L&C Sustainability
Strategies for a carbon neutral campus
Outline of Presentation

- What is L&C?
- How did sustainability at L&C begin?
- How does it work?
- Who does it involve and where does it reach?
- Key phases of development
- Progress and Recognition
- Future plans
- Lessons Learned
• Godfrey, IL on the banks of the Mississippi, North of St. Louis
• Monticello College founded in 1838 by Benjamin Godfrey
• Founded as Lewis and Clark Community College in 1970
• Multiple campuses and a river research center
• Serves approximately 20,000 students annually (4,300 FTE)
About Lewis and Clark

- District reaches into 7 counties & covers 220,439 people
- Adds $338.5 million in regional income annually
- Historical grounds and MOBOT Signature Garden
- 42 Associates and Transfer Degrees and 82 certificates

*L&C's mission is to empower people by raising aspirations and fostering achievement through dynamic, compassionate and responsible learning experiences.*
Challenges to Sustainability

- Many Rural Counties
- Lots of Commuters
- Working Population
- Broad Age Ranges
- History vs Efficiency
- Top of Watershed
Total Emissions by Scope (Metric Tons eCO2)

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1 Emissions</td>
<td>207.5</td>
<td>2,260.4</td>
<td>2,454.4</td>
<td>2,529.9</td>
<td>2,666.6</td>
</tr>
<tr>
<td>Scope 2 Emissions</td>
<td>7,314.5</td>
<td>7,331.9</td>
<td>7,509.7</td>
<td>10,918.0</td>
<td>10,449.9</td>
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<tr>
<td>Scope 3 Emissions</td>
<td>11,923.9</td>
<td>12,054.6</td>
<td>12,398.3</td>
<td>13,056.4</td>
<td>13,390.3</td>
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</tbody>
</table>

CAP Baseline
- Signed ACUPCC in 2007
- Sustainability Center 2008
- Climate Action Plan 2008
- Green Fee 2008
- IGEN 2008
- Green Oversight Committee 2009
- Carbon Footprint 2009

Start from the Start
• Energy Conservation
• Renewable Energy
• Recycling & Reuse
• Commuting/Fleet
• Policy/Behavior
• Education, Outreach, Research

Climate Action Plan
Who and Where?

- **Key Players:**
  - Administration – President, Vice Presidents, and Deans
  - Staff – Me! Environmental Education, Facilities
  - Faculty – all disciplines
  - Students

- **Action Teams:**
  - Energy Task Force
  - Green Fleet
  - Woodlands and Grounds

- **Scope:**
  - Campus
  - Community
  - Careers
  - Curriculum

Who and Where?
• Illinois Green Economy Network (IGEN)
• ISTC – Mike Springmann
• RCGA
• Madison County Transit
• LCCC + INHS + UofI = NGRREC
Low Hanging Fruit
- Interior Lighting Upgrades 2009
- Exterior Lighting Upgrades 2010
- VFD Replacement on exhaust fans in 9 buildings
- Boiler Replacement in three buildings
- Occupancy sensors in Hallways and Offices
- Night setback
The center's scholars and scientists study the ecology of the big rivers, the workings of the watersheds that feed them, and the ties to the river communities that use them.
- 20% fly ash in the concrete
- 99% recycled steel rebar
- 95% recycled steel studs in the walls
- Insulation on ceiling and in walls is 100% recycled newsprint
- Floors are recycled rubber and recycled soda bottles
- IDOT’s Greenest Road
- 4 Water Systems
- Energy Efficient Fume Hoods
- Limestone
- Green Roof
- Dashboards
- Solatubes
- LED Downlighting
• GREON

• Mesocosms
Not so Low Hanging Fruit

- Solar PV and Thermal on Hatheway and Trimpe Buildings
- Woodland Trail
- Recycling
- Eco Road
- Pre Consumer Composting (dehydration)
Energy Conservation

Electricity Used at all Buildings operated by Lewis and Clark

- Millions
- Climate Action Plan
- Increasing electricity usage
- New building

- kWh
Second Phase (2012-Present)

- Energy Conservation
- Renewable Energy
- Recycling & Reuse
- Commuting/Fleet
- Policy/Behavior
- Education, Outreach, Research
• Dashboards on Godfrey Campus

• Round two of Lighting upgrades – LEDs

• Campus Conservation Nationals

Energy Conservation Measures
## Dashboard

### Building Energy Comparison

<table>
<thead>
<tr>
<th>Building</th>
<th>Current Usage</th>
<th>% Change</th>
<th>Actual Change</th>
<th>Equivalency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olin Science Building</td>
<td>1,815 kWh</td>
<td>-6.10 %</td>
<td>-117 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>George C. Terry River Bend Arena</td>
<td>1,120 kWh</td>
<td>-0.70 %</td>
<td>-8 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Trimpe Building (Advanced Technology Center)</td>
<td>2,460 kWh</td>
<td>0.00 %</td>
<td>0.000 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Baldwin Hall and Caldwell Hall</td>
<td>0.000 kWh</td>
<td>0.00 %</td>
<td>0.000 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Robert L. Watson Math Building and The Commons</td>
<td>0.000 kWh</td>
<td>0.00 %</td>
<td>0.000 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Haskell Hall</td>
<td>484 kWh</td>
<td>7.30 %</td>
<td>+33 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Templin Nursing Building</td>
<td>1,860 kWh</td>
<td>15.50 %</td>
<td>+250 kWh in past day</td>
<td>Short Description</td>
</tr>
<tr>
<td>Reid Hall</td>
<td>1,254 kWh</td>
<td>23.30 %</td>
<td>+237 kWh in past day</td>
<td>Short Description</td>
</tr>
</tbody>
</table>

Change comparison criteria on the left. Residence halls are ranked by percentage savings.
Dashboard
• 100% Renewable Energy Purchase

• New Solar
  ◦ Thin Film
    • Adhesive
    • 42 kw
    • 310 “units”
- New Solar
  - Tracker
    - 6 kw mono
    - 6 kw poly

Renewable Energy
• Fuel Cell
  ◦ 5 KW
  ◦ Clear Edge
  ◦ Fueled by Natural Gas
• EV Charge Stations
Waste Audit 2013

~30% of waste on campus is being recycled.

