

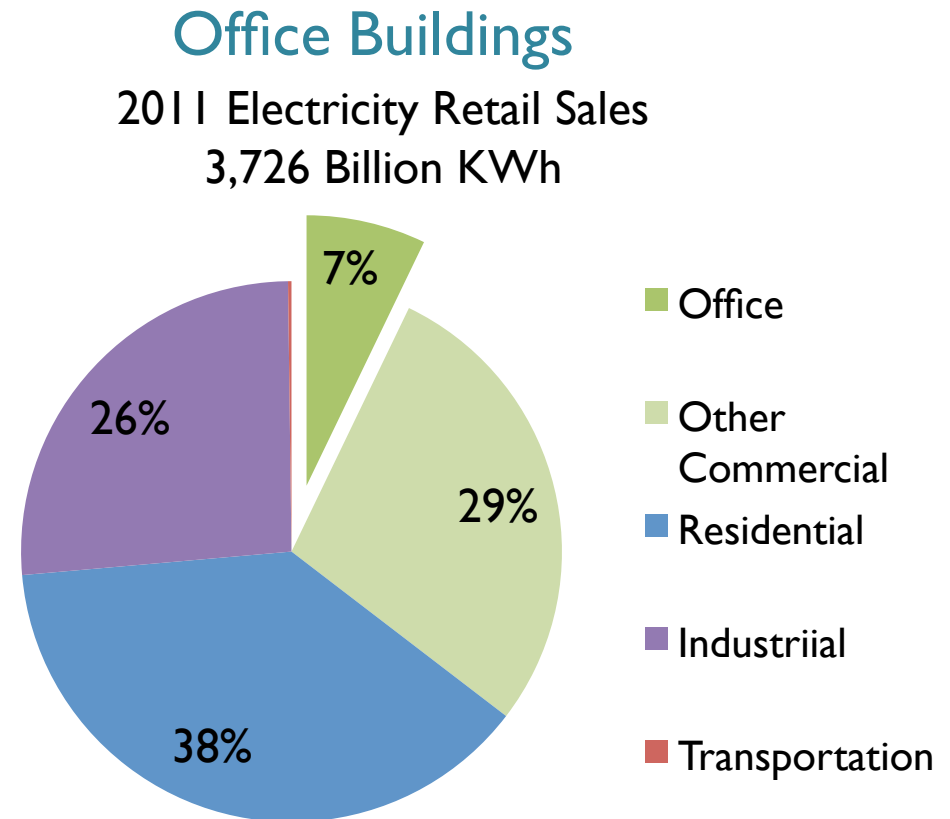
# Unlocking Operational Efficiency in Office Districts

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Energy Efficiency Strategy Project



# Why isn't operational efficiency happening?

- 10-20% savings potential from low & no cost measures in many office buildings
- Projected vs. achieved retrofit savings fluctuates in same range
- *But* energy performance is highly patterned within buildings



# Multiple stakeholders shape energy use...

## Office Building Stakeholders

Stakeholder	What they Control	Their Interests
Owner	Capital Investments	Branding Operating Costs
Occupant Orgs	Organizational culture Office equipment & temperature Purchasing & IT practices	Productivity Comfort Branding
Office Workers	Lighting and plug load	Professional success Personal sustainability commitment
Facility Staff	Base building operations	Keeping owner and tenants happy

And they all face non-monetary barriers.

