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Real Prices, Real Responses: Results from a New York Real Time Price Program

Presented at:

Price Responsive Load Management: A New Opportunity in New York State – Albany - March 2001 – Session 1D

by

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All About XENERGY

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ConEd RTP Program Overview

- Began in 1991, scheduled to last through 1997, program no longer in place
- 15 participating customers at peak
- Received day-ahead hourly pricing no later than 4 pm
  - Individual price schedules reflected system marginal costs and individual specialized adders
  - Prices were based on month and day-type and forecast of system conditions
- ConEd provided consenting customers with energy audits and historic load pattern information

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Price Calculation

Marginal Cost per kWh at the Sales Level for h_t =

Expected System Lambda for h_t +

Expected Marginal Cost of T&D Losses for h_t +

Expected Marginal G&T Shortage costs for h_t +

Customer-Specific Marginal Distribution Shortage Costs for h_t

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Program Evaluation

- Evaluated 1991-1995 programs
- Both Impact and Process evaluations
  - Was a DSM program measured energy/load and revenue affect on both the customers and ConEd
  - 1991-1993 impact evaluation used sophisticated econometric modeling
  - 1994-1995 impact evaluation used simple match-day approach

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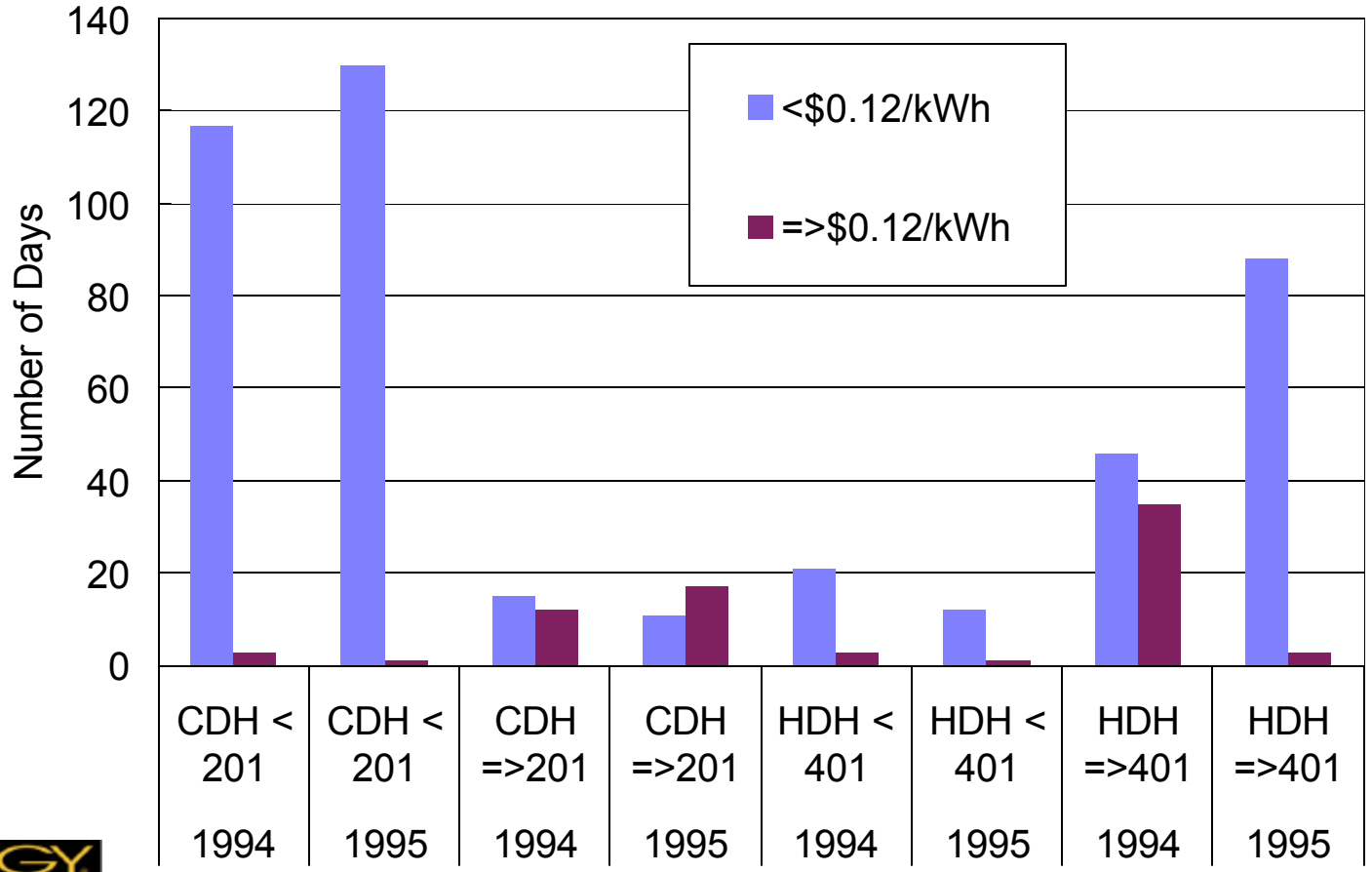
1994 & 1995 Day Types –

