Change Management Class Project

- Supporting planning for 2016-21 SSP
- Learning History of sustainability at NC State
- Purpose:
  - Document history based on individuals’ perspective
  - Identify strengths & opportunities for improvement of current organization
  - Identify leaders’ goals and what support is needed
  - Clarify role would like to see for Sust. Office

**Process:**
Conducted in fall 2015 by 3 graduate students in Public Administration
Interviewed 12 leaders
Presentation to CEST in Dec. 2015
Project Common Themes
Full presentation in CEST Dec 2015 meeting [here](#)

1. Different levels of progress between Facilities & Academics (Need academic goal clarity, difficult to measure)

2. Barriers to change in Academics (Limited resources, no incentives, differing definitions of sustainability)

3. Need for collaboration & communication for success (Might need formalized network. Challenges: silos, perceptions of sust. ownership & competition for students)

4. Need continued grassroots & top down support

5. Need clarification on roles & responsibilities (Need for a hub of information & resources)
<table>
<thead>
<tr>
<th>Minutes</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Review questions (posted on wall)</td>
</tr>
<tr>
<td>10</td>
<td>respond to questions by adding post its to each flip chart</td>
</tr>
<tr>
<td>5</td>
<td>Volunteer per chart to group information</td>
</tr>
<tr>
<td>10</td>
<td>2 minute report out of common themes</td>
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</tbody>
</table>

Future: Build on this conversation by addressing a question in more detail at each CEST meeting
What is STARS?

- Sustainability Tracking, Assessment, & Ranking System
- Transparent, self-reporting
- Ranking system: Bronze, Silver, Gold, or Platinum
Peer Institutions

*All Gold except: Purdue, Texas A&M, and Ohio State*
STARS 1.0

Four sections:
- Education & Research
- Operations
- Planning, Administration, & Engagement
- Innovation

<table>
<thead>
<tr>
<th>Education &amp; Research</th>
<th>18.00 / 18.00</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Co-Curricular Education</strong></td>
<td></td>
</tr>
<tr>
<td>Credit</td>
<td>Status</td>
</tr>
<tr>
<td>Student Sustainability Educators Program</td>
<td>Complete</td>
</tr>
<tr>
<td>Student Sustainability Outreach Campaign</td>
<td>Complete</td>
</tr>
<tr>
<td>Sustainability in New Student Orientation</td>
<td>Complete</td>
</tr>
<tr>
<td>Sustainability Outreach and Publications</td>
<td>Complete</td>
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<tr>
<td>Student Group</td>
<td>Complete</td>
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<tr>
<td>Organic Garden</td>
<td>Complete</td>
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<td>Model Room in a Residence Hall</td>
<td>Complete</td>
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<tr>
<td>Themed Housing</td>
<td>Complete</td>
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<tr>
<td>Sustainable Enterprise</td>
<td>Complete</td>
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<tr>
<td>Sustainability Events</td>
<td>Complete</td>
</tr>
<tr>
<td>Outdoors Program</td>
<td>Complete</td>
</tr>
<tr>
<td>Event Semester or Year</td>
<td>Complete</td>
</tr>
</tbody>
</table>

| Curriculum | 42.45 / 55.00 |
| Credit | Status | Points |
| Sustainability Course Identification | Complete | 3.00 / 3.00 |
| Sustainability-Focused Courses | Complete | 3.00 / 10.00 |
| Sustainability-Related Courses | Complete | 7.64 / 10.00 |
| Sustainability Courses by Department | Complete | 6.00 / 7.00 |
| Sustainability Learning Outcomes | Complete | 10.00 / 10.00 |
| Undergraduate Program in Sustainability | Complete | 4.00 / 4.00 |
| Graduate Program in Sustainability | Complete | 4.00 / 4.00 |
| Sustainability Immersive Experience | Complete | 2.00 / 2.00 |
| Sustainability Literacy Assessment | Complete | 2.00 / 2.00 |
| Incentives for Developing Sustainability Courses | Not Running | 0.00 / 3.00 |

| Research | 23.09 / 27.00 |
| Credit | Status | Points |
| Sustainability Research Identification | Complete | 3.00 / 3.00 |
| Faculty Engaged in Sustainability Research | Complete | 6.30 / 10.00 |
| Departmental Engaged in Sustainability Research | Complete | 1.76 / 4.00 |
Education and Research

- NCSU was below the peer average in all three of these metrics.
- It should be noted however that 25%, 60%, and 100% respectively were not reported.
Operations

- NCSU was below the peer average in all five of these metrics, although Dining Services and Climate were fairly close.
- 33%, 50%, 27%, 13%, and 14% were not reported respectively.
NCSU was below the peer average in two of these metrics, fairly close for Transportation, and exceeded the average for Water.

