



# Long Island Power Authority

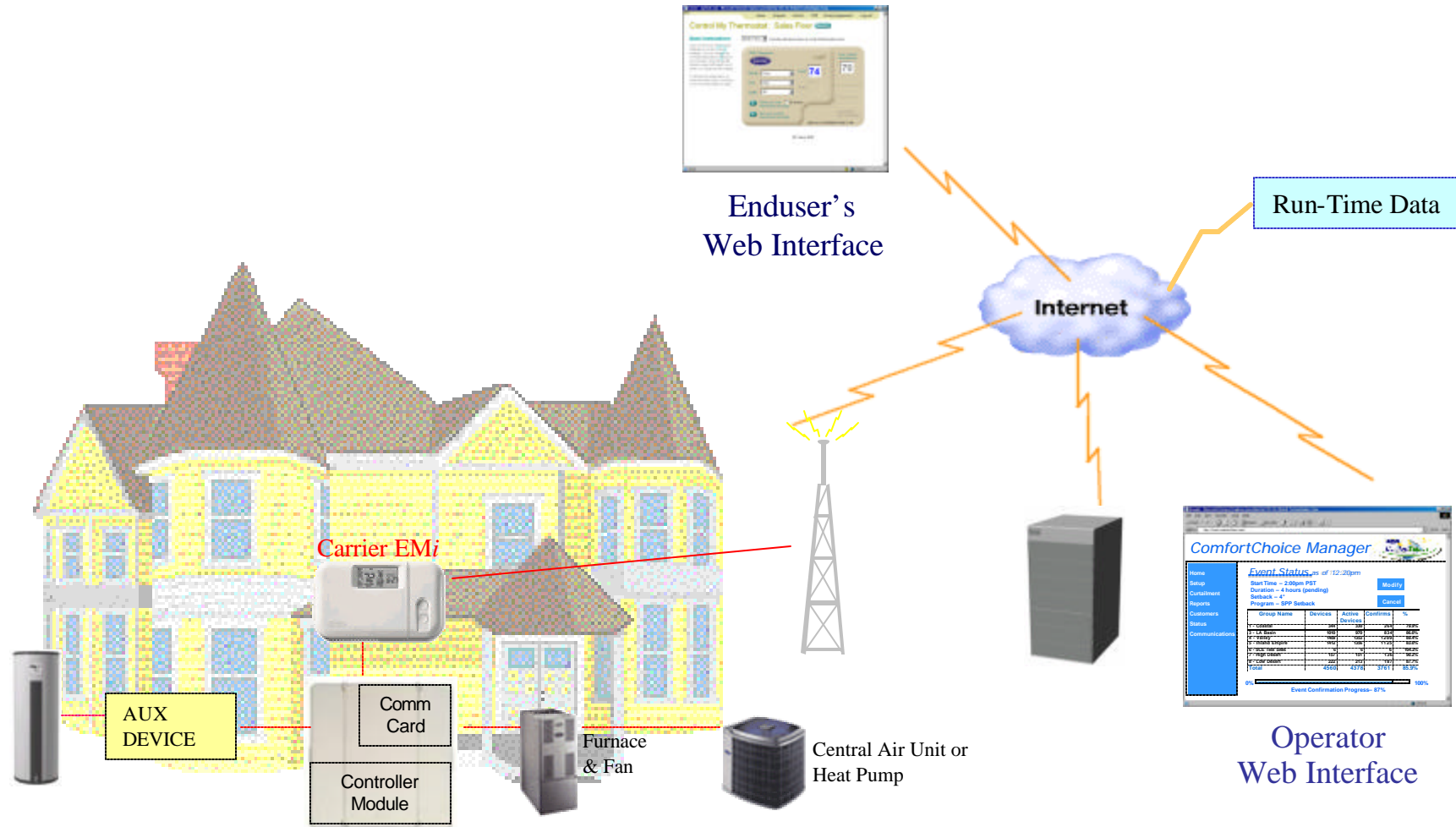
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For discussion purposes only



