

## **NW CERT Meeting Summary – A Cross-Campus Clean Energy Dialogue**

**January 27, 2009**  
**Bemidji State University**

Attendees included: Anthony Schaffhauser (our host), Linda Kingery, Andy Martin, Erika Bailey-Johnson, Anna Carlson, Bonnie Abel, Ryan Zemek, Mike Triplett, Randy Hilliard, Mike Moore, David Demuth, Jim Steenerson, Shawn Balstaad, Chris Waltz, Martin Lundell, Paul Aakre, Megan Casper, Joe, Asher Kingery, Lissa Pawlisch, Michelle Bedard

Note: All presentations from the day's meeting are posted on the CERT website at:  
<http://www.cleanenergyresourceteams.org/publications/regional-presentations#nwcampus>

### ***Bemidji State University***

#### *Anna Carlson, BSU Carbon Footprint Calculation*

Anna gave an excellent overview of the process she's gone through to calculate Bemidji State University's carbon footprint... and what that might mean for how other campuses could do the same. Essentially the carbon footprint is designed to help the campus figure out where it's starting from – current and past 10 years – as a means of then helping the campus how best to target future carbon emissions mitigation efforts. BSU embarked on this process for multiple reasons – environmental stewardship is one of three campus “signature” themes, and the BSU President recently signed on to the Presidents Climate Commitment (<http://www.presidentsclimatecommitment.org/>) – indicating that the campus would reach for carbon neutrality.

Quick Summary of details (see Anna's full presentation for more information)

- Used Clean Air – Cool Planet ([cleanaircoolplanet.org](http://cleanaircoolplanet.org)) tool-kit to calculate their footprint; over 200 other campuses have already used this tool.
- Key Steps: Inventory, Target, Plan, Implementation, Legacy
- Inventory included: budget, energy, agriculture (fertilizer), solid waste (where does it go, how is it disposed), refrigeration... talking to folks around campus was educational in itself to make people aware of their carbon impact
- Reported to Students, Campus Sustainability Day, to faculty and staff @ start-up week (good ice-breaker for Erika Bailey-Johnson), one community event (targeted how campus and community climate action inter-relate) – President signed Carbon Commitment @ that event (Nov 17<sup>th</sup>, 2008) and committed to next steps
- President's Climate Commitment commits to carbon neutrality but campus can determine timeline. It's important to be realistic.
- Data collection: intensive and full of missteps, lots of data gaps
- Energy included on-campus stationary, electricity, steam/chilled water, transportation (lots of data gaps particularly for air travel, commuter habits, etc.; BSU has historically only tracked \$ reimbursed for travel, this allowed a “back-calculation” into fleet vehicle information)
- Process leaves a number of red-flags – due to data gaps – this is “the base of the baseline”. The transportation piece, as noted, had a number of gaps, but this was/is also one of the smallest contributors to BSU's overall emissions.

- 65% of emissions are from electricity, 32% from on-campus generation, 1% fleet, 2% other
- Calculator does integrate off-sets... Anna could import the # of kWh of wind to be reflected in overall calculations (616,000 kWh are purchased for student union – picked because they metered this building separately; it's about 5% of electric used) - @ rate of \$1.70 per 100 kWh block from Ottertail Power Co. (Beltrami Electric is \$0.50 per 100 kWh block) as part of their green pricing program – has allowed electric-related emissions to stay steady instead of ramping up

Responses to questions:

- Lessons learned for others? Just add ONE column to your spreadsheets to help track data.
- Key data points to start tracking? – BSU will develop a class (in summers) to maintain the data and get folks trained in this process.
- If travel's contribution to overall emissions was only 1% is it really worth spending the time on transportation? Is this grossly underestimated? BSU might do a commuter habit survey, start tracking air travel – it might be possible to “guesstimate” by looking @ residence hall occupancy and total number of students then estimate “average” commuter.
- Website listing of what all campuses have used for their inventories... Erika referenced.