Fully 38% could have been recycled in the current recycling system.

18% could have been composted

22% of trash stream was paper towels

25% of trash stream was paper

62% of recycling stream was paper

3-5% of the stream was composed of rubber gloves
Dirty Job—Somebody’s Gotta Do It!
Recycling and Reuse

- Single Stream Recycling 2012
  - Challenges:
    - Old Messaging
    - Behavior Change
  - Activities:
    - Student Group Outreach
    - Classroom Presentations
    - Art of Recycling
    - Kick the Can!
  - Help from our friends:
    - Alcoa Bin Grant
    - Republic donations and outreach
Special Stream Recycling

- Batteries – 200 pounds in 2 years
- Printer Cartridges – Raised over $500 in 2 years for student club
- Writing Utensils
- E-Waste – Over 80 Tons!
New – Composting

Post Consumer Composting
- Valet Service
  - Always Green Recycling
- Ridefinders
- Green Pass
  - Over 500,000 miles saved
- Bike Trail Connectivity
- Bicycle Club – in the works

Transportation and Fleet
• ISTC Water Audit Webinar and Training
• Rain Gardens and Bioswales
• Bottle Fillers
• Sustainable Sites
• Algae Blasters

You Forgot About Water!!
Haskell Lot Redesign and ‘Radiating Waves’
Haskell Lot Redesign and ‘Radiating Waves’
Woodlands and Grounds

- Turf Grass Alternatives
- Invasive Species Removal
- Trail Maintenance
- Bike Trail
- Prairie Plantings
- Prescribed Burns
- Climate Action Plan
- Green Fee
- “Green Commitments”
  - ACUPCC
  - AASHE SEED
  - RCGA
  - DOE Workplace Charging Challenge
  - EPA Green Power Partnership
  - USGBC
  - IFSC
- Others
  - Right of first refusal and recycling of scrap materials
Key Grants

- IEPA IGIG ~$640,000
- DOL TAACCCT IGEN ~$700,000
- IGEN RERP Solar ~$170,000
- IGEN Smart Grid Classroom ~$40,000
- Illinois American Water Environmental Grant $2,300
- Alcoa Bin Grant – 75 recycling bins
Outreach and Education

- NGRREC
  - Water Festival
  - RiverWatch
    - Citizen Science
    - River Clean Ups
  - Research
    - Japanese Hops
    - Asian Carp
    - GREON
    - Nitrate Sensors
  - Education Symposium
Outreach and Education

- **Student Sustainability Association (SSA)**
  - Founded in 2012
  - 7-10 actively engaged students per semester
  - Scholarship Recipients
  - Recyclemania
  - Campus Conservation Nationals
  - Native Plant Sale
  - Campus Sustainability Day
  - Earth Week
• Recyclemania
  ◦ Still less than 1 lb per person!
• Campus Conservation Nationals
  ◦ 2nd Place in IGEN Competition
  ◦ 8.8% energy reduction over competition period
    • Received grant $$ to buy smart strips
Outreach/Education – Earth Week!

- 2 Billion Green Pledge challenge
- Native Plant and Vegetable Sale
- Earth Week Movie
- Green Business Breakfast
- Ewaste Drive
- Sustainability Open House
- Wind and Solar Demo
- Organic Farm Tour/Workday
- Invasive Species Removal
- Art of Recycling Contest
Earth Week Pics
EV Road Trip

- 11 IGEN Colleges
- 36 EVs
- 500 Miles
- 3 New Chargers
- 8 Commitments to DOE
- National Press
- 1 Special Guest
Community Partnerships and Outreach

- IGEN
- ISTC
- Environmental Fairs
  - Mississippi Earhttones Festival
  - Riverbend Earth Day
  - Water Festival
- Community Groups
  - Cool Cities
  - Green Business Association (And Alliance!)
  - Food Hub
  - Alton Main Street and Sierra Club
  - The Nature Institute
- TAA
  - Storm Water
  - Smart Grid
- Restoration Ecology
- Solar Install Courses
• Green Speaker Series
  ◦ 16 week seminar series featuring speakers in Green Industry
So How Have We Done?
- Main Campus showed 10.5% reduction in electricity use from 2012-2013 (14,788,049 kWh to 13,240,940 kWh) – Scope II
- 43% reduction in Student Commuting emissions – Scope I
- 6% reduction in faculty commuting emissions – Scope I
- 32% reduction in overall emissions
• 2011, 2013 Governor’s Sustainability Award
• 2011 US Water Prize
• 2011 Green Roof Award
• 2013 RCGA Circle of Excellence
• 2014 Care for Air Award
• Illinois Governor’s Campus Sustainability Compact – Gold Level
New Solar at NGRREC and NO Nelson

AEPC
  ◦ Microturbine
  ◦ Anaerobic Digester

AGMAC

Botanical status

Zero Waste

Water Policy

Sustainable SITES

And Beyond! Future Plans
Lessons Learned

- Promote Champions!
- Let Leaders Lead!
- Communicate and Seek Input
- Can’t Know Unless You Try

Lessons Learned
• When is Forgiveness Better than Permission?
• How do I Reach These Kids!?
• How to Harness without Stifling Creativity
• When to say NO
• Who cares and who doesn’t?

Still Learning
Thank You!!!