Baseline days are hotter or cooler than normal, but less than 12 cents/kWh maximum RTP price



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Participant Overview

Code	Facility Type	Start Date	Self-Reported Primary Response Strategies
A	Medical College	2/91	Backup Generation
B	Office	5/90	Cool Storage
C	Office	10/91	Steam Driven Chillers
D	Research/Office	10/91	Load Shedding
E	Office	11/91	Backup Generation, Load Shedding
F	Office	11/91	Backup Generation, Load Shedding
G	Manufacturing	5/91	Load Shedding
H	Office	9/91	Gas Engine and Steam Absorption Chillers
I	Office/Lab.	2/91	Cool Storage, Load Shedding
J	Retail/Process	4/91	Cool Storage, Load Shedding
K	Office	2/91	Load Shedding
L	Hotel	7/91	Load Shedding
M	Office	12/91	Steam Driven Chillers, Load Shedding
N	Office	2/92	Steam Driven Chiller
O	Office	6/91	Cool Storage, Load Shedding

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Summer 1995 Impact

Participant	Baseline Day	High Price Day	Daily Impact
A	42,920	44,104	1,183
B	10,600	11,204	604
G	38,577	38,268	-310
H	61,020	64,317	3,297
I	13,207	14,331	1,124
J	5,389	5,520	130
K	35,807	37,144	1,337
L	116,620	125,117	8,497
M	166,190	167,963	1,773
N	127,659	136,663	9,004
O	327,243	355,991	28,747
Mean	85,930	90,965	5,035

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Winter 1995 Impact

Participant	Baseline Day	High Price Day	Daily Impact
A	29,526	27,789	-1,737
B	7,857	7,666	-192
G	38,457	41,017	2,561
H	50,386	53,149	2,763
I	9,436	9,650	214
J	3,202	3,429	228
K	31,841	30,529	-1,313
L	88,122	87,707	-415
M	131,197	137,824	6,627
N	29,698	25,692	-4,006
O	216,034	198,124	-17,910
Mean	57,796	56,598	-1,198