# “ComfortChoice” Architecture



ComfortChoice Manager

Even Status of 12:20pm

Start Time - 2:00pm PST  
Duration - 4 hours (pending)  
Setback - 4'

Modify Cancel

| Group Name | Devices | Active | Confirmed | %     |
|------------|---------|--------|-----------|-------|
| ALL        | 380     | 380    | 380       | 100%  |
| 177        | 100     | 100    | 100       | 100%  |
| 177-1      | 100     | 100    | 100       | 100%  |
| 177-2      | 100     | 100    | 100       | 100%  |
| 177-3      | 100     | 100    | 100       | 100%  |
| 177-4      | 100     | 100    | 100       | 100%  |
| 177-5      | 100     | 100    | 100       | 100%  |
| 177-6      | 100     | 100    | 100       | 100%  |
| 177-7      | 100     | 100    | 100       | 100%  |
| 177-8      | 100     | 100    | 100       | 100%  |
| 177-9      | 100     | 100    | 100       | 100%  |
| 177-10     | 100     | 100    | 100       | 100%  |
| 177-11     | 100     | 100    | 100       | 100%  |
| 177-12     | 100     | 100    | 100       | 100%  |
| 177-13     | 100     | 100    | 100       | 100%  |
| 177-14     | 100     | 100    | 100       | 100%  |
| 177-15     | 100     | 100    | 100       | 100%  |
| 177-16     | 100     | 100    | 100       | 100%  |
| 177-17     | 100     | 100    | 100       | 100%  |
| 177-18     | 100     | 100    | 100       | 100%  |
| 177-19     | 100     | 100    | 100       | 100%  |
| 177-20     | 100     | 100    | 100       | 100%  |
| 177-21     | 100     | 100    | 100       | 100%  |
| 177-22     | 100     | 100    | 100       | 100%  |
| 177-23     | 100     | 100    | 100       | 100%  |
| 177-24     | 100     | 100    | 100       | 100%  |
| 177-25     | 100     | 100    | 100       | 100%  |
| 177-26     | 100     | 100    | 100       | 100%  |
| 177-27     | 100     | 100    | 100       | 100%  |
| 177-28     | 100     | 100    | 100       | 100%  |
| 177-29     | 100     | 100    | 100       | 100%  |
| 177-30     | 100     | 100    | 100       | 100%  |
| 177-31     | 100     | 100    | 100       | 100%  |
| 177-32     | 100     | 100    | 100       | 100%  |
| 177-33     | 100     | 100    | 100       | 100%  |
| 177-34     | 100     | 100    | 100       | 100%  |
| 177-35     | 100     | 100    | 100       | 100%  |
| 177-36     | 100     | 100    | 100       | 100%  |
| 177-37     | 100     | 100    | 100       | 100%  |
| 177-38     | 100     | 100    | 100       | 100%  |
| 177-39     | 100     | 100    | 100       | 100%  |
| 177-40     | 100     | 100    | 100       | 100%  |
| 177-41     | 100     | 100    | 100       | 100%  |
| 177-42     | 100     | 100    | 100       | 100%  |
| 177-43     | 100     | 100    | 100       | 100%  |
| 177-44     | 100     | 100    | 100       | 100%  |
| 177-45     | 100     | 100    | 100       | 100%  |
| 177-46     | 100     | 100    | 100       | 100%  |
| 177-47     | 100     | 100    | 100       | 100%  |
