

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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August 28, 2014

Allan Stratman
Executive Director
Facilities & Services

Dear Al,

I am writing on behalf of the Illinois Climate Action Plan Working Group to formally transmit its recommendation regarding “Wind Power Purchase Agreement,” which came to us as a recommendation from the Sustainability Working Advisory Team on Energy Generation, Purchasing, and Distribution. Attached you will find the cover sheet summarizing the Working Group's recommendation, and a more detailed description of its recommendation.

I ask that you or your designee provide a written response to me by September 12, indicating whether or not your unit concurs with the recommendation, and (if so) detailing your plans and timeline for implementing the recommendation.

In this particular case, because the potential financial impact is moderate (and quite possibly positive), and because we expect F&S is likely to be receptive to the recommendation, the Working Group elected to transmit this directly to F&S rather than to the Sustainability Council. If F&S disagrees with any aspects of the recommendation, I ask that such disagreement be explained in your response, so that we can engage the Sustainability Council to consider the areas of disagreement and make a recommendation to the Chancellor.

Thanks very much in advance for your consideration of this recommendation, and I look forward to deepening and strengthening the collaboration between iSEE and F&S in the arena of campus sustainability!

Sincerely,

Benjamin J. McCall
Chair, Illinois Climate Action Plan Working Group

iWG Assessment

SWATeam Recommendation Ref #: EG001

Date of iWG Assessment: Aug 28, 2014

Original SWATeam Recommendation: “We strongly endorse pursuing Power Purchase Agreements (PPAs) with one or more Wind Farms as soon as possible. Given current market conditions, we believe that a PPA with one or more Wind Farms presents a great opportunity to purchase renewable energy in support of the campus iCAP targets.”

iWG Assessment of budget and policy impacts (*check one*):

moderate budget and/or policy impact OR major budget and/or policy implications

iWG Routing Need (*check one*):

more detailed study OR transmit recommendation OR forward to Sustainability Council

iWG Routing Direction (*department name, SWATeam, or Council*): Facilities & Services

iWG Recommendation: *See below.*

Individual comments are required from each iWG member (can be brief, if member fully agrees):

iWG Member Name	iWG Member's Comments
Ben McCall (iSEE)	I concur.
Morgan Johnston (F&S)	I look forward to the dialog about this.
Lowa Mwilambwe (Student Affairs)	While I agree the recommendations need to be forwarded to F&S, I hope this department will provide, in the response, accurate data (kWh cost) to allow us to make better cost comparison.
Matthew Tomaszewski (Provost's Office)	I support advancing this recommendation to F&S and look forward to their informed feedback on the issue.
Nancy O'Brien (Academic Senate)	I concur. It's especially important to get information in advance to make informed decisions about energy needs.
Nishant Makhijani (Student Sustainability Leadership Council)	I concur.
Kevin Duff (OBFS)	I concur.
Rob Fritz (college-level facility manager)	I concur with pursuing a wind farm purchase agreement. Additional information is necessary prior to moving forward (cost, reliability, etc.) as stated in our recommendations.

Attach any comments from subject matter experts (with names and roles).

In FY14, our campus used 476 million kWh of electricity. 276 million kWh were generated by Abbott Power Plant by combustion of coal (20%) and natural gas (80%) in conjunction with producing steam to heat the campus. 200 million kWh were purchased from the electric grid. The grid-purchased electricity resulted in 160,000 tons of CO2 emissions, which represents 33% of our total campus emissions for FY13 (emissions from Abbott represent another 57%).

With the recent increase in deployment of wind turbines across the midwest, we have the opportunity to shift our electricity purchases away from conventional sources like coal and natural gas which produce CO2 emissions to a renewable energy source without direct CO2 emissions. This is typically done through a Power Purchase Agreement (PPA), where a customer contracts with a wind farm developer to purchase all of the power produced by a certain portion of a wind farm. The contracts are typically 10 or 20 years in length (we may be limited to 10 years by statute), and have a fixed price for electricity per kWh with an annual escalation factor.