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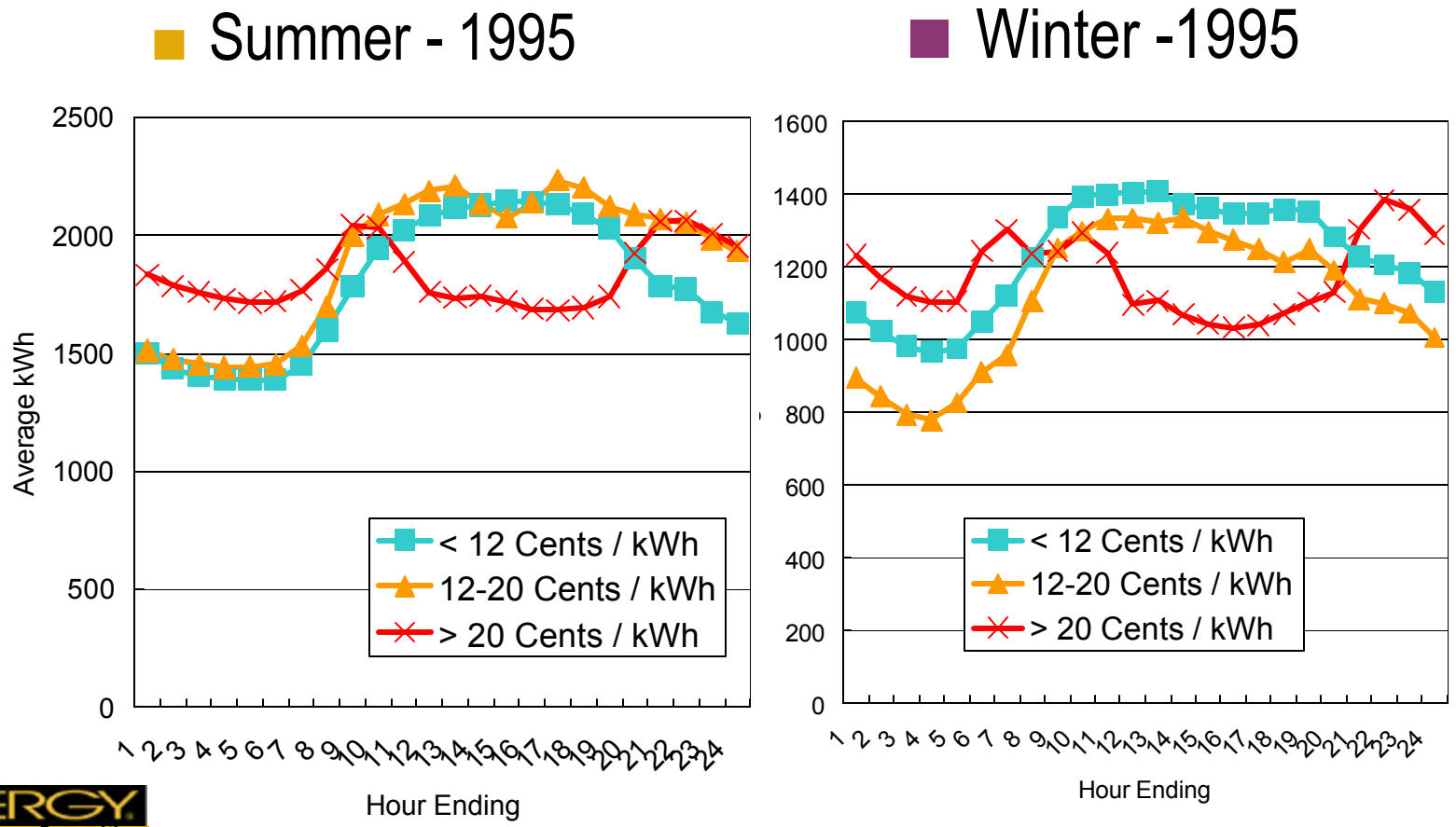
Participant A – College w/ Backup Generation



