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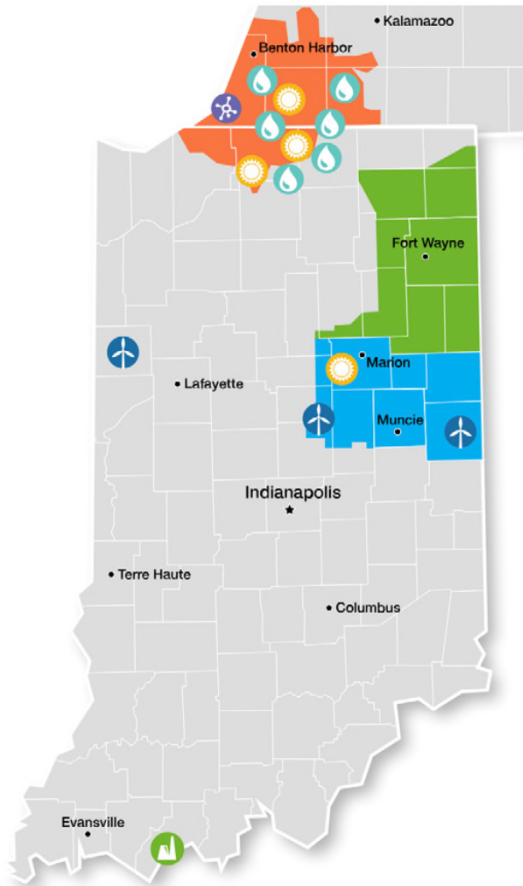
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# Indiana Michigan Power

Demand Response Offerings  
2017 ABATE Annual Membership  
Meeting

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# Overview of I&M



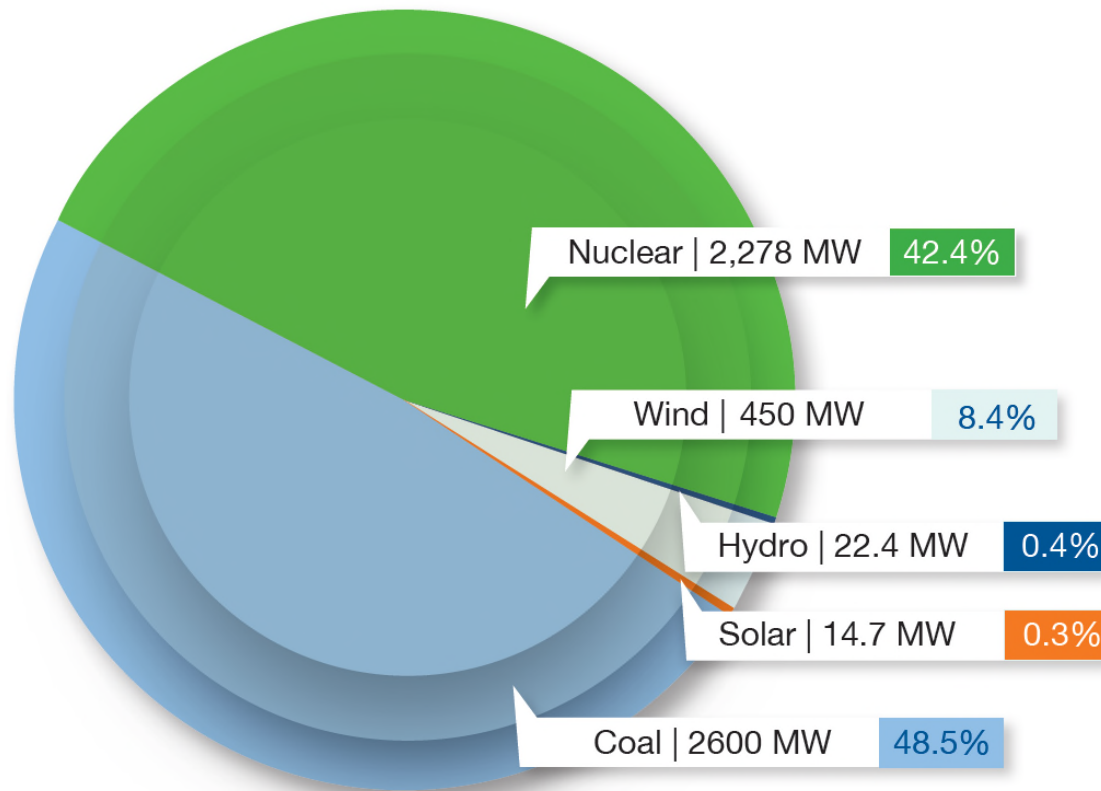
## NUMBER OF INDIANA MICHIGAN POWER CUSTOMERS