| 177-48     | 100     | 100    | 100       | 100%  |
| 177-49     | 100     | 100    | 100       | 100%  |
| 177-50     | 100     | 100    | 100       | 100%  |
| 177-51     | 100     | 100    | 100       | 100%  |
| 177-52     | 100     | 100    | 100       | 100%  |
| 177-53     | 100     | 100    | 100       | 100%  |
| 177-54     | 100     | 100    | 100       | 100%  |
| 177-55     | 100     | 100    | 100       | 100%  |
| 177-56     | 100     | 100    | 100       | 100%  |
| 177-57     | 100     | 100    | 100       | 100%  |
| 177-58     | 100     | 100    | 100       | 100%  |
| 177-59     | 100     | 100    | 100       | 100%  |
| 177-60     | 100     | 100    | 100       | 100%  |
| 177-61     | 100     | 100    | 100       | 100%  |
| 177-62     | 100     | 100    | 100       | 100%  |
| 177-63     | 100     | 100    | 100       | 100%  |
| 177-64     | 100     | 100    | 100       | 100%  |
| 177-65     | 100     | 100    | 100       | 100%  |
| 177-66     | 100     | 100    | 100       | 100%  |
| 177-67     | 100     | 100    | 100       | 100%  |
| 177-68     | 100     | 100    | 100       | 100%  |
| 177-69     | 100     | 100    | 100       | 100%  |
| 177-70     | 100     | 100    | 100       | 100%  |
| 177-71     | 100     | 100    | 100       | 100%  |
| 177-72     | 100     | 100    | 100       | 100%  |
| 177-73     | 100     | 100    | 100       | 100%  |
| 177-74     | 100     | 100    | 100       | 100%  |
| 177-75     | 100     | 100    | 100       | 100%  |
| 177-76     | 100     | 100    | 100       | 100%  |
| 177-77     | 100     | 100    | 100       | 100%  |
| 177-78     | 100     | 100    | 100       | 100%  |
| 177-79     | 100     | 100    | 100       | 100%  |
| 177-80     | 100     | 100    | 100       | 100%  |
| 177-81     | 100     | 100    | 100       | 100%  |
| 177-82     | 100     | 100    | 100       | 100%  |
| 177-83     | 100     | 100    | 100       | 100%  |
| 177-84     | 100     | 100    | 100       | 100%  |
| 177-85     | 100     | 100    | 100       | 100%  |
| 177-86     | 100     | 100    | 100       | 100%  |
| 177-87     | 100     | 100    | 100       | 100%  |
| 177-88     | 100     | 100    | 100       | 100%  |
| 177-89     | 100     | 100    | 100       | 100%  |
| 177-90     | 100     | 100    | 100       | 100%  |
| 177-91     | 100     | 100    | 100       | 100%  |
| 177-92     | 100     | 100    | 100       | 100%  |
| 177-93     | 100     | 100    | 100       | 100%  |
| 177-94     | 100     | 100    | 100       | 100%  |
| 177-95     | 100     | 100    | 100       | 100%  |
| 177-96     | 100     | 100    | 100       | 100%  |
| 177-97     | 100     | 100    | 100       | 100%  |
| 177-98     | 100     | 100    | 100       | 100%  |
| 177-99     | 100     | 100    | 100       | 100%  |
| 177-100    | 100     | 100    | 100       | 100%  |
| Total      | 4500    | 4370   | 3761      | 85.5% |

