June 7, 2012

Everyone,

New Alternative Energy and Sustainable Systems Technology Degree

On May 25th, 7 of 9 of my ALT-140 Photovoltaic Power students took the entry level PV exam from the NABCEP certification agency as the first step in developing a qualified resume for work in the AE field.

I'll let you know the results in another four weeks or so. I'm confident they will do well.

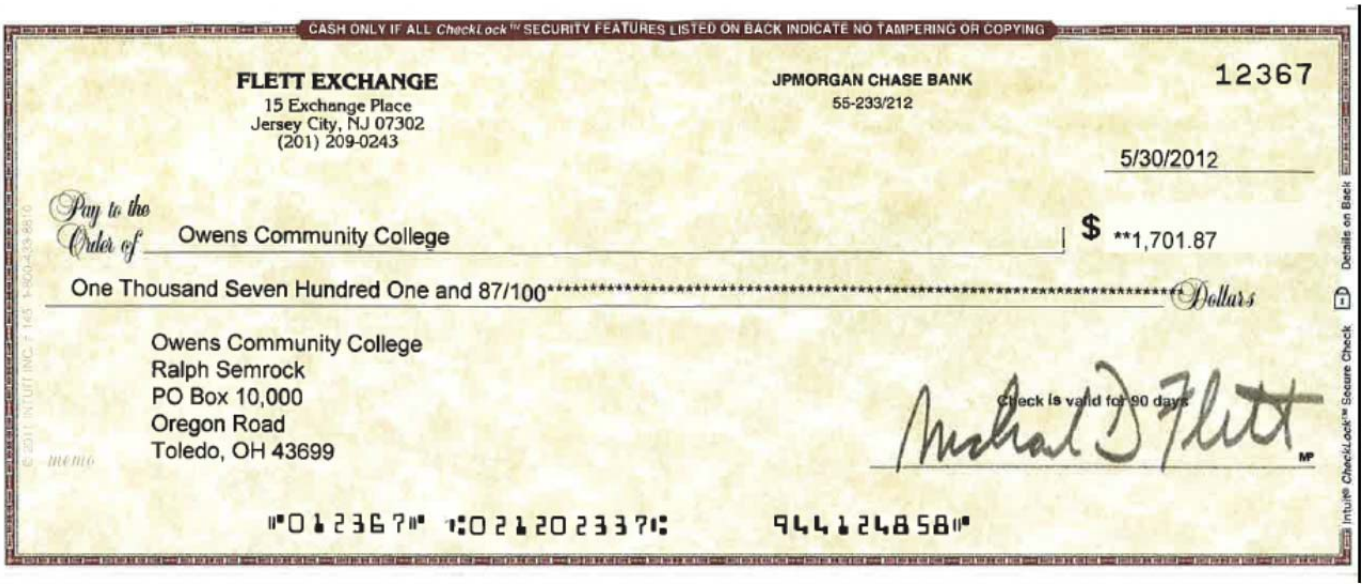
More news later as it develops.

Wind and Solar Renewable Energy Credit Sales

Currently, we are working on possible changes to be made to First Energy's contract in their advertised 10-year SREC bid proposal, should we ever want to submit a bid and actually win the contract. Natalie Jackson, our resident counsel, is working on this.

No change on the 104 wind RECS sale.

However. . . as shown below, we had 10 more SRECS sold for **$1,701.87** last week!



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The check brings our total sales to around **$11,000** so far! These are SRECS from both the 34 kW PV array on the Toledo campus and the 1.7 kW PV array on the Findlay campus.

The SREC price has dipped this past month because the solar market is oversupplied. We may hang onto currently generated RECS until the price gets better.

I just reported May's production totals to the Flett Exchange this week.

I'll keep you posted on any developments.

Main Green Link on Owens Website

This link takes a viewer to all the events and work that is being done on campus regarding saving energy, becoming more green in all the energy we use, and letting the general public know what Owens is doing in these areas. It also refers people to our new Alternative Energy and Sustainable Systems technology degree. It's about saving energy on our campus, which is everyone's responsibility, as money gets tighter and tighter.