|          | Residential | Commercial | Industrial | Other | Total   |
|----------|-------------|------------|------------|-------|---------|
| Indiana  | 405,121     | 52,791     | 3,986      | 1,605 | 463,433 |
| Michigan | 109,486     | 17,654     | 942        | 344   | 128,426 |
| Total    | 514,607     | 70,375     | 4,928      | 1,949 | 591,859 |



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# I&M's Current Supply Side Resources



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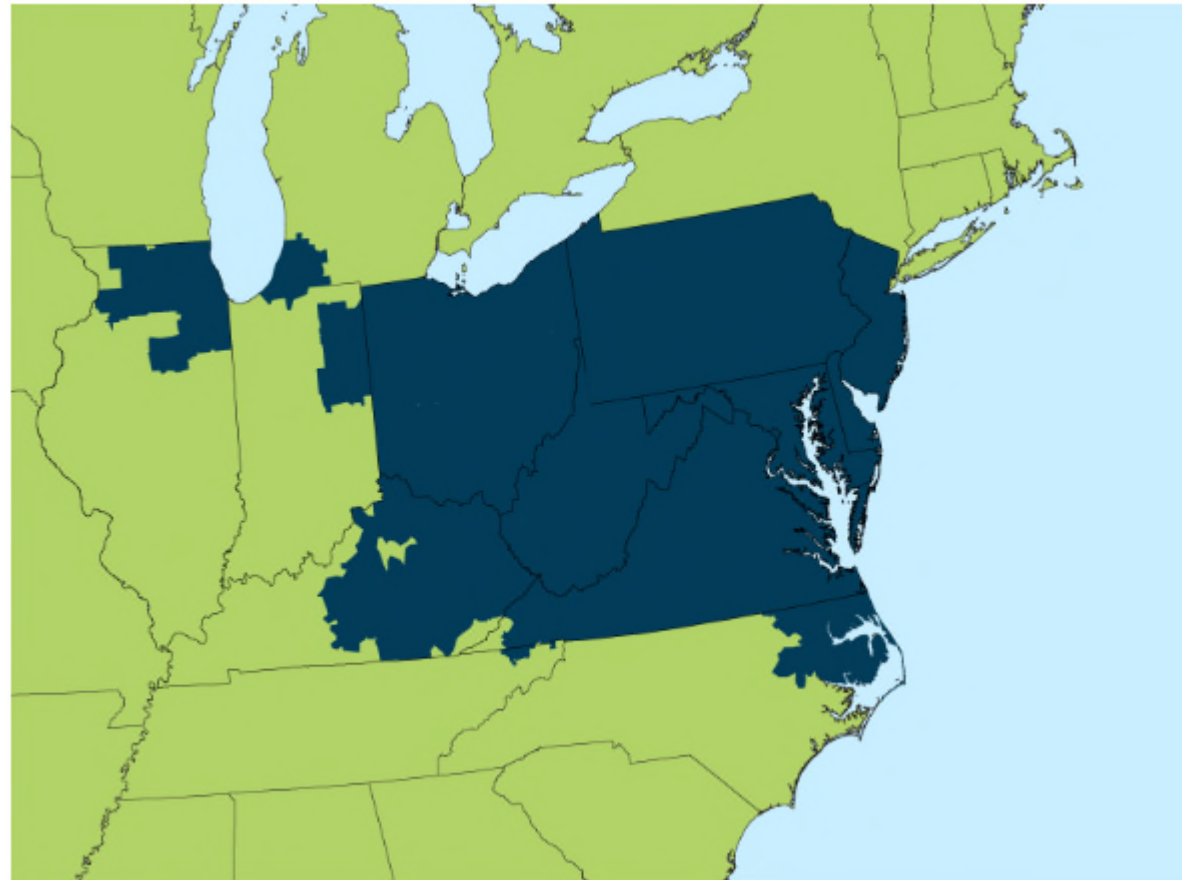


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# Demand Response

I&M, as a unit (operating company) of American Electric Power, is a member of the PJM Interconnection.

