

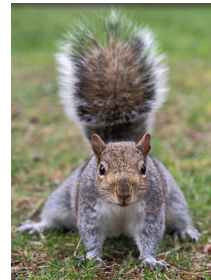
*Putting good ideas to work for a  
carbon-neutral, flourishing campus*

# Sustainable CWRU

February 2017

# Case Western Reserve University Stats

- 8 millions sq. feet
- \$20+ million annual utility spend
- 200,000 mmtco2e
- 185 urban acres, 140+ buildings
- 400 acres off-campus Farm property
- 2 million local food spend by Bon Appetit
- 1,300 research labs
- 130 fleet vehicles
- 18,000+ people
- \$360.1 million in research revenues
- 750,000 annual community volunteer hours
- 1,001 squirrels



#AllinCle #AllinONE



# WHAT WE'RE WORKING ON

ENGAGEMENT  
GREEN BUILDING +  
RECYCLING & MATERIALS MANAGEMENT  
CLIMATE ACTION PLAN

# Sustainable CWRU Elements



- Climate Action Plan
- The Fowler Center for Business as an Agent of World Benefit
- Great Lakes Energy Institute
- University Farm
- Summer Undergraduate Research in Energy and Sustainability
- Social Justice Alliance
- Sustainability Alliance
- Campus Planning & Facilities Management
- Student Groups
- Staff Green Teams
- Environmental Studies Major
- Lots of sustainability related research
- ...

# ENGAGEMENT



# Student Sustainability Ambassadors

**Recycling & Waste:** Neil Chavan & Helen Sanderson,  
Lori Sun & Divya Manoharan

**Climate & Energy:** Maggie McClarren & John Kilbane

**Green Building:** Duck Rhee & Carlos Lewis-Miller

**Transportation:** Amelia Samett & Tom Ugras

**Green Grounds:** Kayla Buckelew & Claire Holliday

**Local Food & Water:** Thanvi Vatti & Keith Hill





# GREEN BAG LUNCH SERIES



- Green Your Lawn
- Alternative Fuel Vehicles
- Green Design for Your Home
- Greening Your Holiday w/  
Upcycled Gifts (November 29!)
- + Monthly Newsletters
- Solar for Your Home
- Biking to Work
- Recycle Like a Master
- Tink's Green Building Features
- Our Energy Grid
- + Social Media



# Green Your Lab Certification Program w/ Student Audit Option

## Green Lab Check List - Certification Program For CWRU Labs

### Energy

### *Electronics & Lights*

No.	Question	Possible Ans.
E1	Does the lab have proper shutdown procedures for equipments such as computers, monitors, printers, cell phone & battery chargers, etc.?	Y - 2 point / N - 0 point
E2	Does last person in the lab turns off lights & other equipments?	Y - 1 point / N - 0/ NA
E3	Are there reminder signs for shutting the equipments?	Y - 1 point / N - 0/ NA
E4	Do the lab members make an effort to use natural light when possible?	Y - 1 point / N - 0/ NA



# GREEN BUILDING, GROUNDS, & TRANSPORTATION



# Leadership in Energy and Environmental Design

A leading-edge system  
for certifying the  
greenest performing  
buildings in the world



## University Green Buildings

1. North Residential Village - Silver House 1-4, 6-7 & Gold/House 5 only
2. Tomlinson Hall - Silver
3. Tinkham Veale University Center - Gold
4. Wyant Athletics and Wellness Center - Silver
5. LS Think Box – Projecting Silver
6. New STJ Residence Hall – Projecting Border Gold/Silver
7. Mandel School of Applied Social Sciences – LEED Interior project Silver
8. LS Alumni Center
9. Health Education Campus – Goal of Gold
10. New Dental Clinic