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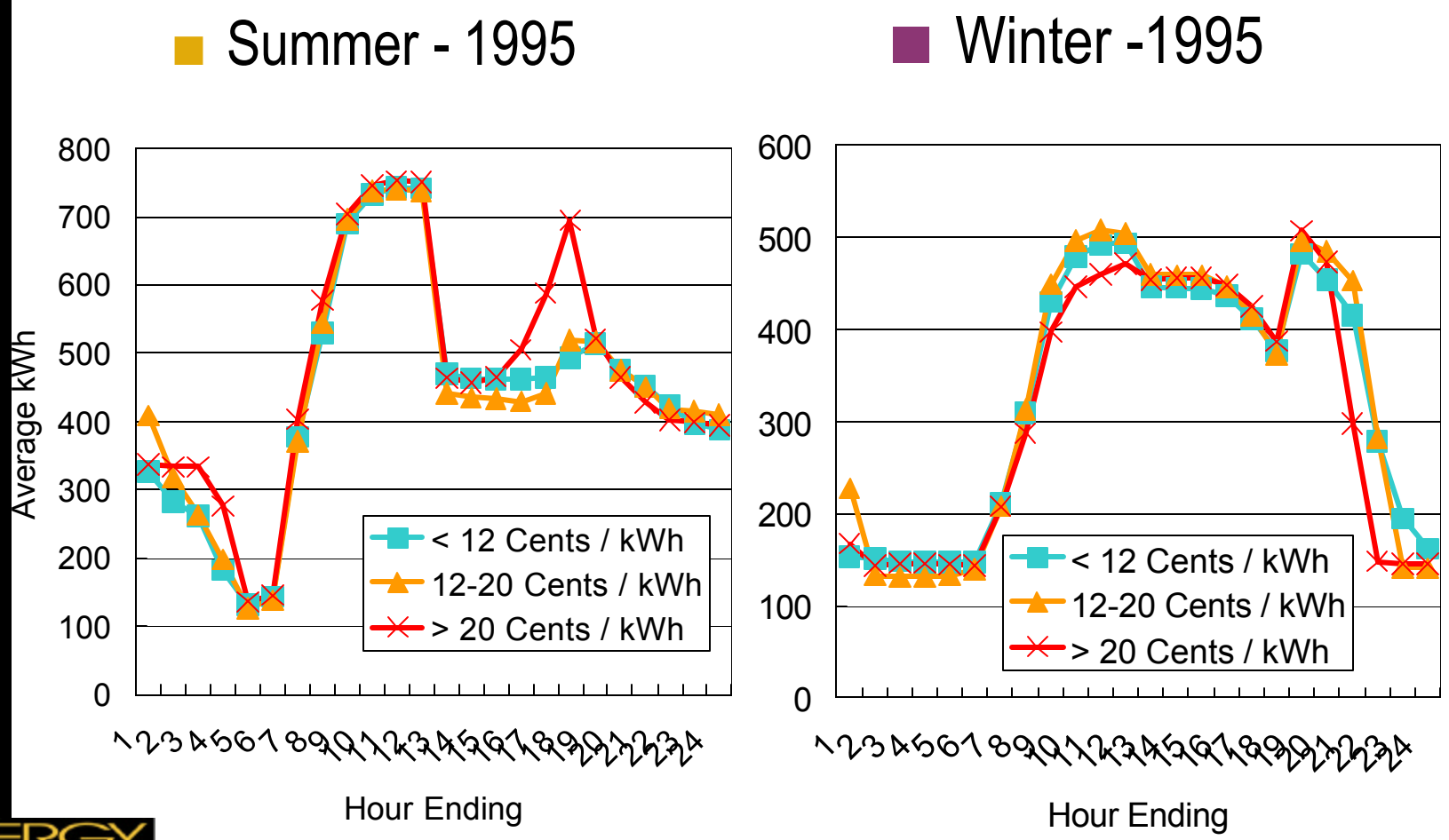
Participant B – Office w/ Cool Storage