I&M designs its Demand Response offerings consistent with, and based upon, PJM requirements and market constructs.



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# I&M's Demand Response Offerings in Michigan

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Current:

Tariff CS-IRP

- Available to customers who have interruptible demands greater than 1,000 kW;
- Individual contract basis between I&M and each customer;
- Customer identifies fixed capacity reservation and interruptible capacity reservation;
  - Subject to testing and verification by I&M;

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# Current Offering Cont'd

- Mandatory Capacity Interruptions (Demand);
  - Customer receives Mandatory Interruption Demand Credit;
  - PJM Minimum Emergency Load Response Program requirements for capacity purposes apply;
  - AEP System Emergency Operating Plan requirements apply.
- Discretionary Energy Interruptions;
  - Customer receives Discretionary Interruption Demand Credit;
  - For example, up to 200 hours of interruption per year (PJM delivery year, not calendar year);
  - Buy through energy possible, but not firm, at applicable hourly market price.

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# Planned Future Offerings

## Work Energy Management

- Proposed in I&M's 2 year Energy Waste Reduction Plan for 2018/2019;
  - Open to commercial and industrial customers with qualifying demand of greater than 75 kW;
    - Allows I&M to engage nearly the full spectrum of C&I customers;
  - Provides participating customers an opportunity to voluntarily respond to locational marginal prices (LMP) by reducing consumption and receiving payment for such reduction during those times when LMP prices are high;
  - Provides near real time Edge of Grid load and supply resource management capability to I&M;



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# Planned Future Offerings Cont'd

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## Work Energy Management

I&M's WORK Energy Management Program **incentivizes** local businesses **for reducing their demand** when the surrounding community needs it most. For each year of participation, customers receive a **cash incentive** based on their level of participation.

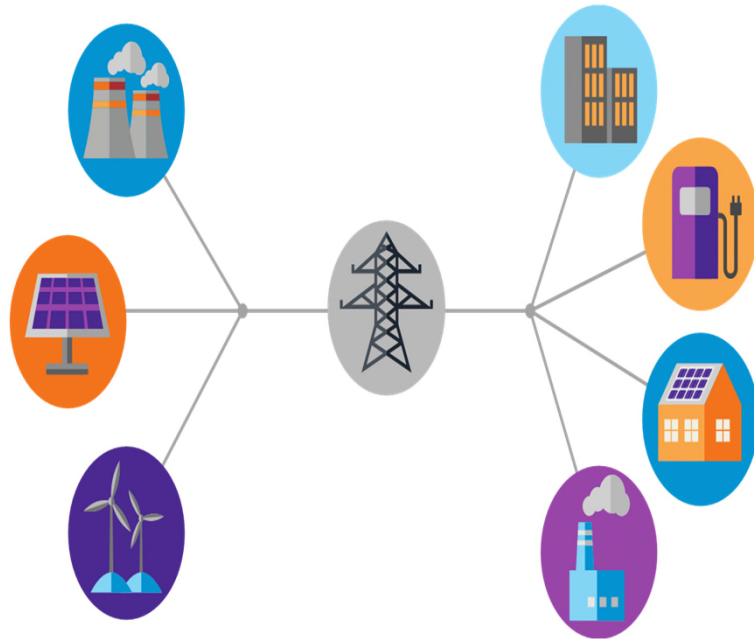
As part of the 'WORK' Electric Ideas products, I&M will provide the necessary tools, technology and services at **no cost to its customers**. In return, the customers agree to allow I&M to **slightly adjust building temperature and non-essential lighting** levels automatically. The changes are designed to be **light touch** so that **operations are not impacted**.

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# Work Energy Management— Enabling Grid Transformation

Transforming today's One Way Grid...