We consider here a baseline case of a PPA for 119 million kWh of wind energy; this number represents 25% of our total electrical energy usage. This number represents the current iCAP goal for 2025 and is also the fraction of wind energy that Ohio State University recently purchased.

Such a PPA would reduce our annual CO2 emissions by 95,000 tons, a roughly 20% reduction in our campus emissions in one fell swoop. For perspective, the estimated CO2 reductions that would be achieved by switching from coal to entirely gas at Abbott is only about 35,000 tons. The CO2 reductions from the South Campus Solar Farm should be about 6,000 tons per year.

This PPA would therefore represent a dramatic reduction of our emissions. It would clearly establish UIUC as a national leader at the forefront of carbon emission reductions, and would represent significant progress towards our commitment to become carbon neutral.

But at what cost?

F&S has advised us that a financial comparison between wind energy and conventional (coal/gas) energy should be based on the proposed price per kWh of a wind PPA and the average or budgeted cost for conventional energy. Our average purchased electricity cost in FY14 was 6.38 cents/kWh [pending confirmation from F&S], and the budget for FY15 is 4.5 cents/kWh.

Prairieland Energy, Inc. (PEI) has recently issued a Request for Information (RFI) to ascertain the current market cost for wind PPAs; we do not yet have that information in hand. However, we can examine recent PPA contracts for their pricing. In 2012, Ohio State University entered into a PPA for 4.65 cents/kWh (with a 2% annual escalator). According to an August 2014 report from the U.S. Department of Energy, wind PPA prices in the Great Lakes region were stable from 2012 to 2013, with an average price of about 4.3 cents/kWh.

We therefore estimate that the price of a wind PPA is competitive with our budgeted price for conventional electricity, and may even represent a cost savings. We estimate that the worst case would be a PPA price of 5 cents/kWh: still less than our average cost in FY14 but 0.5 cents/kWh higher than our FY15 budget. For a PPA of 119 million kWh/year, this would represent a potential additional cost of ~\$600,000 (less than 1% of the campus utility budget and well within the range of market fluctuations). We suggest that such a potential additional cost is justified by the immense CO2 reductions, but we emphasize that a PPA may actually result in cost savings.

Another benefit of a wind PPA is that it represents a hedge against future increases in conventional electricity. A number of factors could lead to significant increases in natural gas costs over a 10 year horizon. One such factor is increasing regulation (or taxation) of greenhouse gas emissions; another is a "peaking" of production from hydraulic fracturing ("fracking"), which the Energy Information Administration predicts will occur by the end of this decade and other analysts suggest may come even sooner. Locking in a low price for wind energy could therefore be of financial benefit, as well as environmental benefit.

Should we wait for a better deal?

The prices of wind PPAs have decreased in our region from 2010 to 2012, but were flat in 2013. One factor that has made wind electricity competitive with conventional energy is the federal Production Tax Credit, which offers wind developers a tax credit of 2.3 cents/kWh for the first 10 years of operation. This tax credit was originally enacted in 1992, but it expired in 2013 and there has not been significant motion in Congress to renew it. As the law currently stands, any wind turbines that were commissioned by 2013 and begin producing by the end of 2015 are grandfathered in.

We therefore anticipate that the price of wind PPAs may dramatically increase in the very near future, as all of the PTC-grandfathered projects are committed to PPA buyers. It is therefore to our advantage to proceed as quickly as possible with a wind PPA.

Specific Recommendations:

- (1) The campus should undertake a Power Purchase Agreement for wind energy. Based on currently available information, we recommend that the amount be at least 119 million kWh per year (25% of our total electrical usage), but we should aim to purchase as much as we possibly can, given any technical, financial, and contractual constraints.
- (2) The effort to secure a PPA should be pursued as quickly as possible. The campus should inform PEI that this is a top priority, and that the review of RFI submittals and the issuance of the RFP should be expedited by all necessary means.
- (3) The iCAP Working Group should be kept informed and advised during the process of pursuing the RFI, RFP, and PPA, and given the opportunity to provide recommendations before key decisions are made about the PPA, to ensure that technical and financial considerations are appropriately balanced with our campus sustainability objectives.