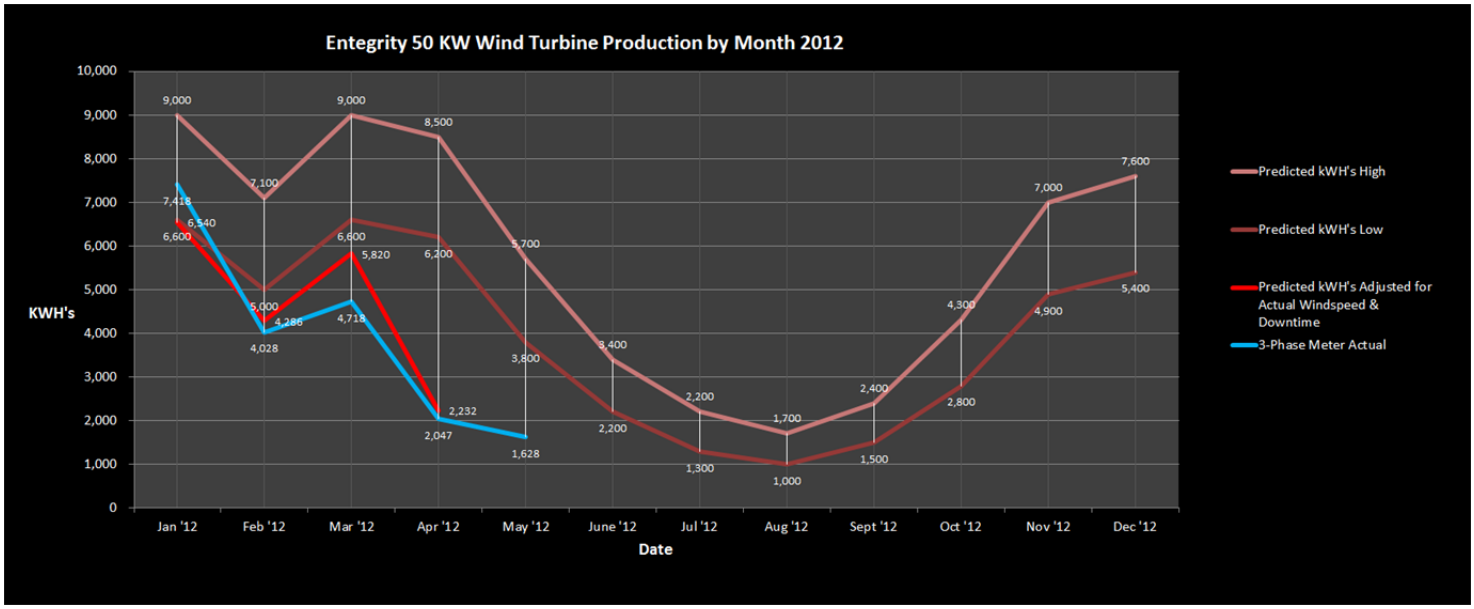
No change on having two new live camera links showing the large 34 kW PV array in Toledo, and the turbine/PV array in Findlay. Those links will have descriptive text as well as real-time read outs of production data.

Now that summer is here, I'm hoping to get those links established, and am waiting for a meeting to be established very soon between IT and Marketing.

Enjoy and explore the site: https://www.owens.edu/green/

50 kW Entegrity Wind Turbine - Toledo Campus

Production for May was again way down, because of turbine downtime due to checking out the weld cracks on the base gussets, as explained in my last report. As the graph below shows, (Examine the blue line.) the turbine only generated **1,628 kWh's**, and I can't give you a predicted amount, since I don't have wind speed data from the Hawkeye system being down, as explained on the next page. Hopefully the next report I'll have that.



I can't give you any updated wind speed data as well, since that comes from the Hawkeye SCADA system.

No changes on the Hawkeye dashboard. Most of the time, we are maintaining good connectivity to the turbine, but we have lost the Hawkeye connection at the tower base. I am working with IT to get that resolved and we should be back online early next week and I can recover my data.