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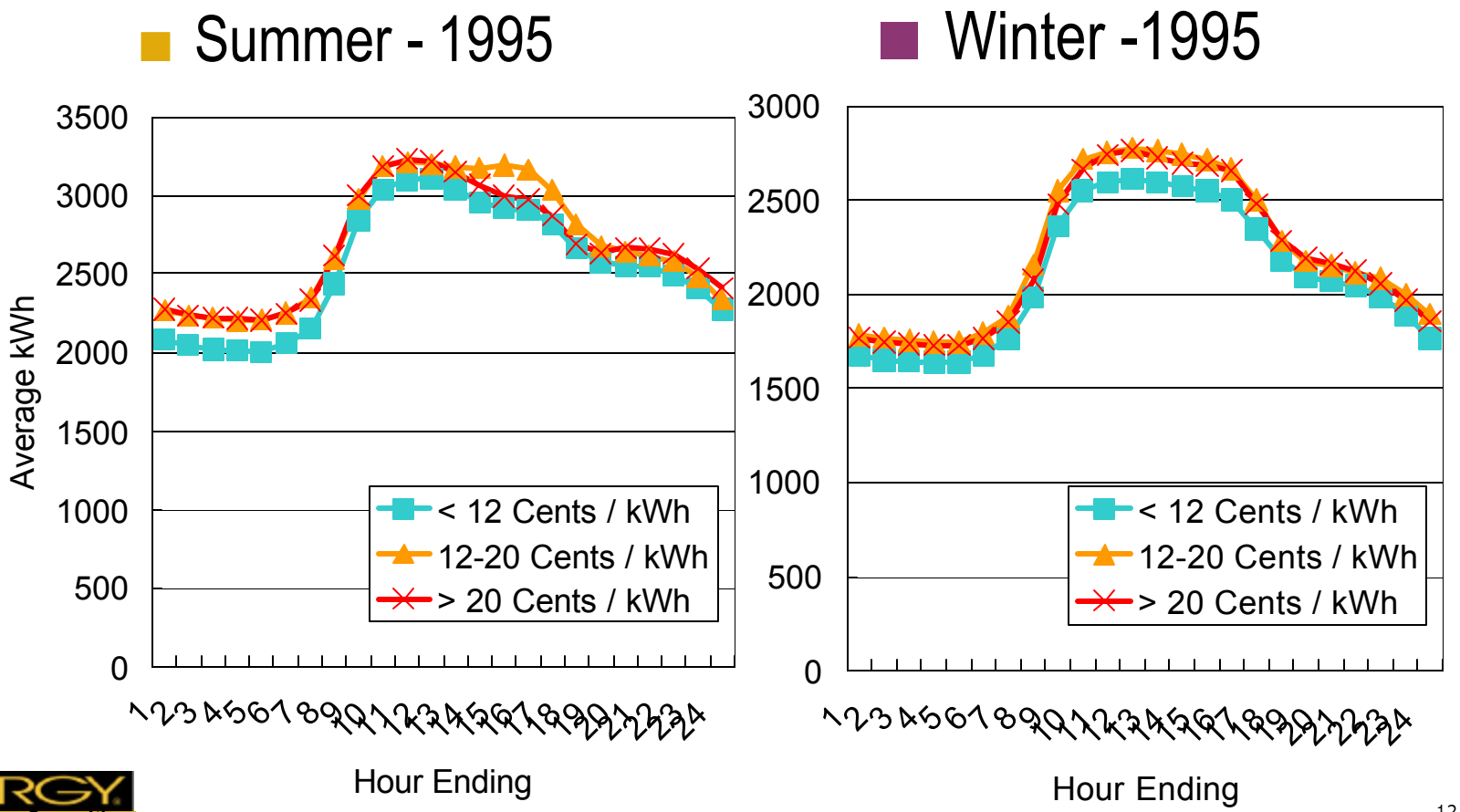
Participant H – Office w/ Gas Engine and Steam Absorption Chillers



