

Demand Side Management Assimilation and Evaluation

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Considerations in Plan Development

- Patterns of Energy Use
 - By Market Segment
 - By End Use
- End Use Energy Allocation
- Value of Conservation
- Payback Acceptance
- Energy Conservation Measures

Patterns of Energy Use By Market Segment and End Use

Market Segmentation

- 16 Market Segments
 - 3 Residential
 - 13 Non-Residential

	Residential	Commercial
Cumulative Coincident Demand (MW)	232	177
Demand/Customer (kW)	3	19

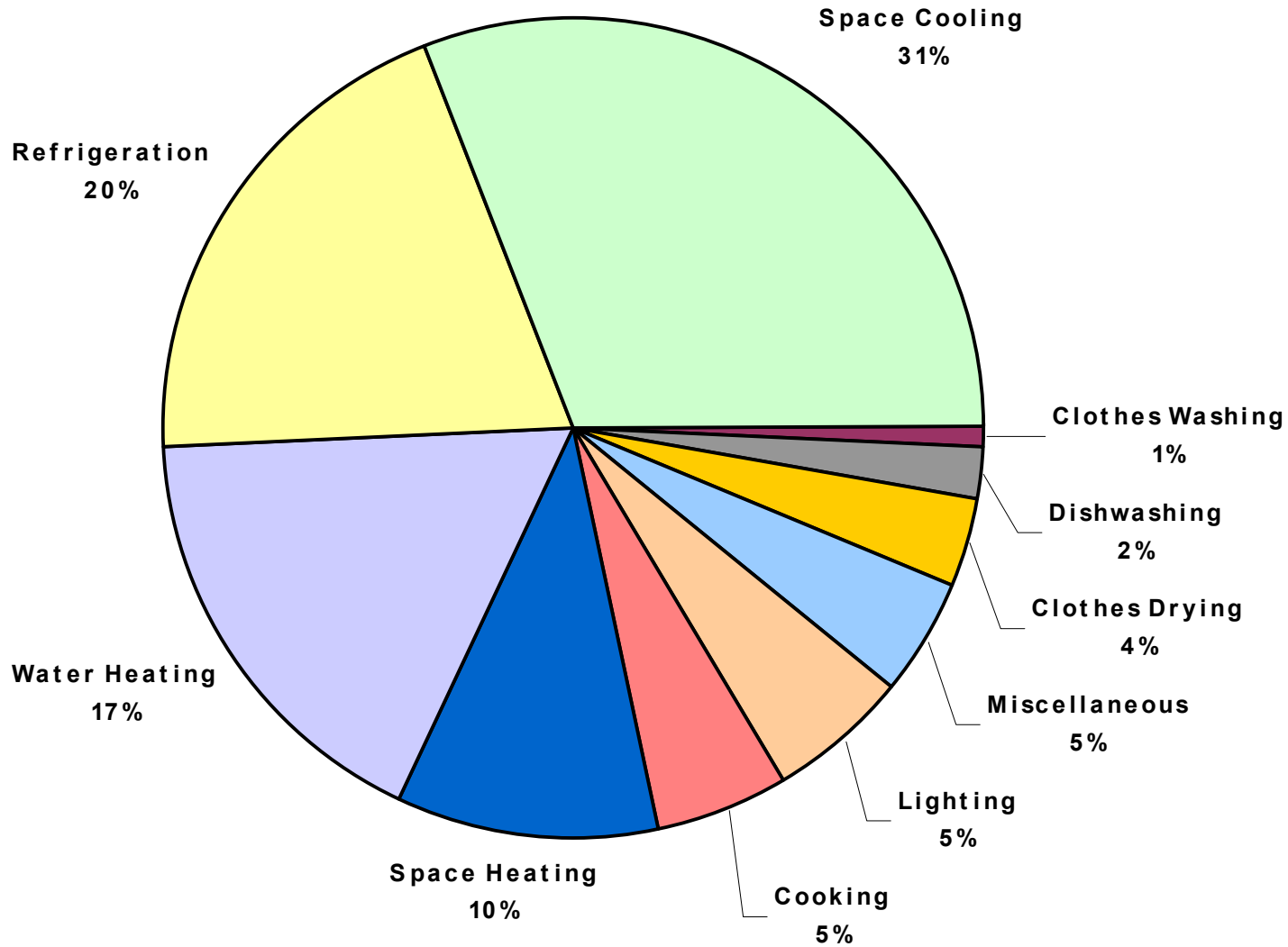
Calendar Year 2004 Non-Residential Market Segment Breakdown