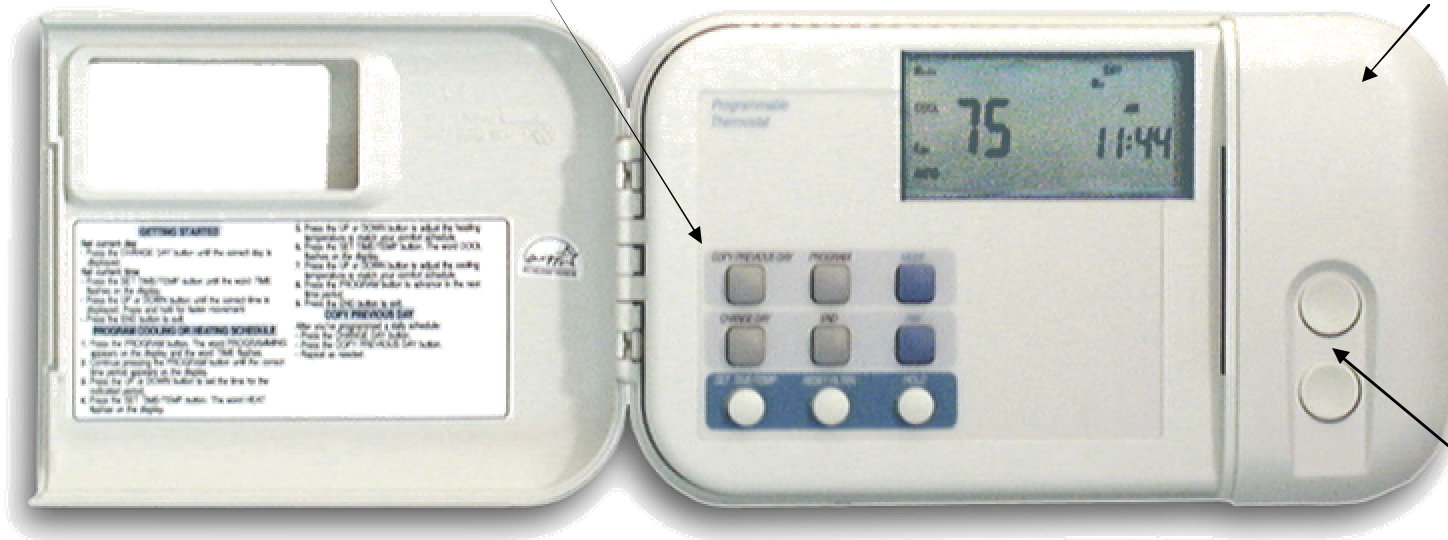
Even Confirmation Progress: 87%



# Thermostat

7-day programming  
4 periods per day

2-way  
communications



Curtailment  
override

Battery-Free



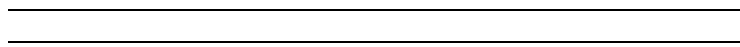


# Utility IO Board

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*Only "2" wires required betw  
User interface and the Uti l.*



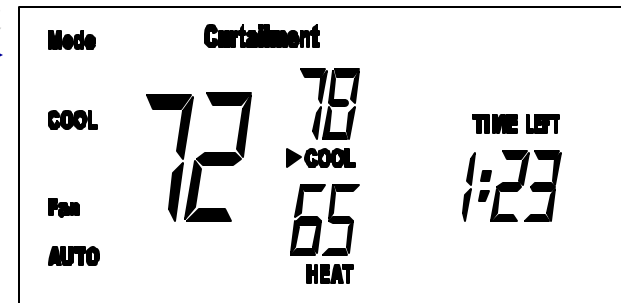


# Curtailment Event Flow

Energy Provider Initiates a Setback or Cycling Curtailment



EMi responds acknowledging Curtailment command



- ❖ *Utility Initiates a Curtailment (cycling / setback, mandatory / voluntary)*
- ❖ *EMi Responds (confirming that the thermostat received a control signal)*
- ❖ *At Time of Curtailment the Homeowner is Informed (through thermostat indicator)*
- ❖ *If the Customer chooses to “Override” - Message is sent to the Utility to be Logged*