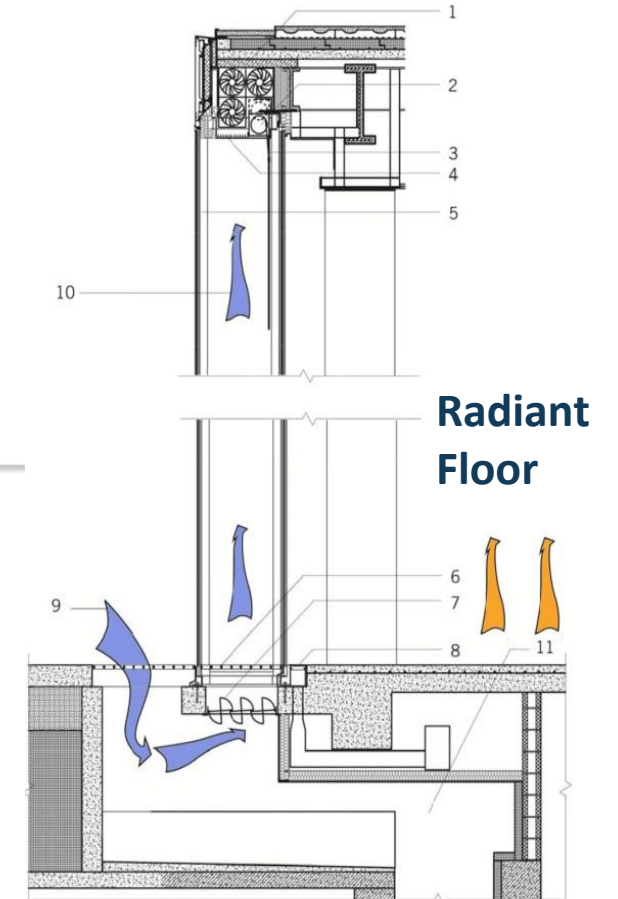
# Tink Green Building Technology Features

40kW Solar Array



Live Roof

Double-Skin Facade





# Beyond Pesticides & Green Grounds Strategy

## WHITE HOUSE

Pollinator Health Task Force:

Planting flowers is **NOT ENOUGH** to save bees.

Tackle the core problem: **PESTICIDES!**

*#NationalHoneyBeeDay*



## Tree Campus USA

Awarded to Campuses that:

- Form a Campus Tree Advisory Committee
- Develop a campus tree care plan
- Create campus tree program with annual expenditures
- Participate in Arbor Day observance
- Complete a service learning project



FIU: Tree Campus USA  
Video

# Transportation

- Bike Fixit Stations
- Over 130 bike racks
- Bike Sharing (coming this Spring)
- Greenie shuttle system
- Car sharing - Enterprise & Zip
- Ride matching program through NOACA
  - relaunching in April 2017
- RTA – new van pool subsidy
- Green fleet practices



# RECYCLING & COMPOSTING





# Bon Appetit & Univ. Farm Composting Partnership



## Where Compost Can Go:

- Pre-consumer, kitchen scraps (University Farm accepts)
- Post-consumer (Industrial facility or in vessel)
- Special Events (Industrial facility)