Market Segment	# of Customers	Energy Sales (MWh)	Non-coincident Demand (kW)
Church/Auditorium	296	11,810	9,221
College	4	16,007	4,405
Fast Food	195	21,890	10,845
Hotel/Motel	389	77,366	17,037
Hospital	81	88,193	15,600
Industrial	1,303	166,628	38,679
Miscellaneous	1,769	62,793	16,300
Office	2,909	179,853	44,844
Restaurant/Bar	267	46,575	10,784
Retail Outlet	1,461	133,016	48,917
School	182	37,320	16,081
Supermarket/Grocery	139	78,058	13,181
Warehouse	247	7,807	2,190
Totals	9,243	927,314	248,085

Energy Uses

- Space Conditioning
 - Cooling/Heating: Seasonal Trend Analysis
- Common Uses
 - Refrigeration, Water Heating, Lighting, Clothes Drying, Clothes Washing
- Other Uses
 - Pool pump, Cooking, Dishwashing, Miscellaneous

GRU Residential End Use Energy Allocation



Example: Church/Auditorium Market Segment Energy

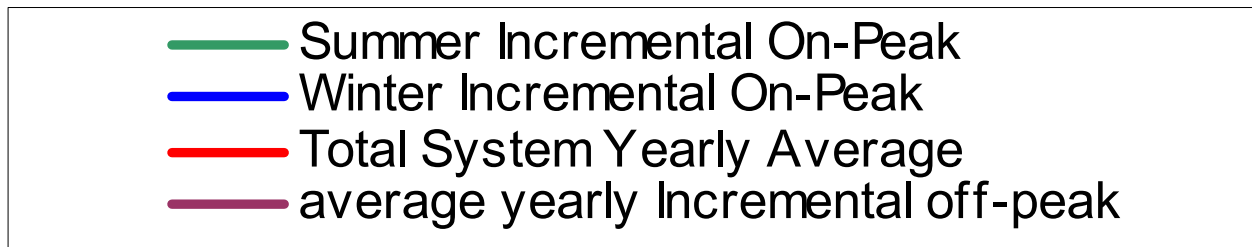
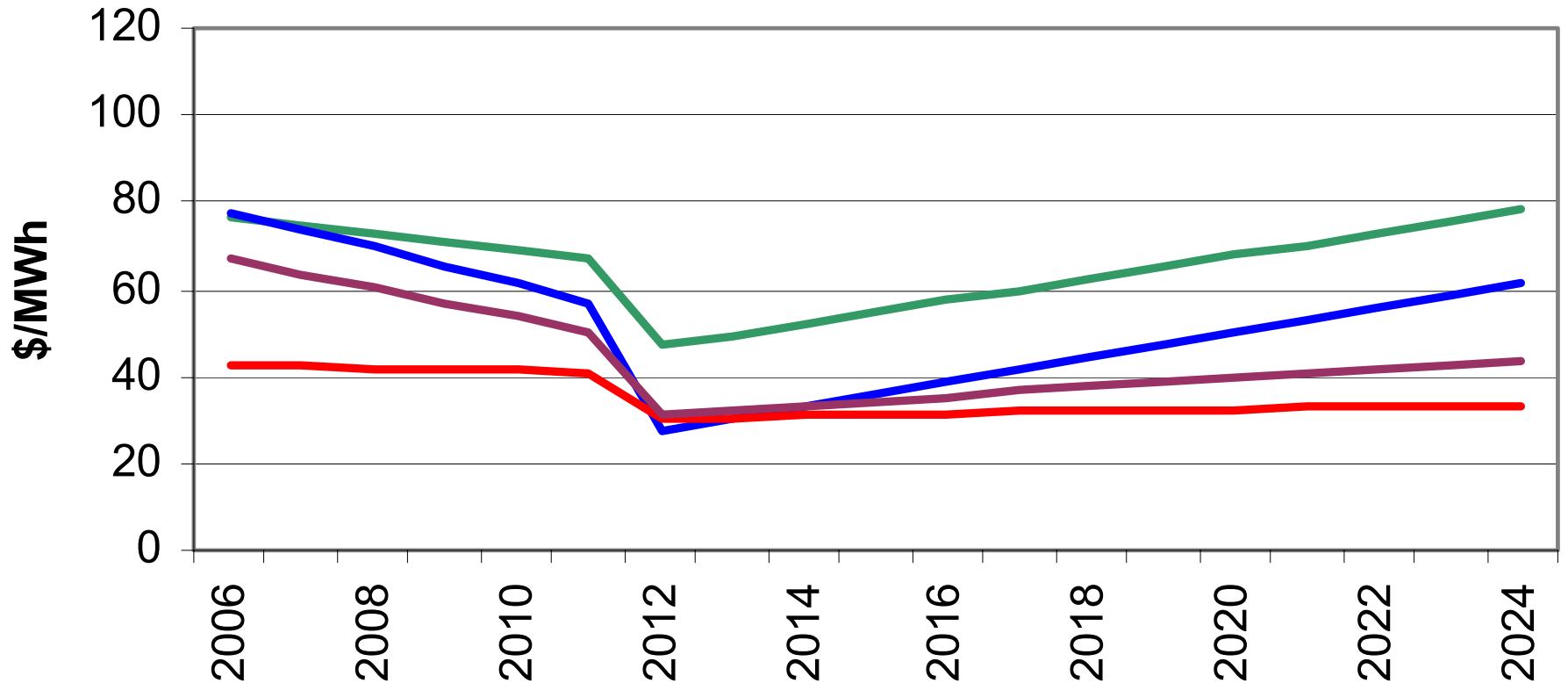
Market Segment	End Use %	MWh
Church/Auditorium		
Lighting	44.00%	5196
Heating	4.00%	472
Cooling	42.00%	4960
<i>Base:</i>	10.00%	
<i>Water Heating</i>	1.50%	177
<i>Refrigeration</i>	2.50%	295
<i>Cooking</i>	1.00%	118
<i>Ventilation</i>	3.00%	354
<i>Miscellaneous</i>	2.00%	236
Totals	100.00%	11,810