*As an aside... Green Pricing*

We also had a lively discussion about Green Pricing, the various rules and regulations that govern green pricing and how those relate to new Minnesota renewable energy mandates and timelines. We're going to address a number of these questions in a CERT blog posting, but here are a few details to start

- An overview of green energy pricing programs in the state:  
<http://www.pca.state.mn.us/oea/energy/greenpower.cfm>
- A listing of utility green pricing programs:  
[http://apps3.eere.energy.gov/greenpower/buying/buying\\_power.shtml?state=MN](http://apps3.eere.energy.gov/greenpower/buying/buying_power.shtml?state=MN)
- Directive (PUC Order – after reconsideration) stating that green pricing sales must be excluded from the RES/REO goals (dated August 13, 2004). DOCKET NO. E-999/CI-03-869
- <https://www.edockets.state.mn.us/EFiling/ShowFile.do?DocNumber=1880493>

*Erika Bailey-Johnson – Sustainability Coordinator*

BSU Volunteers have been doing good sustainability work for years, but the campus needed someone to be the “point person” on campus. Enter: Erika Bailey-Johnson. Erika was hired (and her position created) based on student commitment to sustainability issues and services directed toward students (the only such position in the MNSCU system thus far). Students pay a \$5/semester/student green fee; while the other portion of salary is paid by the college's vice-presidents offices. The Sustainability Office also has an additional \$35,000 - \$40,000/year to use for projects – some supports student projects related to sustainability, some supports student employment in a sustainability position/job (runs through student employment office), and some discretionary spending. So far, it seems the investment has really paid off.

Here are a few examples of projects they've already worked on:

- Student employed reducing junk mail in Stattgast Hall

- Investigating solar PV for super-lab on campus and conducting a wind feasibility study for campus
- Bike Bemidji – to help promote bike awareness and safety
- Ditching trays @ campus... just don't use them anymore – statistics that you save 1.5 gallons of water/tray and 1.5 oz. of food waste/tray
- Local foods – buying (Red Lake Foods) AND advertising that they're doing it; added language into food contract with Aramark to enable purchase of local food
- Recycling – did a waste audit for Hagg-Sauer Hall – to track what people are/could be recycling; using education to improve rates and taking garbage cans out of classrooms and putting them next to recycling centers
- Field trip for maintenance staff to local transfer station to see that the recycling IS happening.
- “Do it in the Dark” campus energy campaign; Minnesota Campus Energy Challenge
- Considering launching a wind technician training program that could become part of Renewable Energy degree program.

Association for the Advancement of Sustainability in Higher Education (AASHE) has a great website that highlights myriad campus sustainability-related programs, announcements and events: <http://www.aashe.org/>

*David Bahr – Physics Dept Chair – energy analysis of Sattgast Hall*

David, along with his collaborators, conducted a detailed ventilation study in advance of rehabbing Sattgast Hall; the building had major issues with some areas experiencing so much air exchange that noise was an issues; other areas get so little ventilation that air quality is an issue; some areas get both; some unoccupied rooms get lots of circulation and some with lots of people not getting any circulation. The question was... what if we had a smart system?

To assess the benefits of improving the system they examined the current occupancy of each room on each floor, reviewed existing ducts, blowers and controls, determined optimal supply and return for each room, researched suppliers of smart controls and blower systems, and compared the costs of this new system with the existing system. All-in-all they found that they could make the necessary improvements with less than a 10 year payback (seven). See David's full presentation for the details... it's a great detailed synopsis that could help with other building evaluations.