# CLIMATE ACTION PLAN

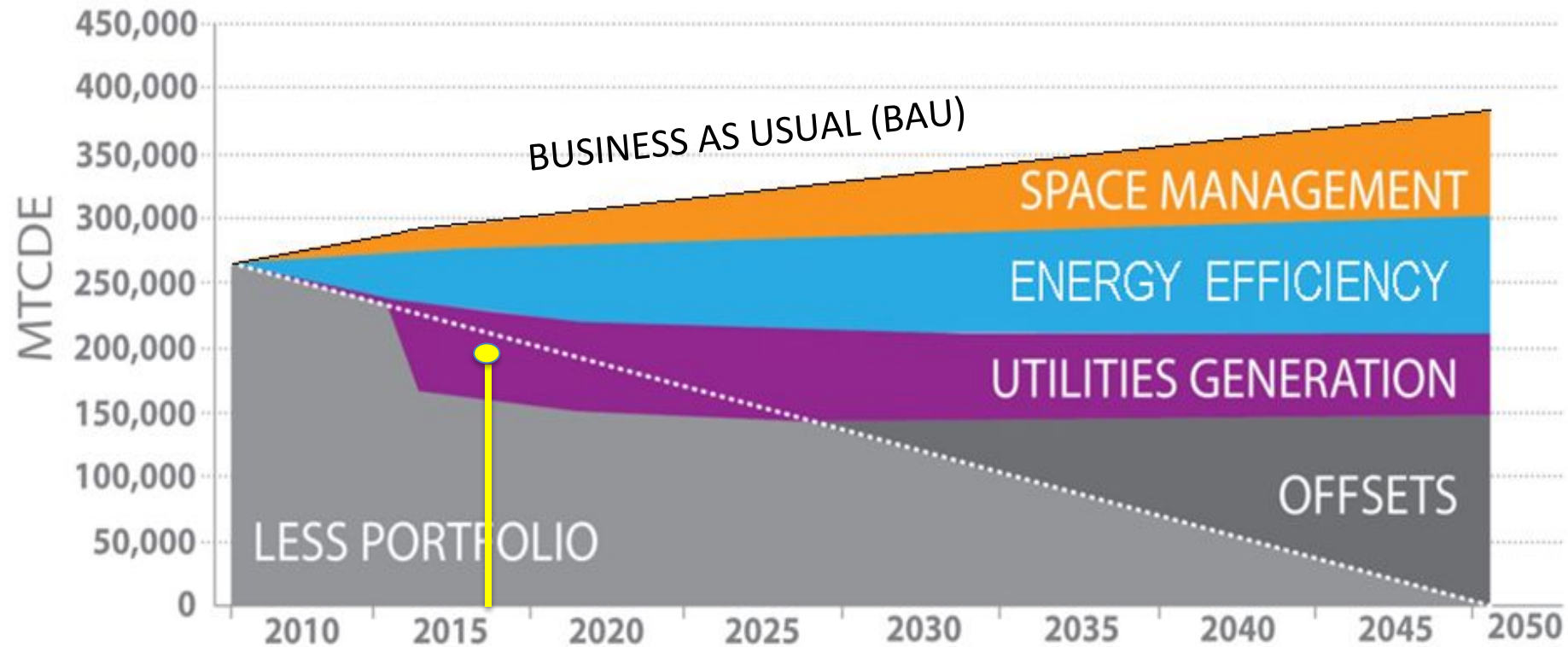
# Climate Action Plan (CAP) Commitments

Signed ACUPCC 2008 / CAP published 2011



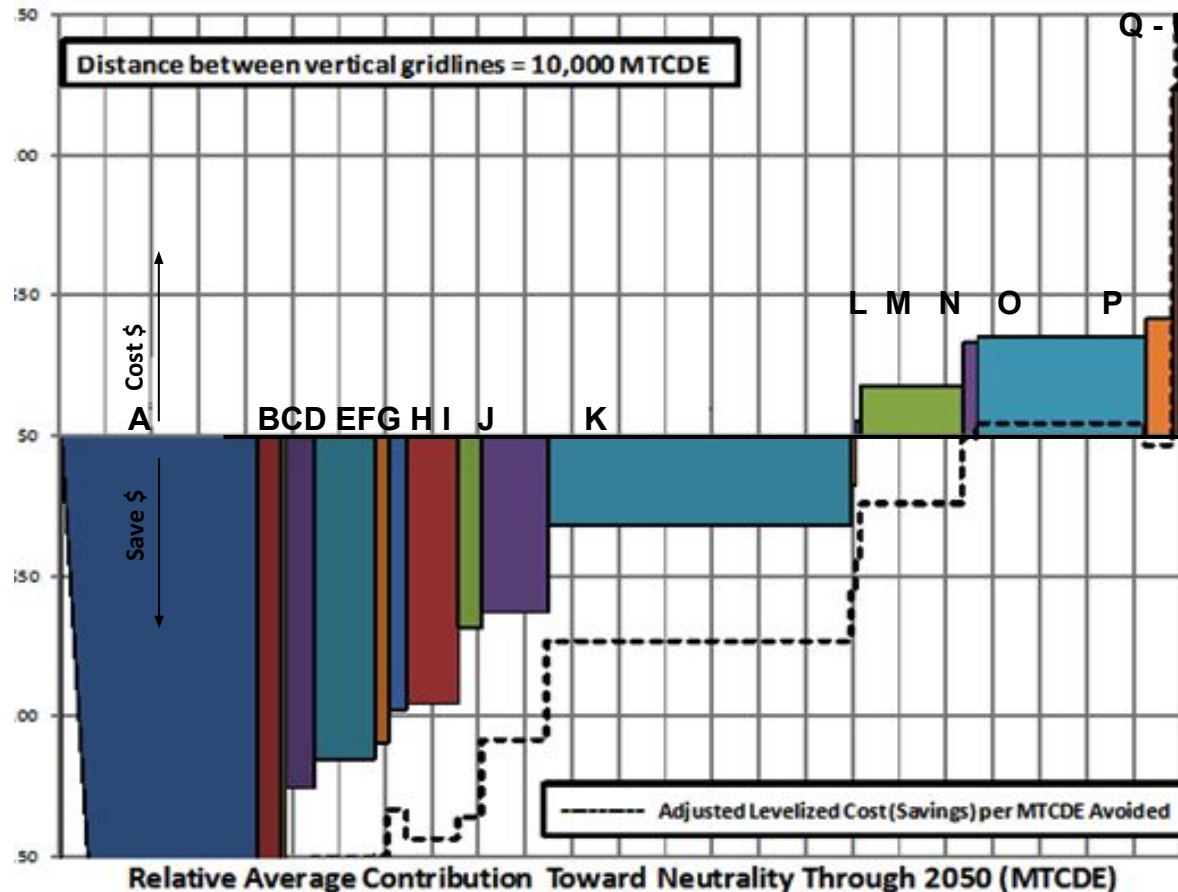
- Publicly report CWRU's GHG emissions inventory every year
- Report on CAP progress every 2 years
- Update plan every 5 years
- Requires we build min. LEED silver for new construction
- Goal to expand sustainability literacy academically

