

STARS Advisory Committees Focus Call
Wednesday, November 28, 2007

Topic: Energy & Climate

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AASHE: Julian Dautremont-Smith, Dave Newport, Judy Walton

Agenda

1. Operations Credit 13: Energy Intensity - Trend

Should we convert this to a threshold question instead of a trend question? How?

It does show progress; maybe also add an absolute number (although setting a fixed BTUs/sq. ft. would not equally reward people). A % reduction from where you are would have more value (every campus knows where it is).

Look into EPA Target Finder - compares types of buildings in different regions; fair. Controls for classifications of buildings that use energy differently. Problem – Target Finder and Portfolio Manager don't include labs and other campus buildings and do not seem to be increasing the types of buildings covered. Perhaps regionality is not important for a trend question – just reduce within confines of current use makes sense. Problem – hard to get that number (reduction in use). Can be tough to determine utility use over the year. If campuses don't know utility numbers, can't do GHG inventory. Utility usage figure not always easy to find out but you need to know it at a basic level. This is a minimum requirement for GHG and any energy accounting. Must assume school can get that data.

Maybe we should create a credit for measuring where you are; proving that energy consumption data is collected and managed. Problem – that's basically a prerequisite; it's just logical that you would have to know it.

Does it make sense to have any reduction above 0% worth one point? Change from an intensity question to a 1-pt credit for any absolute reduction in intensity? What about stabilization of energy intensity? Not sure that stabilization (or reduction) of energy intensity is a big deal. Some campuses have energy intensities that have been going down for years (2-5% annually) although total GHG emissions are up. Sometimes you have spikes in energy intensity, where for example you got money to build several labs at once. Have to differentiate between trend and absolute. Flattening out trend is easy to do with fast-growing campuses; stable campuses have harder time. Need to get back to absolute number. So far best proposal is getting a baseline for current year, and you get a point for, say, going 10% beyond where you were; another point for 20% beyond where you were, etc.

Renewable energy is basically an energy efficiency measure – moves trend in right direction; reduces energy intensity. Do we want to differentiate between renewable energy and energy efficiency? Should we count on-site renewables as energy efficiency? No – should be 2 separate credits. First credit is for energy efficiency; next credit is for moving to renewables. STARS goal is to layout path for long-term improvement; don't expect schools to get 90% below current energy intensity right away.

Still have problem of penalizing campuses that are more efficient than others. Trend is fine when campus is competing with itself, but problem when comparing with others. No way currently of baselining campuses nationally or regionally. Trying to get EPA to include campuses as building type; they'll have a tool out soon but won't account for % of labs, or climate. Best thing we can do at this point is a baseline credit and percentage reductions over time. Be aware that people will look for easiest way to get points. Relative weighting of points has to be relatively valid. Reducing a trend is easier than reducing absolute number; lower number of points for intensity trend.

Additionality concept – if state is under 20% conservation mandate, should reductions made under that regulation should be rewarded? Yes - you should not be punished because you have a progressive

government. Need to encourage governors to make these commitments; will help campuses with funding.

How to reward already energy efficient campuses? Maybe add point for buildings that do exist in Portfolio Manager – could capture some of the existing efforts. Could allow schools to set earlier baselines, but wouldn't promote more positive change (they'd use oldest baseline). Maybe have larger breadth between points in intensity trend.

2. Operations Credit 14: Renewable Electricity Consumption

Should the purchase of RECs be counted as equal to onsite renewable energy generation?

AASHE proposes that RECs count less than onsite. Most participants agreed – suggested 5-to-1 ratio of onsite renewable energy generation compared to RECs (or doubling, or somewhere in between). One personal opinion was to offer no points at all for RECs (universities buying them will have to stop sooner or later). Flip side is that most campuses are space constrained; can't install on-site, but can buy RECs and make some impacts. All agreed there is no clear agreement on RECs. Some think they don't have any impact (buying something that already exists); others think they're too controversial.

Urban campuses can't do onsite. What about direct purchasing? Buying green power from local utility. Power purchase agreement is different than a REC. You can say you had direct impact on having that in place. University-owned generation next best thing to onsite generation. If you do have large-scale offsite linked directly to campus, ought to get credit for that. Roadblocks now, but may be coming in future. For those schools that can't do anything we ought to leave option for schools to buy RECs.

Shouldn't we be explaining that RECs are not good use of funds? Other investments may not be sexy, but make a bigger impact. Goal here is to be sustainable, higher ed has to be ones to stand up and say that. Maybe phase out RECs from STARS over time; give lower priority now with plan to phase out. Agreed on compromise – encourage campuses to spend money elsewhere; maybe give 1 pt. for RECs, since many campuses argue that they're valuable and continue to purchase them. Phase-out will encourage education process. Need to be open to new possibilities; new products may develop.