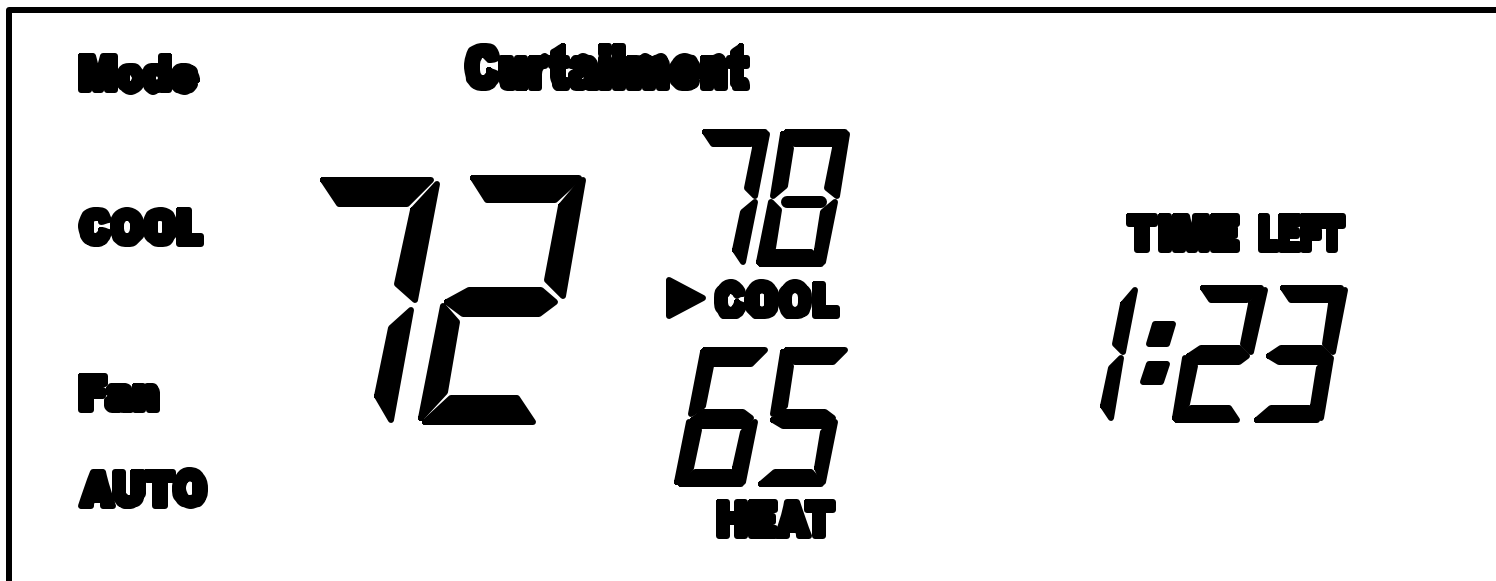


# Participant Is Informed

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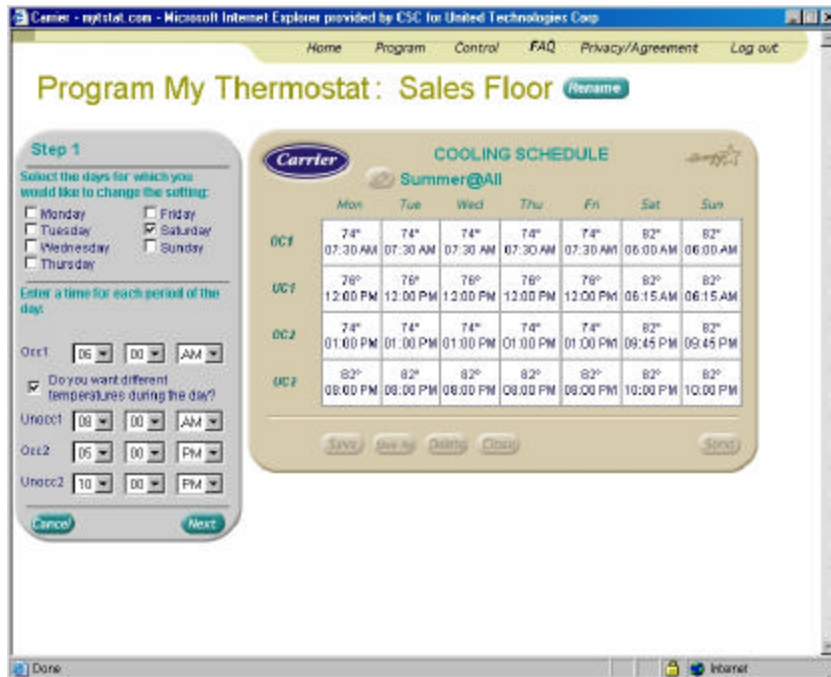
## “Curtailment” and “Time Left” Indicators

The amount of time remaining in the curtailment is indicated as a “*countdown timer*”.

