Paid	Operating Costs	Grants/ Revenues Received	Net Costs	KW Savings	Cost \$/KW
Conservation Rebates	\$ 1,285,248	\$ 507,047	\$ 101,234	\$ 1,691,061	4,682	\$ 361
Small Business	\$ 305,652	\$ 157,793	----	\$ 463,445	1,126	\$ 412
Vending Miser Program	\$ 347,394	\$ 42,855	\$ 281,978	\$ 108,271	362	\$ 299
Inter-Local Agreements	\$ -	\$ 2,345,479	\$ 1,640,962	\$ 704,517	2,534	\$ 278
Eng. Technical Support	----	\$ 43,237	----	\$ 43,237	1,037	\$ 42
Total	\$ 1,938,294	\$ 3,096,411	\$ 2,024,174	\$ 3,010,531	9,741	\$ 309

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DSM Cumulative Savings



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DSM Programs Contribution to Strategic Plan

- Increased customer satisfaction
- Local economic development
- Minimize natural gas usage
- Fuel price risk management
- 15% energy efficiency target

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Quantifiable Benefits

- Reduced fuel and purchased power expense
- Reduced capacity and spinning reserve requirements
- Reduced customer bills
- Reduced capacity requirements
- Improved System Load Factor

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Unquantified Benefits

- Value of reduced emissions
(NO_x, SO₂, CO₂)
- Value of solar RECs
- Value of increased customer satisfaction
- Value of economic development
- Publicity value of having nation's leading energy efficiency program

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DSM Summary

- DSM programs are saving peak kW & kWh.
- Cost-effectiveness analyses include full program costs.
- DSM goals and budgets should vary to support AE resource plan requirements.

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