Recommendation: Offer credits for direct renewable energy consumption at 5% (1 pt), 15% (2 pts), 35% (3 pts), 65% (4 pts) and 100% (5 pts). Offer alternative for purchasing RECs for 15% of all electricity (1 pt) or 100% of all electricity (2 pts).

3. Operations Credit 15: Renewable Energy Consumption

Is there a standardized way of calculating the percentage of total heating and cooling load derived from renewable sources?

With geothermal just need flow data & temperature change and you can calculate flows in either direction; no technical issue. Chilled water conversions can be made pretty easy. With steam heating depends on line losses & pressure, and how long loop are. Could be difference of 5%.

Break down renewable energy by electricity and thermal; thermal is sum of BTUs of all source fuels, since you have to buy them. Typical breakdown on campuses; unless you're purchasing steam (urban schools buying from district heating & cooling source). If purchasing steam you'd have to back out a generation mix. Problem comes down to efficiency. Depending on assumptions, you can convert at 30% or 50% efficiency.

Seems complicated if looking at renewables and energy trend. Trend reflects only purchased energy (reduction of energy used in electricity and heating & cooling). It isn't all captured in energy intensity. Can understand rewarding schools that are using specific technologies, but reward ought to be reduction. Greater efficiency might be worth more than renewable. Would like to keep both credits (14 & 15) to give credit if someone is specifically using renewable system. Two separate things. But trend is already reflecting fact that you're using renewables. (Do you get credit for sunlight coming into building?)

NREL looking at 9 different passive renewable techniques. Same as onsite generation. Gas-powered micro-turbine could increase your efficiency; may work better than solar at reducing energy & GHG emissions. Burning a renewable fuel is still throwing CO₂ into atmosphere. If goal is to reduce pollutants, looking at technology is focusing on means rather than ends.

Many of these are surrogates for GHG reductions; but we want to motivate people to continuous improvements; incentivize action. Do we envision STARS as being snapshot of what campus looks like at point in time? Or tool by which administrators can influence policy to change things within campus? Continuous improvement is big goal; it helps; you get credit for it.

AASHE will stick with separating out credits 14 and 15; we want to provide a huge database of what campuses are currently doing – separate credit allows us to gather that info. Renewable energy prices need to come down to help us use more of it; so justified in encouraging renewables.

Maybe complicated part is trying to do conversion to heating & cooling. Solar thermal and geothermal are easy (talking about any kind of solar & geothermal), but steam different. Focus now seems to be on space heating. Maybe not allocate it to just that; but to anything (plug load, etc.). Intent was to separate out thermal creators from electricity elements. Philip Ling can help with solar & geothermal calculations; steam is more difficult. Can be an issue. Good idea to reward campuses doing work on thermal side. Can calculate BTU's put into system at source; have measured contribution at least. Philip will work w/Judy & Julian to clarify goal.

4. Operations Credit 16: GHG Emission Reductions

Should we only allow certain types of offsets? Should offsets be counted as equal to on-site reductions?

Offsets are same as RECs; no difference. See them in same sense of local development; like afforestation projects in nearby county. Offsets that pass additionality test are superior to RECs.

Need to focus on what's happening with school. Might not be many offsets to buy long-term. Focus should be on school's responsibility. If you do go with offsets, doing it locally is definitely superior than contributing to offsets further away. Local assets should be verifiable by international standard if possible. Treat offsets similar to RECs but make ratio a little better than RECs. Offsets can be better.

Maybe devalue offsets compared to what you can do onsite at school. Eventually offsets will be scarce; everyone will be responsible for own emissions. Steam trap reduces much more than CO2. Maybe too much reliance on offsets; shouldn't say offsets are more important than what you can do on campus; they allow you to buy your way out; discount your responsibility as emitter.

Could make case that local offsets count for more than onsite action such as changing a steam trap; lots of extra rewards, from service learning to residents gaining awareness to contributing to economic development. Layering of benefits.

5. New Credits

Are there any other credits related to Energy and Climate that should be considered for inclusion in STARS?

Credit for commissioning a system. (Provides tools to reduce consumption.) Also credit for individual metering, to encourage measurement and give credit to campuses that have separated out individual buildings. Maybe commissioning and metering should be Tier 2. Tier 1 should focus on end goals; Tier 2 on strategies and programs.

Refrigerant credit. LEED has section; CHPS program has section. Maybe scalable to campus level. Small contributions by campuses; but are best practices. Maybe look at Tier 2. We could merge this activity with PCC pretty clearly. Things like GHGs from animal manure; closing waste streams. Reporting structure from PCC could feed into STARS.