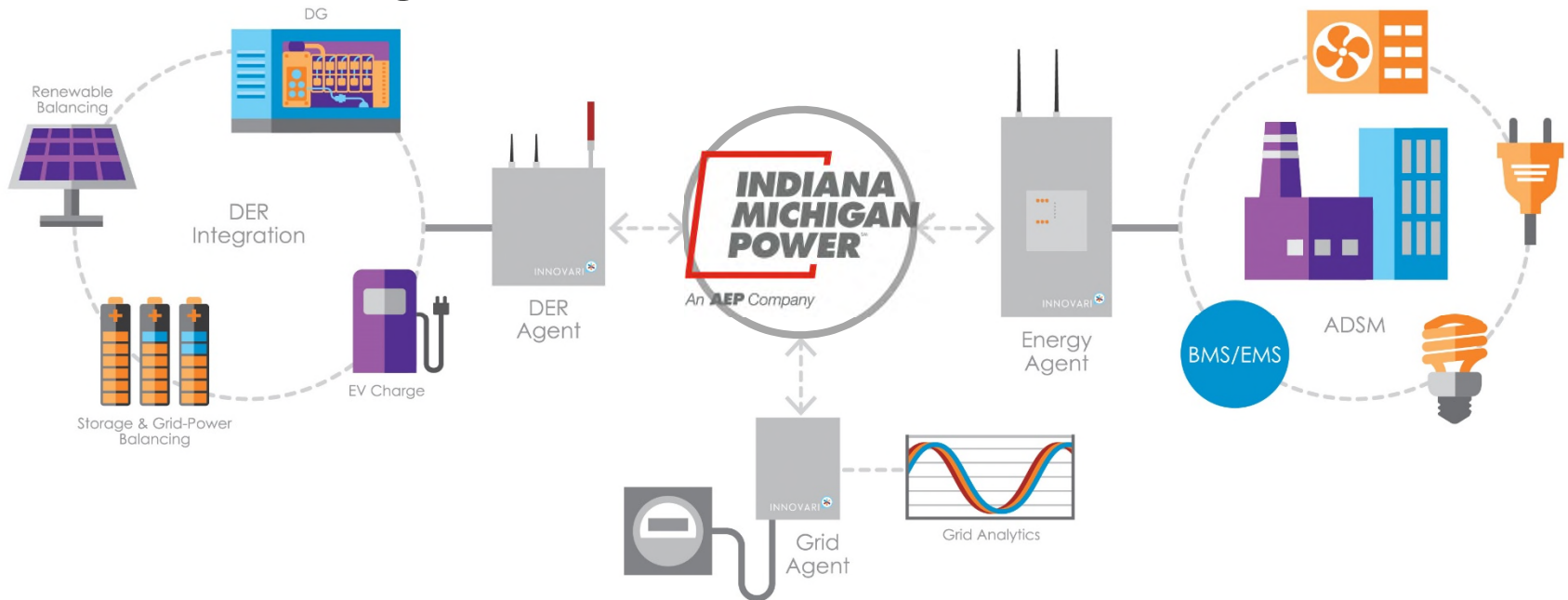


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# Work Energy Management— Enabling Grid Transformation

...Into a 2 way interactive grid....