33%, 13%, 9%, 14% were not reported respectively.
Planning, Administration & Engagement

- NCSU met or exceeded the peer average in three of these categories, fell a little short in Human Resources, and did report much for the Investment portion.
- For the last three: 13%, 83%, and 20% were not reported respectively.
Innovation

- NCSU is right on target for this metric.
- “These credits recognize institutions that are seeking innovative solutions to sustainability challenges and demonstrating sustainability leadership in ways that are not otherwise captured by STARS.”
- Examples:
  - Certified Wolfpack Green
  - Think Outside the Brick
  - Energy Fellowship Program
  - Alternative Spring Break
Metrics

- GHG Emissions
- GHG Emissions Reductions
- Food Purchasing
- Building Energy Use
- Waste Diversion Rate
- Water Use
- # of LEED Certified Buildings
- # of LEED EB Buildings
Metrics: GHG Emissions

Appalachian State University 48,942
University of California - Davis 138,215
Colorado State University 162,739
University of Maryland 194,640
**NCSU 197,283**
University of Arizona 204,908
Duke University 243,026
Georgia Tech 259,999
Virginia Tech 276,535
Texas A&M 362,871
Iowa State University 472,080
Ohio State University 580,617

GHG Equivalent in Performance Year
*Metric tons of CO\textsubscript{2} equivalent*

*Scope 1 and 2*
# Metrics: GHG Emissions Reductions

*Scope 1 and 2*

<table>
<thead>
<tr>
<th>Baseline-Performance Year</th>
<th>Duke University 28.27%</th>
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</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>University of Arizona 24.53%</td>
</tr>
<tr>
<td></td>
<td>University of California - Davis 22.88%</td>
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<tr>
<td></td>
<td><strong>NCSU 14.21%</strong></td>
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<tr>
<td></td>
<td>University of Maryland 12.49%</td>
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<td></td>
<td>Iowa State University 9.98%</td>
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<td></td>
<td>Texas A&amp;M 4.88%</td>
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<td></td>
<td>Ohio State University 2.34%</td>
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<tr>
<td></td>
<td>Appalachian State University 1.44%</td>
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<tr>
<td></td>
<td>Colorado State University -0.58%</td>
</tr>
<tr>
<td></td>
<td>Virginia Tech -12.64%</td>
</tr>
<tr>
<td></td>
<td>Georgia Tech -18.5%</td>
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</tbody>
</table>
Metrics: Food Purchasing

Food or beverages must be one of the following:
- Grown or produced within 250 miles of the university
- Third party certified (USDA certified organic, Fair Trade, Food Alliance, etc.)

Georgia Tech 41.0%
Ohio State University 26.9%
Colorado State University 25.9%
University of California-Davis 20.8%
**NCSU 19.0%**
Duke University 15.0%
Iowa State University 14.9%
Texas A&M 14.0%
Virginia Tech 12.9%
University of Maryland 12.6%
University of Illinois 10.3%
Appalachian State University 10.0%
Purdue University 3.7%
University of Arizona 3.0%
Metrics: Building Energy Use

MMBtu/gsf
(smaller numbers reflect less energy use per area)

Appalachian State University 0.127
Georgia Tech 0.134
Iowa State University 0.151
Colorado State University 0.153
**NCSU 0.164**
University of Maryland 0.170
Duke University 0.171
University of California-Davis 0.183
Purdue University 0.207
Ohio State University 0.222
Virginia Tech 0.233
University of Illinois 0.233
Texas A&M 0.235
University of Arizona 0.275
Metrics: Waste Diversion Rate

Virginia Tech 82.8%
University of Maryland 76.0%
Iowa State University 74.2%
Colorado State University 71.5%
Purdue University 70.6%
University of California - Davis 64.1%
Texas A&M 50.0%
University of Illinois 46.6%
**NCSU 44.0%**
Appalachian State University 38.3%
Duke University 32.0%
University of Arizona 30.8%
Ohio State University 30.8%
Georgia Tech 14.7%
Metrics: Water Use

Gallons used in performance year

University of Maryland 482,987
Appalachian State University 104,719,666
**NCSU 355,622,970**
Georgia Tech 357,961,998
Colorado State University 361,670,998
Virginia Tech 429,657,238
Duke University 445,091,650
University of Arizona 524,205,614
Iowa State 598,921,800
University of Illinois 766,478,600
University of California-Davis 1,103,845,000
Ohio State University 1,294,863,329
Purdue University 1,346,840,950
Texas A&M 1,829,442,000
Metrics: # of LEED Certified Bldgs

Texas A&M 3,080,386
Ohio State University 2,532,880
Georgia Tech 1,164,000
Colorado State University 1,120,115
Purdue University 877,779
Virginia Tech 635,527
Iowa State University 599,104
Duke University 495,943
University of Illinois 463,882
University of California-Davis 453,002
Appalachian State University 317,109
University of Maryland 303,056
University of Arizona 301,801
NCSU 166,025

New construction and major renovations (sq ft)
Metrics: # of LEED EB Bldgs

Ohio State University 22,829,954
Texas A&M 20,930,965
Duke University 18,502,474
University of Arizona 13,774,235
University of Maryland 13,762,128
Iowa State University 12,504,878
Georgia Tech 11,361,000
Colorado State University 10,379,892
University of California-Davis 8,864,430
Appalachian State University 4,041,375
Virginia Tech 8,712
Conclusions

- NCSU would have received a Silver ranking in 2012
- Overall it seemed that NCSU was on track to be competitive with our peers
- The metrics that were looked at mostly showed NCSU in the top five
- Look for the results of STARS 2.0 to be finished by FALL 2015

Thanks for your time!
Questions???
Sources

All information was acquired from each Universities STARS report found at: https://stars.aashe.org/institutions/

Slide 11 image: http://cargocollective.com/paigeeliabethcreative/Eat-Local
Slide 12 image: http://recycling.ncsu.edu/services.php
Slide 13 image: https://www.flickr.com/photos/bernard-pics/2686235549/
Slide 14 image: http://www.adweek.com/adfreak/less-more-sukles-denver-water-ads-18651
Slide 15 image: http://sustainability.ncsu.edu/campus/buildings/leed
Slide 16 image: http://sustainability.ncsu.edu/campus/buildings/leed/centennial-campus-housing
Slide 17 image: http://www.vertenergygroup.com/green-building-certifications/leed/