Commissioning & Retro-Cx at CSU

The Good, the Bad & the Ugly

There are no passengers on Spaceship Earth. We are all crew.

Marshall McLuhan - 1965
Colorado State University
Building Summary

- 10 million GSF
- 11 LEED Gold buildings
- Classrooms, Offices, Labs, Residence Halls, Athletic Facilities
GHG Footprint – FY12

- Electricity: 53%
- Natural Gas & Propane: 24%
- Transportation - Fleet: 10%
- Airline Travel: 10%
- Refrigerants: <1%
- Commuting: 10%
- Agriculture: 2%
- Solid Waste: <1%
CAP Summary

Business-As-Usual Forecast for CSU

Building energy efficiency

Energy conservation
Forest carbon sequestration
State policies
Transportation
Solid waste diversion

Renewable energy

Remaining emissions

Metric Tons Carbon Dioxide Equivalent (MTCO2e)

FY06 FY10 FY14 FY18 FY22 FY26 FY30 FY34 FY38 FY42 FY46 FY50
Good:

- In House RetroCx - Partnership w/ ME Dept
- Engineering 2 - Envelope Cx
- Behavioral Sciences – few HVAC callbacks
Retrocommissioning
555 Howes Electricity Use

23% reduction in electricity use
Most systems worked well at building turnover.
Bad:

- Behavioral Sciences – lighting controls
Lighting Controls

- Tuning Daylight Controls
- Diagnosing problems more complicated
- Lighting in Random Places......
Ugly:

- **Computer Science** – “drive by” Cx
- **Rockwell** – Serious HVAC issue unresolved for over a year
- **Research Innovation Center** – Envelope issue missed
Research Innovation Center (RIC) – 2010
Envelope Issues Missed
Issues:

- “Cx for LEED Points or Real Cx?”
- Pollyanna Attitude?
- Buildings getting more complicated
- Fragmented Cx
To learn more about these projects and many more visit the Colorado State Facilities Website (Planning, Design & Construction) at www.facilities.colostate.edu

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