On-Going Projects To Improve End Use Allocations

- Appliance Saturation Survey
 - Currently underway
- Low Income Study (DEED Grant)
 - Currently underway
- Load Research
 - To be included in FY 07/08 budget

Value of Conservation

GRU Average Production Costs w/ Previously Proposed Unit



TRC

Conservation Cost Effectiveness

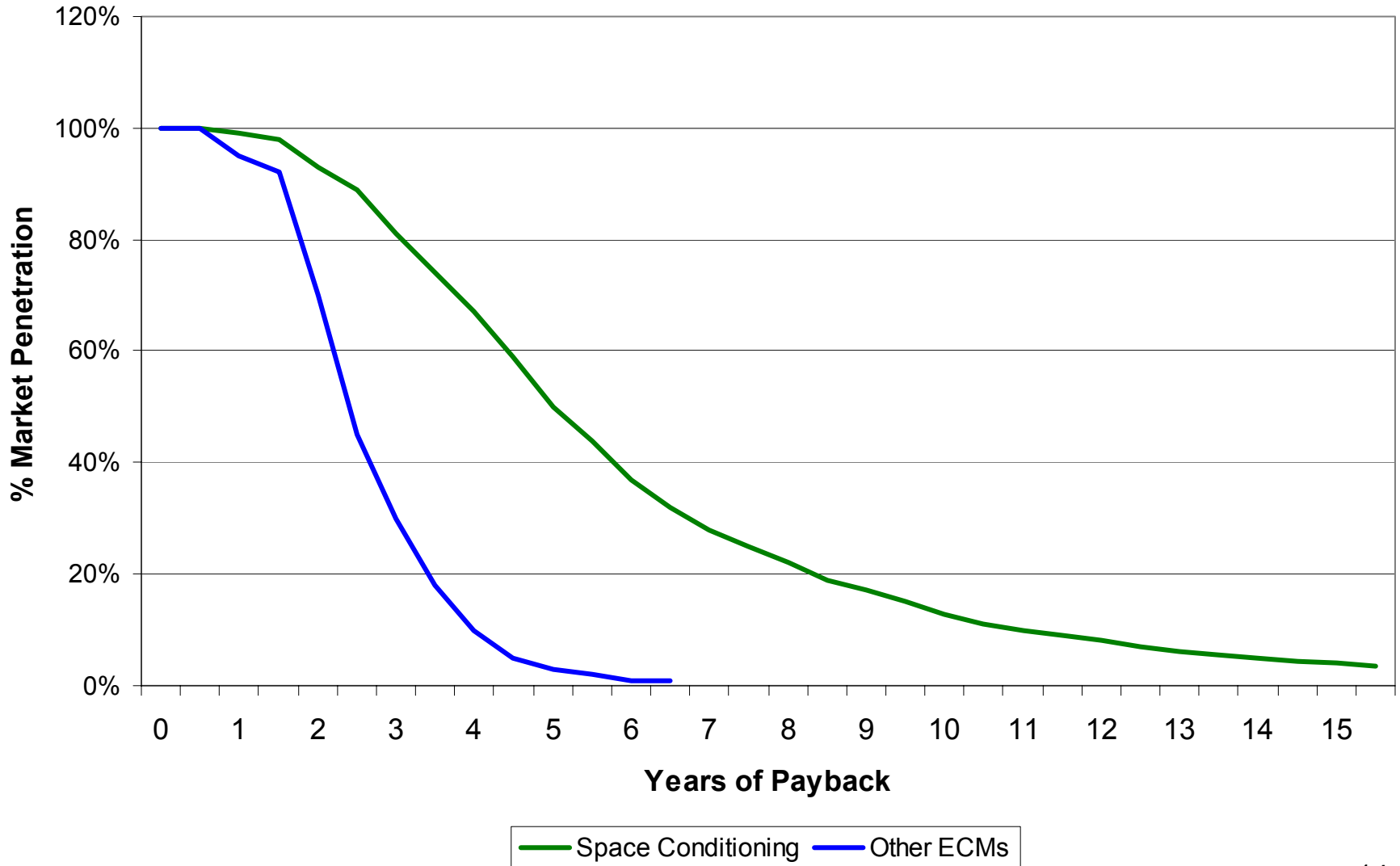
Discount Rate 6.75%	NPV of Benefits Under TRC, in 2006 Dollars		
Implemented in Year	Summer Peak \$/kWh	Winter Peak \$/kWh	Off Peak \$/kWh
2006	\$0.6911445	\$0.5657898	\$0.4930953
2007	\$0.6192475	\$0.4927687	\$0.4306429
2008	\$0.5536395	\$0.4280330	\$0.3750285
2009	\$0.4938126	\$0.3708268	\$0.3256369
2010	\$0.4392980	\$0.3204567	\$0.2819035
2011	\$0.3896632	\$0.2762870	\$0.2433103
2012	\$0.3445089	\$0.2377348	\$0.2093821
2013	\$0.3148387	\$0.2205544	\$0.1895381

NPV of Avoided Capacity in 2006 Dollars	
Year of Avoided Capital Cost	Avoided Capacity \$/kW
	\$1,460.09