WEM Interactive Energy Platform bridges individual customer loads with the grid



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# Customer Partnerships

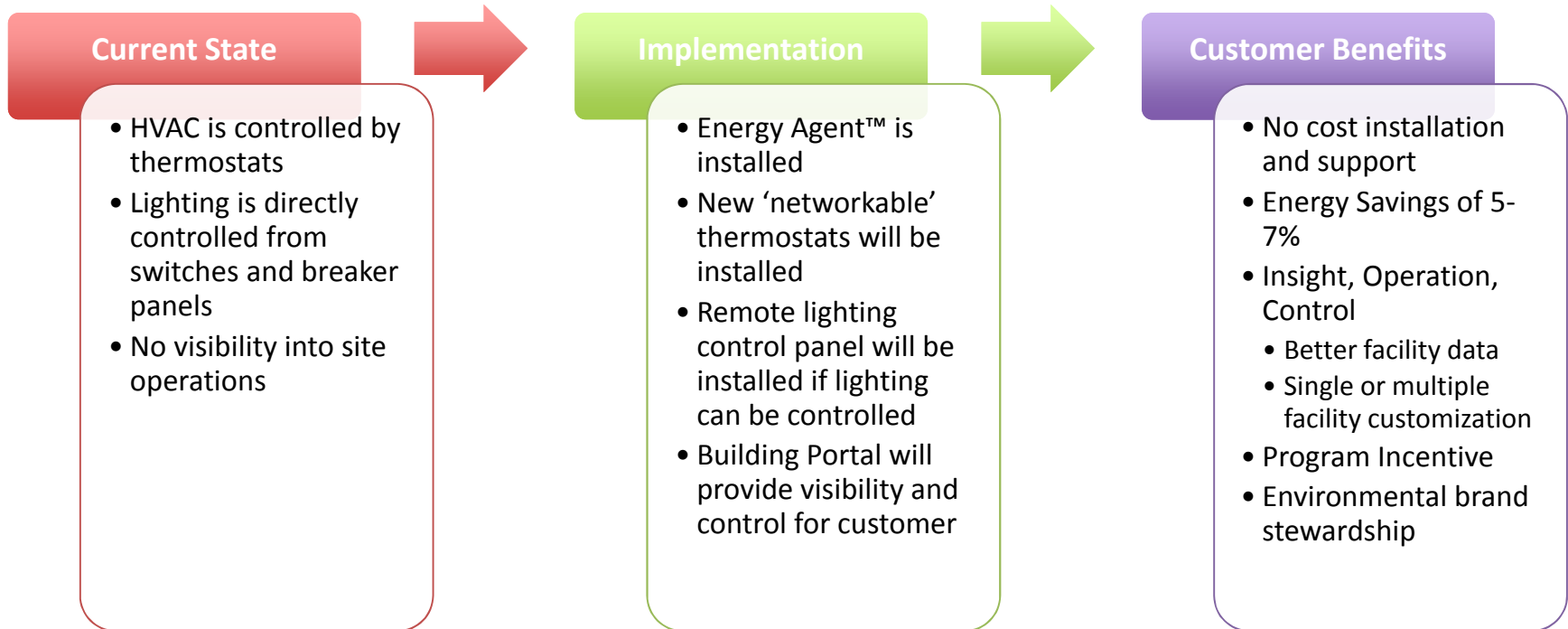
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The WEM Interactive Energy Platform enables a “light touch” approach with customer control

- Allows I&M to slightly adjust building temperatures and non-essential lighting during peak load periods
- Adjustments will not affect operations
- Events occur for short periods of time when demand for capacity is high or when energy prices are highest