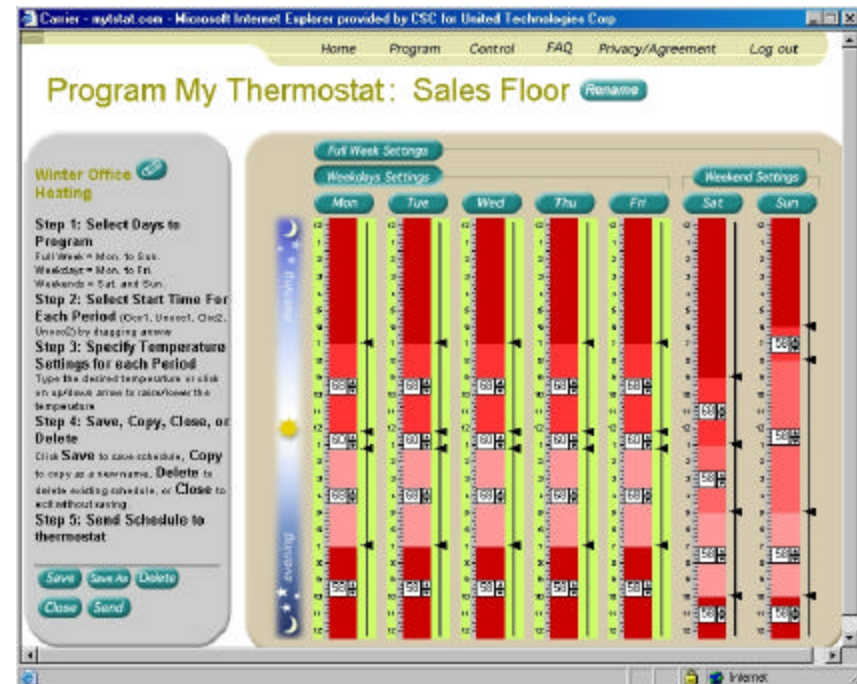




# Web Programmability Interface



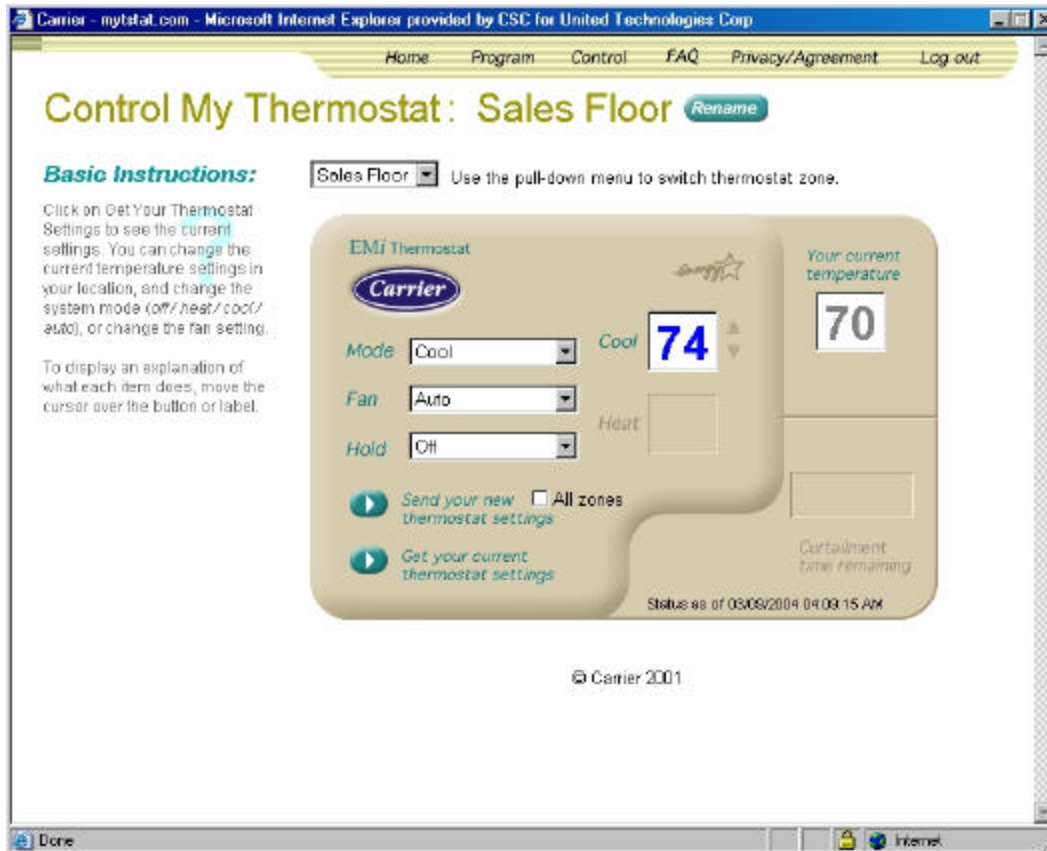
- ❖ *Two User Friendly Programming Interfaces*
- ❖ *Simple, Easy-to-use Slide Bars and Drop-down Menus*