# Climate Action Plan Emissions Mitigation





# CAP Reduction Strategies



- A: Space Management
- B: Central Chiller Expansion**
- C: Reduced Air Travel
- D: *Green IT*
- E: Energy Conservation (short term)**
- F: *Behavior Change*
- G: *Steam Line Improvements*
- H: *Energy Conservation (mid term)*
- I: *Energy Conservation (long term)*
- J: *Building Standards*
- K: *Combined Heat & Power*
- L: Waste Reduction**
- M: Geothermal
- N: Solar (Hot Water)
- O: Coal to Gas Conversion**
- P: Chiller Upgrades**
- Q: Green Power (CWRU)
- R: Green Power (MCCo)**
- S: Wind
- T: Transportation Strategies
- U: Solar (Photovoltaic)

# GREEN LAB AUDIT PROGRAM

# Green Your Lab Certification Program w/ Student Audit — [Google form link](#)

## Green Lab Check List - Certification Program For CWRU Labs

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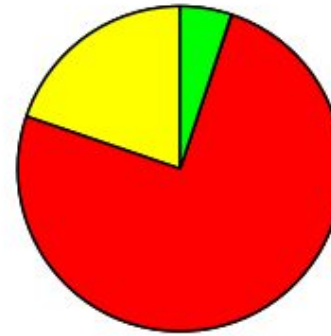


# Example Sensor Data from a Final Report

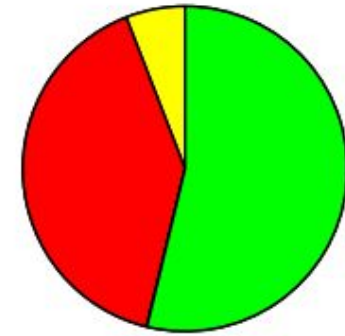


## Think[box] Lighting Patterns

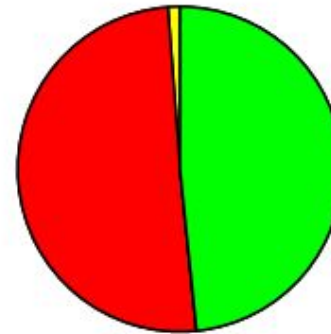
Weekdays, Business Hours



Weekdays, Non Business Hours



Weekends, Business Hours



Weekends, Non Business Hours





# Checklist Categories



*CWRU Green Labs Audit Questionnaire for Lab*

LAB DESCRIPTION

\* Required

*Name of the Lab \**

1. **Materials:**  
Recycling, Shipping/mail, Source reduction, Chemical usage & disposal
2. **Communication:**  
Orientation/education, Work related travel/field work
3. **Energy conservation/equipment:**  
Water, Electronics, lights, Freezers & refrigerators, Fume hoods, Comfort



# Replace Your Ultra-Low Temperature Freezer

- Lowest cost of ownership
- Low waste heat
- High sample integrity

***Upgrade your -80°C Freezer and receive a \$3000 rebate from Facilities Services***

# CWRU Sustainability Team — [sustainability@case.edu](mailto:sustainability@case.edu)



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