### ***University of Minnesota Crookston***

*Linda Kingery – Director of the Northwest Regional Sustainable Development Partnership, part of the University of Minnesota system*

Linda gave a quick snap-shot on how the University of Minnesota's thinking about sustainability has evolved over the past decade. Linda noted that the creation of the Regional Partnerships (<http://www.regionalpartnerships.umn.edu/>) was itself one of the first steps in this direction. In more recent years, the University established a system-wide sustainability commitment in 2006/2007, in 2008 President Bruininks appointed University-wide sustainability committee and signed the Presidents Climate Commitment. In November, UM Crookston established a sustainability committee for campus – led by both a student and faculty member – and has also created a new major on campus. On April 17<sup>th</sup>, 2009, the Regional Partnerships, UMC, Bemidji

State, University of Minnesota Morris, and Southwest Minnesota State University will all co-host the Third Home Grown Energy Conference – a local foods focused event that further highlights cross-campus collaboration on sustainability issues.

*Paul Aakre – Farm Scale Biodiesel/Straight Vegetable Oil Research Project*

Over the past year the University of Minnesota Crookston's Agricultural Systems Management degree has added a new emphasis – Biofuels and Renewable Energy – to help students hone their skills and prepare for careers in the clean energy arena. One of the projects students have been working on related to opportunities for “energy independence” for farm-scale or multi-farm scale operations. UMC has built a bio-oil facility @ campus, including a holding facility for canola (from which they get both oil and meal).

From this base, they have been investigating how an on-farm system like this might work @ local farms and actually make on-farm seed processing, fuel cleaning, and meal use economically viable. Some of the key questions they've been asking include:

- Should to oil go to biodiesel and/or straight vegetable oil
- Should the meal be used to feed livestock and/or be used as a biomass heat source – meal has a good protein content (and can be fed to horses, pigs and cows), but also has a heating value equivalent to wood pellets and the efficiency of recoverable heat was better than corn or wood pellets.

One of the hurdles for these sorts of systems is testing requirements for biodiesel. Those requirements are there for a reason – no one wants to give the industry a black-eye, but folks in Germany have been using straight vegetable oil in tractors. They heat the fuel before using it and use two different fuel systems. In a recent Penn State study they've been using the tractor all winter long – has been operating 250 hours since last spring – small start up tank on diesel, larger tank is SVO. There are also conversion units – use engine coolant to heat up oil so that engine doesn't draw SVO until engine is warm enough; always start up and shut down on diesel fuel. These sorts of questions and thorny issues are just the things that the University should be investigating so that it's not up to farmers to figure it out (and hurt their tractors in the process) but rather folks can look to their local researchers to assess the kinks first.

*Chris Waltz – LEEDing Crookston to a Sustainable Future*

Students have stimulated a foundation for sustainability movement @ UMC – and have seen this as a way to be leaders in the broader community. They are focusing, in part, on LEED certification for the new dormitory – educating about what that is and developing a plan to execute and put students in a role to interact with decision makers on campus and get students on the design committee

Lots of education related efforts, forums

Key Impacts from their work:

- Have their 1<sup>st</sup> LEED Certified building on campus! AND students had a major role in helping select which points the campus went after.
- Hosted a number of forums highlighting influential thinkers including:
  - Paul Douglas – farmers in NW MN will be impacted by a changing climate

- Alison Lindburg – lead architect for eco-affordable housing program – Aitkin Co. example where \$ for home stays local and utilizing solar thermal and other efficiency and renewable energy principles – [LINK](#)
- Richard Strong – water resource issues and relating that to building energy usage and lifecycle analysis; net sustainable energy
- Robert Chronowski – a former environmental consultant for World Bank

Students have now developed two working groups – UM Crookston Sustainability Committee and Crookston Students for Sustainable Development (working arm for student gov't on sustainability) – brings in interdisciplinary groups of students to work on shared issues.

Next Steps: they are looking forward to having Erika Bailey-Johnson come up for a visit sometime soon to figure out how they too can get a Sustainability Coordinator.

### *Closing*

Meeting adjourned @ 4:30 pm. Thanks to all who came to share in the networking and information sharing, and a tremendous thanks to the Bemidji State University campus, and BSU's Center for Research and Innovation (CRI) in particular, for hosting us!