- ❖ *“Step-By-Step” Programming Wizard*
- ❖ *“All-In-One” Expert Programming*



# Commercial Customer Control



## Single Login Provides:

- ❖ *Control and Status of Multiple Zones*
- ❖ *“Free” Energy Management Solution*

## Sleepy’s Chain:

- ❖ *77 stores under control*





# Program Participation Levels

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## End Use Technology Controlled

## Units Installed

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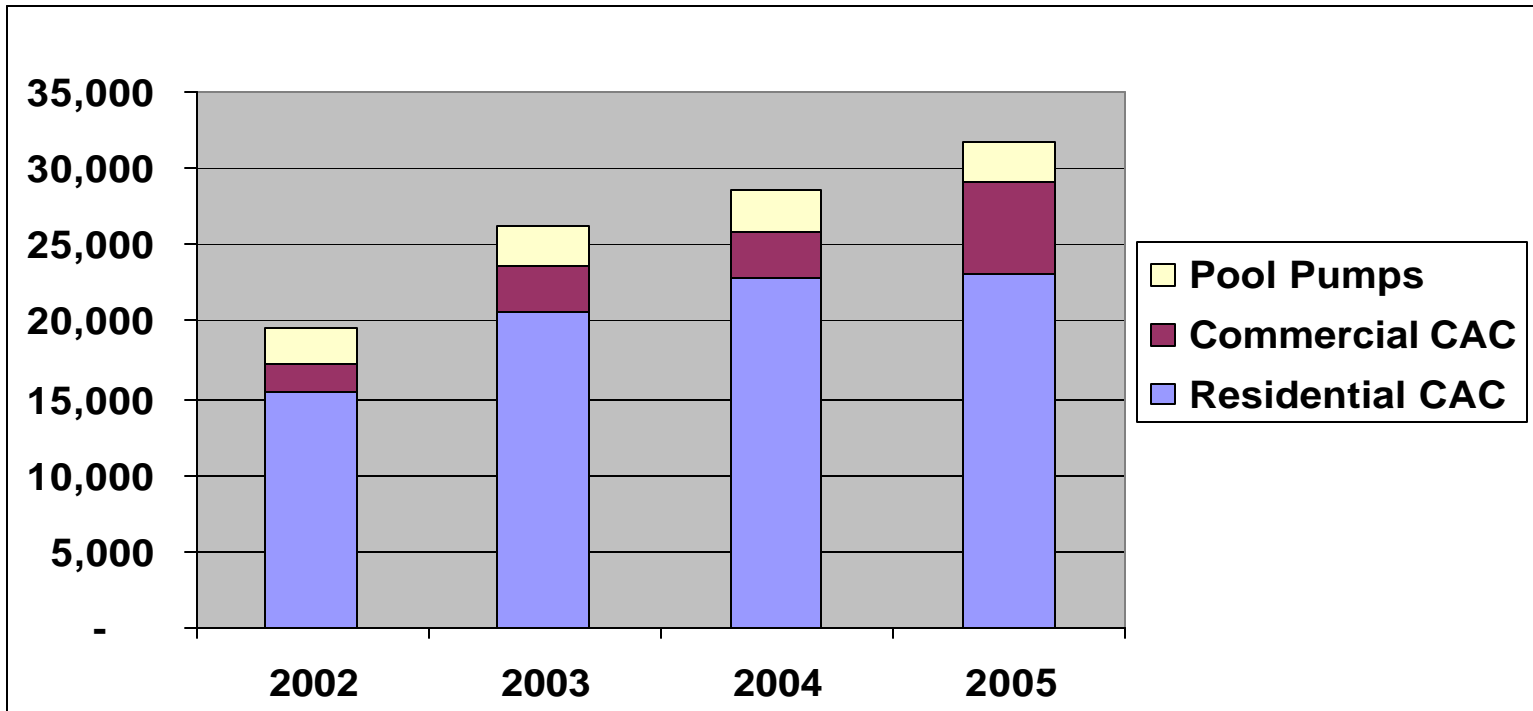
| Year  | 2002   | 2003   | 2004   | 2005   |
|---|--------|--------|--------|--------|
| <b>Residential</b><br><i>Central Air Conditioning</i> | 15,469 | 20,678 | 22,952 | 23,079 |
| <b>Commercial</b><br><i>Central Air Conditioning</i>  | 1,723  | 3,022  | 2,929  | 6,015  |
| <b>Pool Pumps</b>                                     | 2,434  | 2,635  | 2,664  | 2,713  |