And as mentioned above, you can now see this link displayed on the main **Project Green** site. The display is just not working right now:

wind turbine live webcam and wind speed data.

2.4 kW Skystream Wind Turbine - Toledo Campus

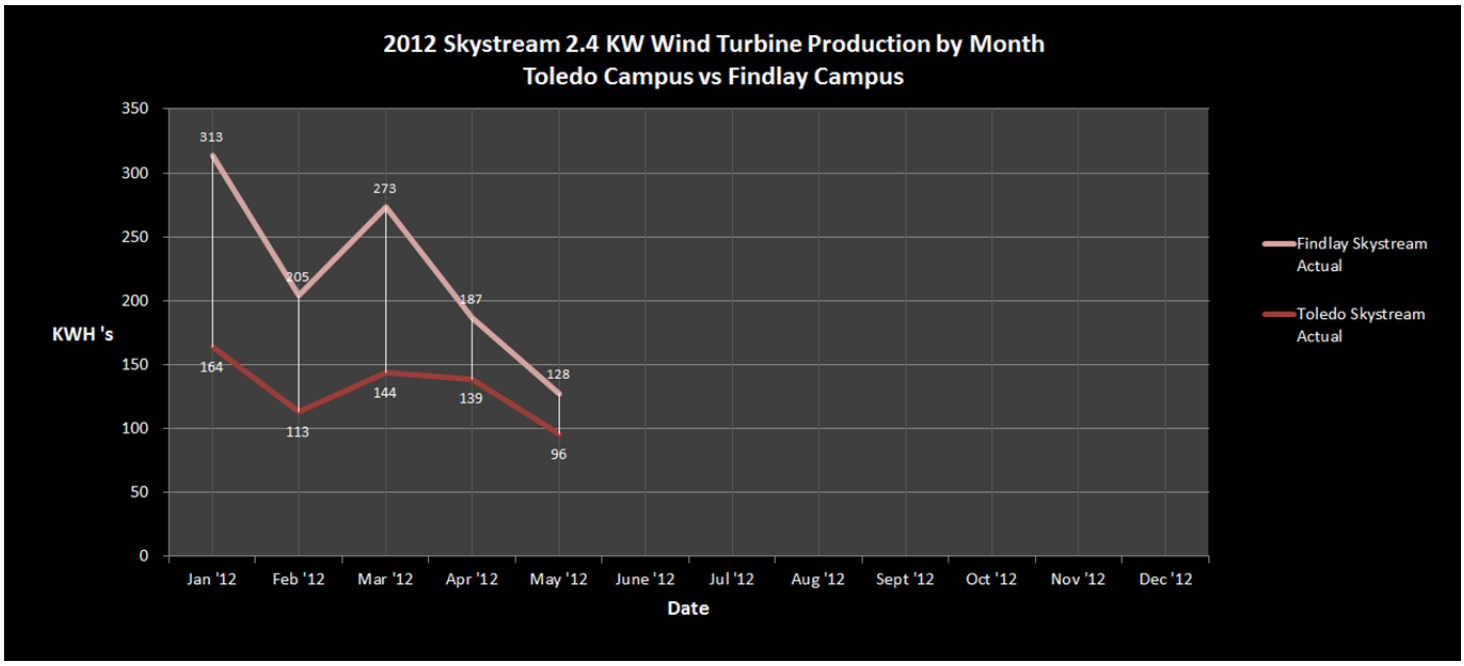
Turbine production was typical with **96 kWh's** in May, but was still beaten out by Findlay with **128 kWh's**, as the combined graph on the next page shows.

No change on a separate link to show more text and information on the smaller Skystream. Not getting much cooperation from the manufacturer.

I'll keep you posted.

2.4 kW Skystream Wind Turbine - Findlay Campus

As mentioned above, this turbine's production of **128 kWh's** in May, was more than Toledo's as shown on the next page, and that again is due to the better siting this turbine has in Findlay. You will see this consistent pattern throughout the coming year. Both are going down as we head into the doldrums of summer winds.