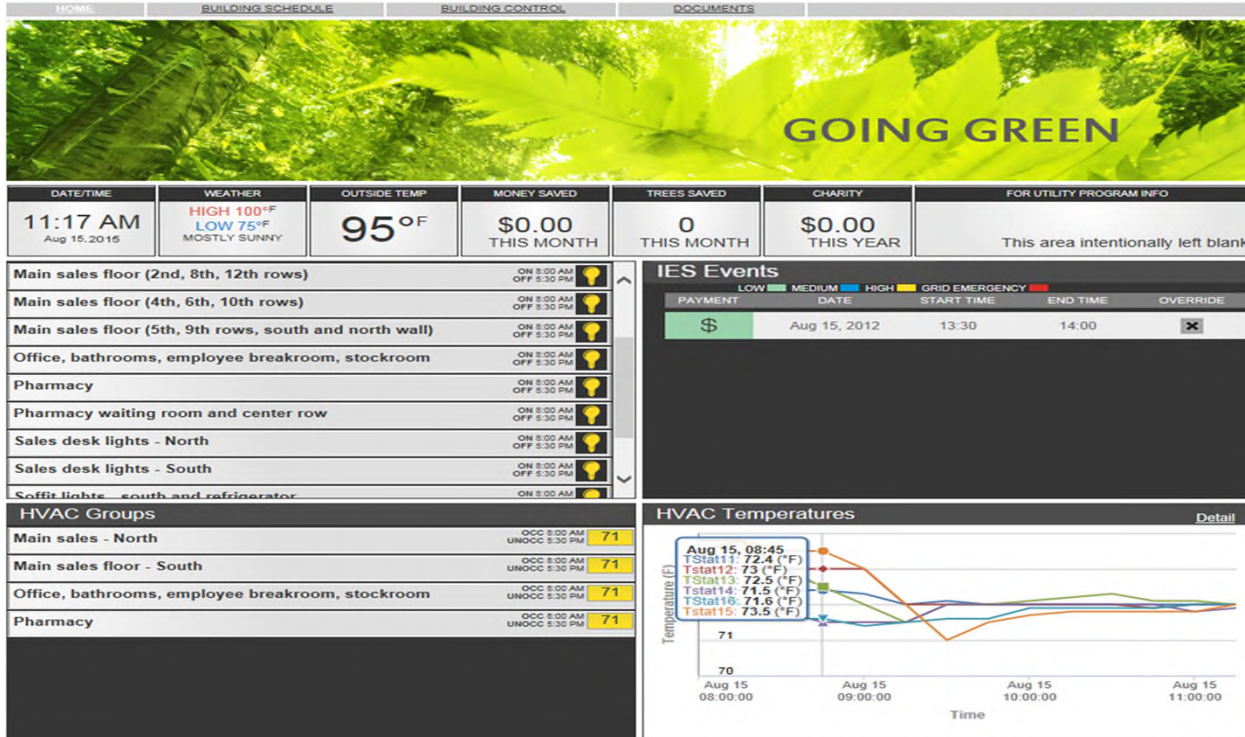
# Customer Site Example

## No existing Building Management System



# Customer Benefit: Access and Control to Building Systems

## Customer Portal – Schedule and adjust set-points



The screenshot displays a user interface for building system control. At the top, there are navigation tabs: HOME, BUILDING SCHEDULE, BUILDING CONTROL, and DOCUMENTS. Below the navigation is a banner image with the text "GOING GREEN".

The main content area is divided into several sections:

- Summary Metrics:**

|  |  |                             |  |                                       |                                       |   |
|--|--|-----------------------------|--|---------------------------------------|---------------------------------------|---|
| <b>DATE/TIME</b><br>11:17 AM<br>Aug 15, 2015 | <b>WEATHER</b><br>HIGH 100°F<br>LOW 75°F<br>MOSTLY SUNNY | <b>OUTSIDE TEMP</b><br>95°F | <b>MONEY SAVED</b><br>\$0.00<br>THIS MONTH | <b>TREES SAVED</b><br>0<br>THIS MONTH | <b>CHARITY</b><br>\$0.00<br>THIS YEAR | <b>FOR UTILITY PROGRAM INFO</b><br>This area intentionally left blank |
|--|--|-----------------------------|--|---------------------------------------|---------------------------------------|---|
- IES Events:** A table showing energy events.

| PAYMENT | DATE         | START TIME | END TIME | OVERRIDE |
|---------|--------------|------------|----------|----------|
| \$      | Aug 15, 2012 | 13:30      | 14:00    | X        |
- HVAC Groups:** A list of building areas with their current HVAC status and setpoints.

| HVAC Groups                                      | ON/OFF                       | Setpoint |
|--|------------------------------|----------|
| Main sales - North                               | OCC 8:00 AM<br>UNOCC 5:30 PM | 71       |
| Main sales floor - South                         | OCC 8:00 AM<br>UNOCC 5:30 PM | 71       |
| Office, bathrooms, employee breakroom, stockroom | OCC 8:00 AM<br>UNOCC 5:30 PM | 71       |
| Pharmacy   | OCC 8:00 AM<br>UNOCC 5:30 PM | 71       |
- HVAC Temperatures:** A line graph showing temperature over time for various sensors.

| Sensor  | Temperature (°F) |
|---------|------------------|
| TStat11 | 72.4             |
| TStat12 | 73               |
| TStat13 | 72.5             |
| TStat14 | 71.5             |
| TStat16 | 71.6             |
| TStat19 | 73.5             |

- Schedule or change lighting and HVAC groups or existing schedules
- Set and change temperature set-points or
- Once schedules and set-points have been changed, you need to synchronize the building



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**Questions?**

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