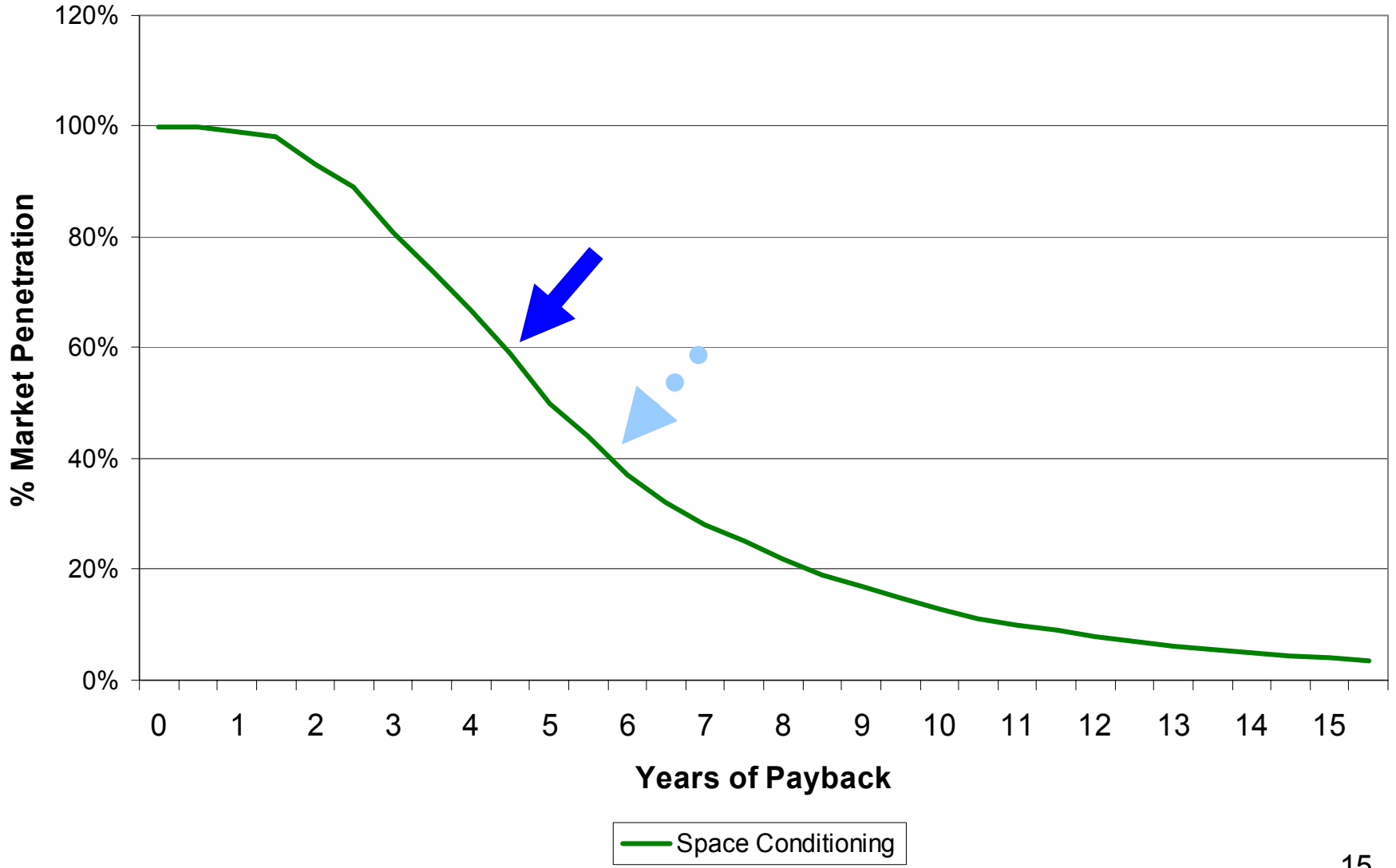
Payback Acceptance

Modeling Consumer Behavior

Payback Acceptance Curves



The Effect of Incentives on Acceptance



On-Going Projects to Improve Consumer Behavior Modeling

- Information sharing with JEA, OUC, Lakeland, and Tallahassee
 - On going
- Trips to SMUD, PG&E, Austin and Burlington
 - May 2006
- Literature review of Utility Practices
 - August 2006

Energy Conservation Measures

Energy Conservation Measures (ECMs)

ECM	Market Segment	Total Possible Participants	Energy Savings (kWh)		Demand Savings (kW)	
			Sum	Wint	Sum	Wint
HIGH EFF. HEAT PUMP	AT	1,776	.327	.21	.327	.21
HIGH EFF. HEAT PUMP	MH	26	.327	.21	.327	.21
HIGH EFF. HEAT PUMP	SF	1,632	.327	.21	.327	.21

On-Going Projects to Energy Conservation Measures

- Information sharing with JEA, OUC, Lakeland, and Tallahassee
 - On going
- Update list of ECMs, possibly partnering with other utilities
- Trips to SMUD, PG&E, Austin and Burlington
 - May 2006

Moving Forward

DEMAND SIDE MANAGEMENT

ACHIEVEMENTS TO DATE AND POTENTIAL FUTURE ACHIEVEMENTS

	Actual Achievements <u>1980-2004</u>	<u>FY 06 DSM Modeling Study</u> Rate Impact Measure <u>Test</u>	ICF DSM Base Case	
Annual Energy (MWh)				
Residential	52,921	12,500	-	
Commercial	16,473	4,300	-	
Total System	69,394	16,800	100,000	
Summer Demand (MW)				
Residential	6.3	5.3	-	
Commercial	5.6	2.6	-	
Total System	11.9	7.9	34	21

Planning for Maximum DSM

- Staffing Requirements
- Upgrade Model Inputs
 - Additional Research
 - Low Income Specific Measures
 - Operating capital
- Implementation of TRC
 - Research
- DSM Commitments for FY 2007/08 to be included in budget
- Site visits with conservation leaders

Implementation of Max DSM

- Additional Conservation Measures
- Enhanced Rebate Levels
- Low interest loans
- Demonstration of demand response
- Load research/Innovative Rate Design
- Customized Commercial Rebate Program
- All source solicitation
- On going monitoring and evaluation
 - Collaborative Research (JEA, OUC, Lakeland & Tallahassee)