## Social Interventions

### Information

- Information Feedback
- Education & Training

### Process Assistance

- Implementation Assistance
- Pledge & Tracking
- Rewards & Recognition

### Social Engagement

- Endorsement from influencers
- Engagement with peers

# Research Questions

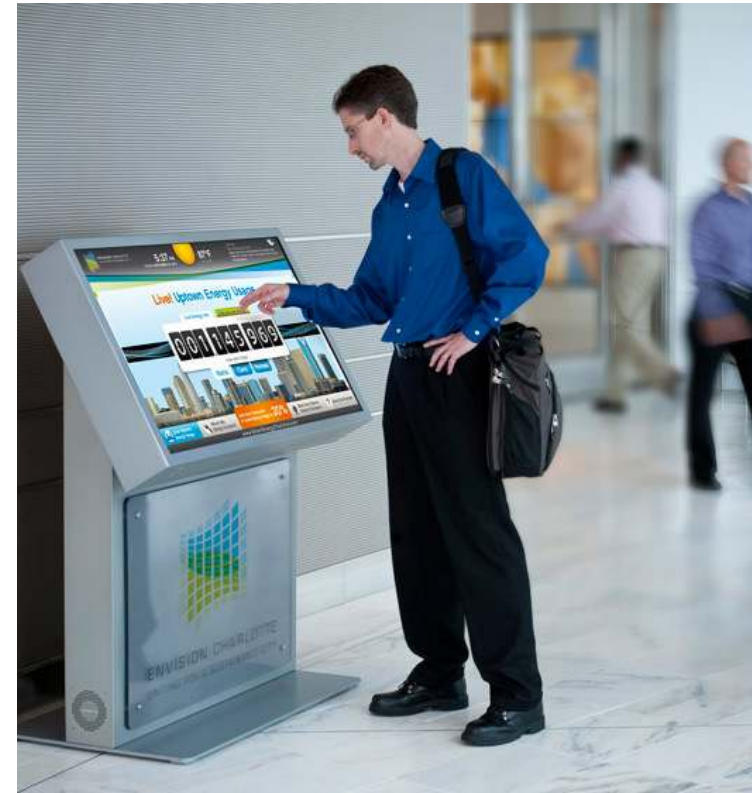
## Comprehensive Approach

	Owner	Facility Staff	Occupant Organizations	Office Workers
Information	✓	✓	✓	✓
Process	✓	✓	✓	✓
Relationships	✓	✓	✓	✓

- How can social interventions be tailored to stakeholders?
- How can programs deliver these interventions effectively?
- What new partners and resources are needed?

# Duke Energy's Smart Energy Now®

- **Downtown Charlotte**
  - 63 large buildings, 20 M SF
  - 300 organizations, but 4 “big guys”
  - 20,000 office workers
- **Program Design**
  - Installed advanced meters
  - Interval data for owners and facility staff
  - Professional development for facility staff
  - Energy Champions program
  - Community-wide action campaigns
- **Envision Charlotte's first initiative**
- **Part of Duke Energy's Save-A-Watt Program Portfolio**



# Case Studies

## Climate Corps



- Environmental Defense Fund
- Fellows help owners and staff develop investment plan
- 47 companies identified \$350M savings (2010)

## Carbon4Square & Kilowatt Crackdown



- BOMA Seattle & Portland
- Friendly competition for property managers
- More than 20% market participation
- Average Energy Star score +2.6 points

## Green Office Challenge



- ICLEI & City of Chicago
- Friendly competition for property managers & tenants
- More than 150 participants
- 7.9% average energy reduction
- Saved \$5.1M total

# Existing Conditions

- Less sophisticated buildings may have greater potential and also need greater support
  - Equipment and systems
    - Capital investment history
    - Building management systems
    - Lighting sensors and controls
  - Organizational structure and culture
    - Owner-occupant vs. owner-manager
    - Organizational commitment to sustainability
    - Level of facility staff training



# Flexible Program Frameworks

- Establish a clear process with many ways to play
  - Establish baseline & goal
  - Undertake choice of activities
  - Track progress
  - Gain rewards & recognition

Carbon4Square Status Board

	Created ENERGY STAR Account	Benchmarked 2010 Energy Use	Validated ENERGY STAR Data Quality	Benchmarked 2010 Water Use	Benchmarked 2010 Solid Waste	Assessed Tenant Commuting Patterns	Benchmarked 2011 Energy Use	Benchmarked 2011 Water Use	Benchmarked 2011 Solid Waste	Submitted 4-Square Sustainability Playbook	Prize Eligibility Outlook
PROGRESS CHECKER (should be completed)											
BUILDING TEAM NAME (CARBON4SQUARE)											
Abemathy	✓	✓									
Adams	✓	✓	✓	✓	✓		✓	✓	✓		🐸
Aneroid	✓	✓	✓	✓			✓				🐸
Azurile	✓	✓	✓	✓			✓				🐸
Big Snagtooth	✓	✓	✓	✓			✓				🐸
Broken Top	✓	✓	✓	✓	✓		✓	✓	✓		🐸
Brown	✓	✓	✓	✓	✓		✓	✓	✓		🐸
Buckner	✓	✓	✓	✓			✓	✓			🐸

# Organizational Leaders

- Top-down endorsement is essential
  - Organizational culture
  - Purchasing & IT practices
  - Building operating hours and temps
- *Smart Energy Now*®
  - Peer pressure among leaders
  - Declaration of Commitment
- *Climate Corps*
  - Leader and facility staff must commit to process



# Office Workers

- Encourage a culture of efficiency
  - Workers are insensitive to costs
  - People respond to what their organization values

We embody sustainability in all our work.

When the head of the division says something is going to happen, it happens.