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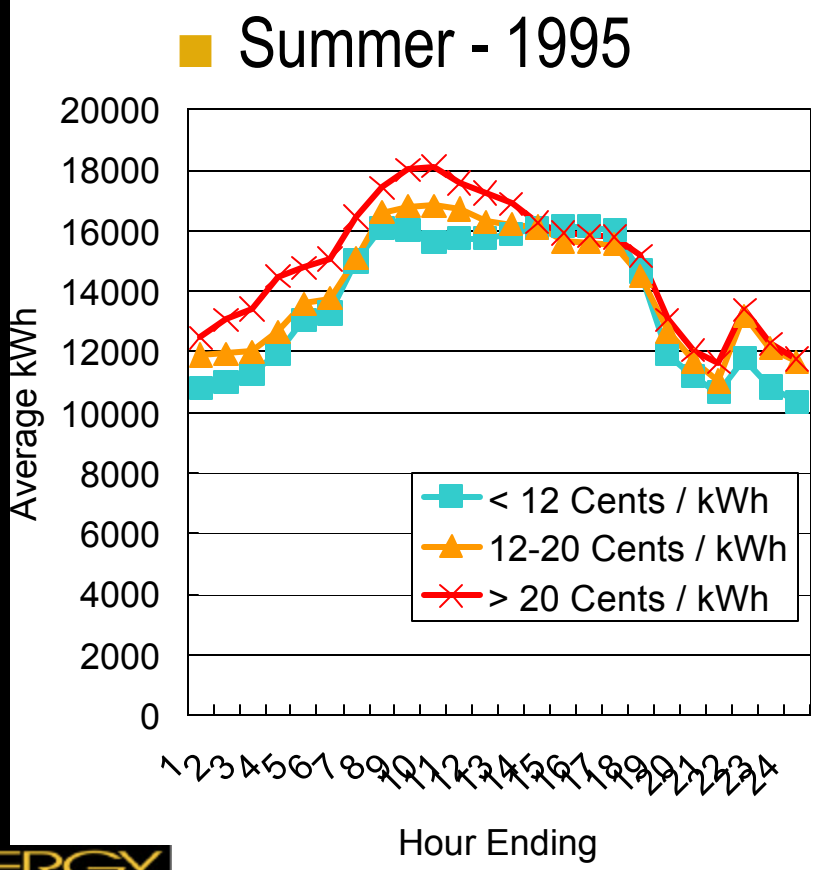
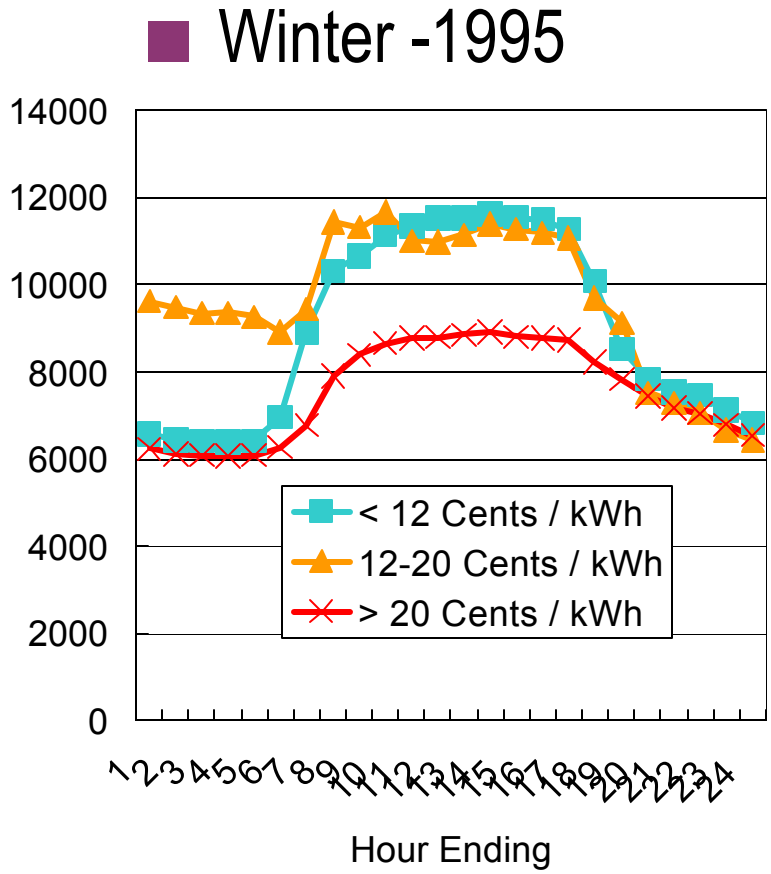
Participant O – Office w/ Cool Storage & Load Shedding





