

# Memorandum



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**To:** Liz Davey  
**From:** Willa Small Kuh  
**Copy:** Nat Grier, Rob McKenna, Amy Nagengast, Bill Talbert, Mike Walters  
**Date:** May 29, 2014  
**Re:** Ideation Meeting Notes – Energy Demand Working Group

Following are our meeting notes from the April 28 meeting with the Energy Demand Working Group. Please feel welcome to circulate these to working group members.

Working group members present: Jim Alty, Amber Beezley, Dick Fullerton, Rickie Kramer, John Nonnamaker, Danny McElmurray, Ico Sulejmanagic, Wendell Wendling

After introductions, the consulting team made an interactive presentation, summarized below:

1. The presentation introduced climate action planning in general and at Tulane.
2. The presentation reviewed energy use and chilled water use profiles for the campus and current measures to reduce energy demand at the uptown and downtown campuses. It proposed an approach to exploring additional building energy demand reductions that would focus on the different opportunities by building type (classroom/office, residential, laboratory, and medical) and would look at gains that could be realized through building schedules and setpoints. The presentation:
  - Illustrated that current energy use profiles indicate relatively constant steam use year-round which points to high use of reheat energy during cooling months. Profiles also illustrate year-round base load for cooling, even during winter months, when outdoor temperatures and humidity levels may allow for free cooling.
  - Used the example of a typical classroom/office building program to show energy use intensity, energy use breakdown, and potential energy impact of ECMs including scheduled shutdown for unoccupied cycle, space temperature setbacks, shut-off VAV, and dedicated outdoor air system with energy recovery.
  - Recommended energy conservation measures for existing buildings.
  - Offered technologies for potential offset to district heating and cooling including building located heat recovery chillers and district heat recovery chillers.
  - Recommended metering and re/retro-commissioning
  - Provided estimates of roof mounted solar PV generation as a percentage of overall building energy use. As the number of floors increase, the percentage of energy offset from roof mounted PV decreases, with buildings over 6 floors, not likely being able to meet the 5% renewable offset goal identified by Tulane. Alternatives to roof-mounted PV, such as building integrated or off-site will be necessary to meet the target or achieve further reductions should the new CAP identify higher offset targets.
  - Described the benefit of strong standards for building performance (the three approaches are EUI standards, design standards and measured performance standards)
  - Explored potential energy reduction if non- or less-intensive mechanical means are used during the 29% of the time when natural ventilation potential in this climate is ideal.

- Recommended behavioral change strategies be employed including expanded comfort range based on seasonal conditions and natural ventilation opportunities and user level metering with incentives and alternative billing strategies.

**The working group's ideation response:**

- Requested the consultant team recommend energy conservation measures by building type and/or operating schedule. Scheduling, setbacks are obvious ones to consider by building type for the uptown campus using the modeling. HRC and renewables. Avoid dehumidification/reheat as much as possible.
- It was noted that the Tidewater building natural gas use is very low and reduces to zero during cooling season. Wendel confirmed natural gas is for heating. Further study of metered use is needed, and metered use may reflect optimal use of reheat due to low usage.
- Improve building temperature control to minimize the perception that buildings are being overcooled in summer.
- Suggested wider application of Energy Star Equipment standard to include more equipment beyond computers and potential methods for ensuring standards are followed. Most residence hall rooms have small refrigerators which should be Energy Star rated. Newer residence halls should be more efficient.
- The increase in residents on campus may increase student demand for lounge/study space. (Students will either be shifting to less space per person when they move from off- to-on campus and/or they will look for on-campus lounge and study options that are outside of their residential buildings)
- Need to define policies be for summer campus building use? The new buildings will be the ones that are used as priority and provide lower energy use.
- Green purchasing policy is needed.
- Demand limiting strategies were discussed including utilizing card control at residence halls to control room temps, etc.
- Billing strategies including metering and billing for use at residence halls as well as billing departments for energy use at their respective buildings.
- Desire for creating/implementing more vehicles that motivate students to manage and be more aware of their ability to manage their energy use. Dashboards are believed to do this. Student behavior change is an important opportunity and efforts with Student Global Citizenship working group will be coordinated with Energy working groups.
- An example from UNC CH was shared where students select specific projects that energy cost savings from energy conservation efforts are assigned to. Should Tulane do the same?
- Further discussion of use of Reserve Fund for energy demand reduction projects. A revolving green load fund could be created to fund new projects from energy cost savings from past projects.
- Recognition that this process will involve what is sometimes a tough consideration of first costs versus return on investment.
- There is a strong interest in renewables – pv, solar hot water heaters. Use of solar is widespread throughout the local New Orleans community (primarily residential) and has been considered on recent Tulane projects, but not funded. Need to find appropriate funding venue for implementing more solar projects on campus.