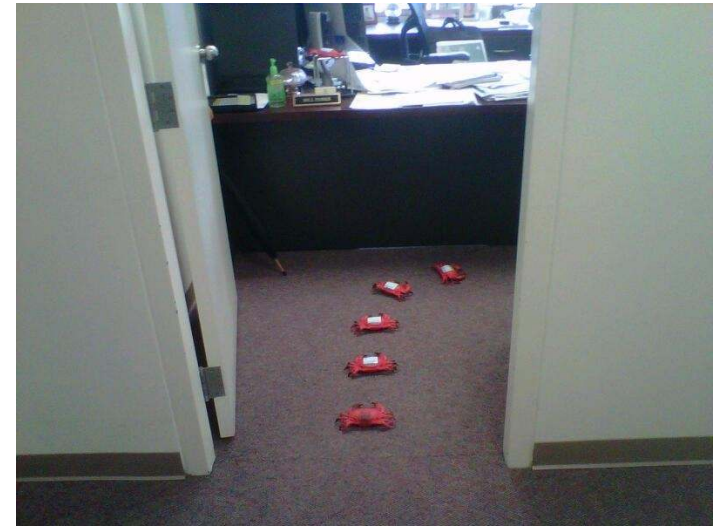
VS.

Work is work, and we're not here to be hippies.

As the only one on my floor its difficult to do anything.

# Office Workers

- **Support Green Teams.**
  - Everyone likes to compete
  - Peer groups are dept. or floor
  - Rewards: food, recognition
- **Smart Energy Now** ®
  - 450 Energy Champions
  - 45 “Flipping Out” projects
- **Corporate Sustainability Efforts**
  - Organizational support & resources
  - Internal communication channels



*“Crab You’re It”*

*“Watt Counts!”*

*“Adopt-a-Light”*

*“Energy Stars”*

*“Race to Reduce”*

# Media Tools

- Media work better as program resources than outreach.
  - Mini-audits & diagnostics
  - Project planning tools
  - Progress tracking
  - Recognition

**Get Involved**  
Track your actions

Simple changes in your daily work life can make a big difference in saving energy and making Uptown Charlotte the most sustainable urban core in the country. Make a commitment to make changes by checking the items below.

**Submit Your Idea**

Together, we can have a huge impact. But, we won't know how to attribute the impact if we don't keep track of our projects. Help us all recognize our great progress so that we can celebrate our wins!

Please complete the [Team Project Tracking form](#) if it is a team effort and complete the [Individual Tracking form](#) if it is an individual effort.

Visit the [resources page](#) for materials to learn more and help you make a difference.

**All Actions**

- Breezing By
- Cutting out the Kitchen Fat
- Defaulting to Efficiency
- Flipping Out
- Power Stripping
- Powering Down
- Printer Party
- Choosing Up for the New Year

**Delamping**

Find several lights that your office can turn off permanently.

**Annual Savings: 281 kWh**  
Equal to: 75 hrs, 16.4 gallons of gas, 448 miles

**Daylighting**

Use daylight instead of artificial lights and turn out lights that are left on overnight.

**Annual Savings: 225 kWh**  
Equal to: 60 hrs, 13.1 gallons of gas, 359 miles

By making a commitment, you'll be automatically entered in monthly drawings to win an iPad 2. [Contest Details](#)

**Win iPad2**

**Duke Energy Smart Energy Now™** 8277 PEOPLE PARTICIPATING [Already a Member? Sign In | Sign Up](#)

Home Live Energy Usage Energy Footprint Energy Champions About the Program The Blog [SIGN UP AND WIN](#)

**Live! Uptown Energy Usage**

Live Energy Info

**899,728,010**

Total Watt-Hours Consumed Today

Watts Cars Homes

ENVISION CHARLOTTE  
UNITING FOR A SUSTAINABLE CITY





**Duke Energy Smart Energy Now™** 8279 PEOPLE PARTICIPATING [Welcome EAIschuler Sign Out | Edit Profile](#)

Home Live Energy Usage Energy Footprint **Energy Champions** About the Program The Blog [GET INVOLVED](#)

**We can all be energy champions**

**Andrea's Story**  
Marketing & Design

*I believe this is an important program because everyone can make a difference in the environment. I have recycled and worked to save energy and resources in my daily life for a long time. The earth is running out of resources and I believe it is a good idea for everyone to get involved before we are forced into harsh conditions.*

# Facility Staff

- Organizational support is important for facility staff too.
  - Facility staff responds to owner and occupant preferences
  - *Green Office Challenge*: scoring category dedicated to relationship between property manager and tenants

We are all champions of sustainability, that's not a question. But we have different roles.

Wear a sweater!

We have set points for a reason.

It has to come from the executives, and then its accepted.

# Facility Staff

- Provide professional development and recognition

- *Smart Energy Now* ®

- Property management firms more interested in branding than data
    - Interval data useful in less sophisticated buildings, but staff need training
    - Facility staff meetings led by USGBC/IFMA were huge success

We had a big blip in our power bill and I was trying to figure out why...

- *Kilowatt Crackdown & Carbon4Square*

- Networking and training events
    - Access to a “coach”
    - Prizes and media recognition



# Implementation Partners



ENVISSION:CHARLOTTE  
UNITING FOR A SUSTAINABLE CITY



CHARLOTTE REGION CHAPTER  
BUILD GREEN. TEACH GREEN. LIVE GREEN.™