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# Program Participation Levels

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# Program Improvements

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## Residential

*Central Air Conditioning*

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| <b>Hour Ending</b> | <b>2002 Overrides</b> | <b>2005 Overrides<br/>with<br/>Signal Refreshed</b> |
|--------------------|-----------------------|---|
| <b>3 P.M.</b>      | <b>3.1 %</b>          | <b>2.6 %</b>  |
| <b>4 P.M.</b>      | <b>9.2 %</b>          | <b>8.2 %</b>  |
| <b>5 P.M.</b>      | <b>15.4 %</b>         | <b>4.5 %</b>  |
| <b>6 P.M.</b>      | <b>20.8 %</b>         | <b>13.4 %</b>                                       |

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# Program Improvements

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## Commercial

*Central Air Conditioning*

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| <b>Hour Ending</b> | <b>2002 Overrides</b> | <b>2005 Overrides<br/>with<br/>Signal Refreshed</b> |
|--------------------|-----------------------|---|
| <b>3 P.M.</b>      | <b>8.8 %</b>          | <b>8.5 %</b>  |
| <b>4 P.M.</b>      | <b>24.7 %</b>         | <b>21.6 %</b>                                       |
| <b>5 P.M.</b>      | <b>34.3 %</b>         | <b>8.0 %</b>  |
| <b>6 P.M.</b>      | <b>34.5 %</b>         | <b>19.9 %</b>                                       |

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## Enhancements/Future Direction

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- ❖ **Continue to Focus on Small Commercial Installs**

*“More Bang for the Buck” (more impact for approximately the same price)*

- ❖ **Going to Install 1,000 New LIPAedge Thermostats in the Year 2006**

- ❖ **Carrier’s Comfort Choice Manager (CCM)**

*“New Functionality and Improved Productivity” (for program administration)*

- ❖ **Formalized Process to Resolve Non-Responding Thermostats**

- ❖ **Investigating Alternatives to SkyTel in an Effort to Reduce Communication Costs**



# Long Island Power Authority

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