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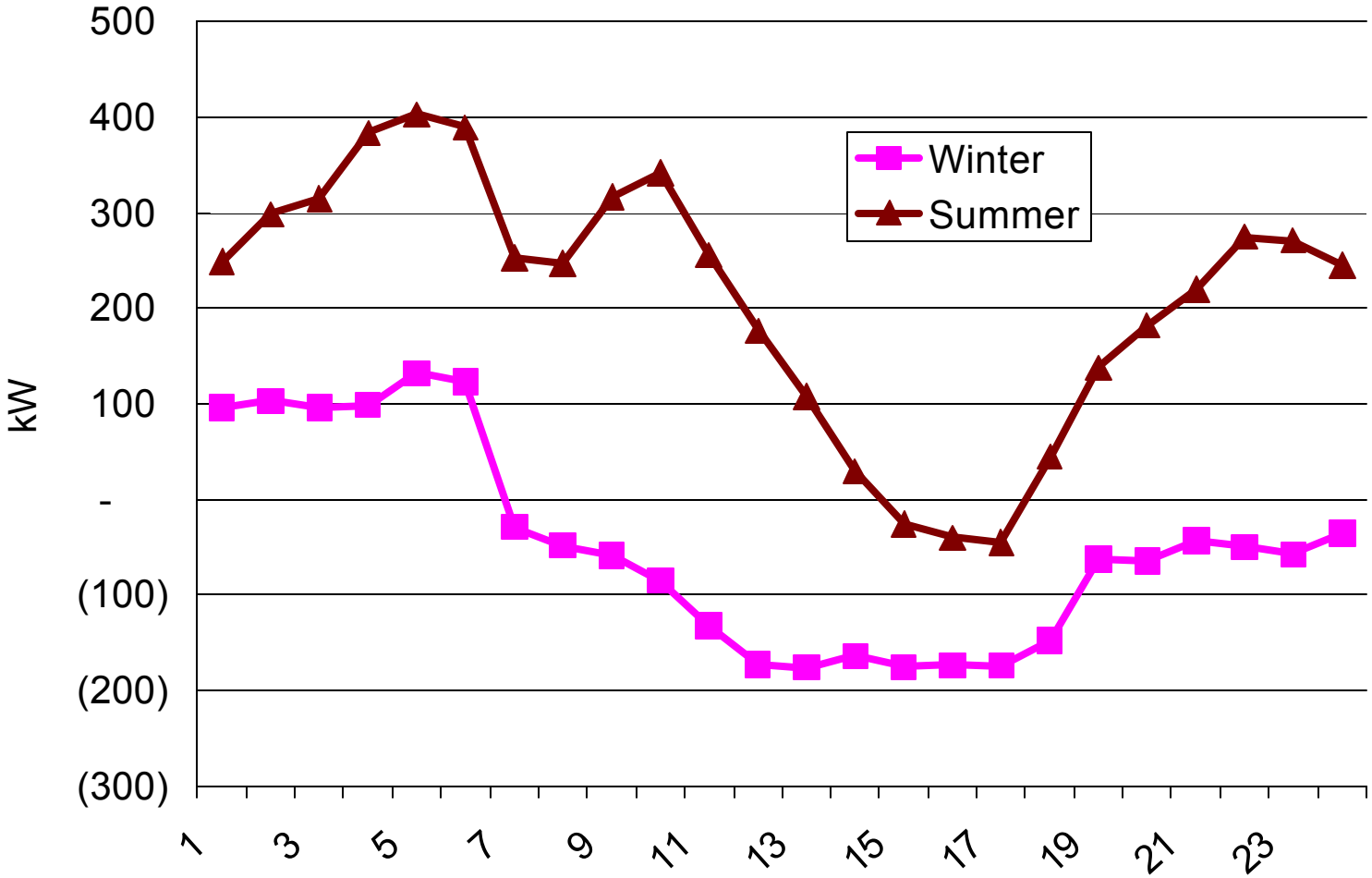
1995 Avg. Change from Baseline Day



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Observations

- Reaction and interest varied widely
  - One company with 3 sites dropped out of RTP program after being confronted with numerous high price days in the winter 1994. Two organizations indicated they did not switch to NYPA because of the RTP.
- Modeling does not take into account structural shifts in energy usage.
  - For example, installation of efficient lighting is not accounted for by this type of analysis
- Both sophisticated and simple evaluation methodology took into account weather, as to not do so would have not passed the laugh test
  - Given the proposed customer baseline algorithm proposed for the NYISO Emergency Demand Response Program, we would expect a lot of gaming / free-ridership, if invoked.