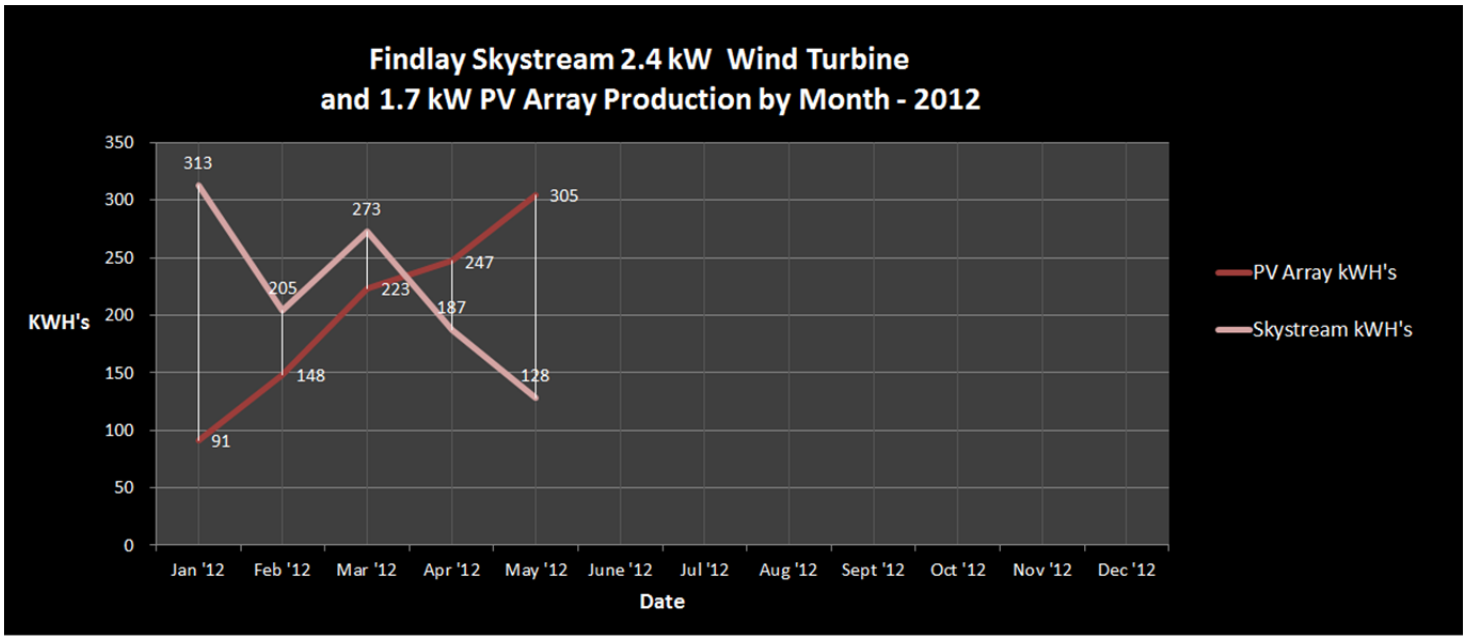
As we continue to mention above, we will have a live camera image of both the Findlay Skystream and PV array from a dome camera when the link gets set up with IT and Marketing. Hopefully, this will happen in the next month, now that summer is here.

Please continue to be patient.

1.7 kW Photovoltaic Solar Array - Findlay Campus

As usual, the array continues to perform very well, and as predicted, the downward slope of the Skystream wind turbine graph below started in February, but bumped up in March, and the PV array has also started upward. They again crossed sometime in April, just as they did last year, because we're now starting to hit the higher PV summer month's production, coupled with lower wind production.

The array produced **305 kWh's** in May, a very good output! The graph is diverging very abruptly as the PV's production significantly overtakes the turbine's.



We now have a public URL available to see the real-time production data from each panel in the array. It's pretty impressive! With the advent of the new Owen's **Project Green** link as mentioned above, you can now see this link displayed on the main Project Green site.

Check on this link there:

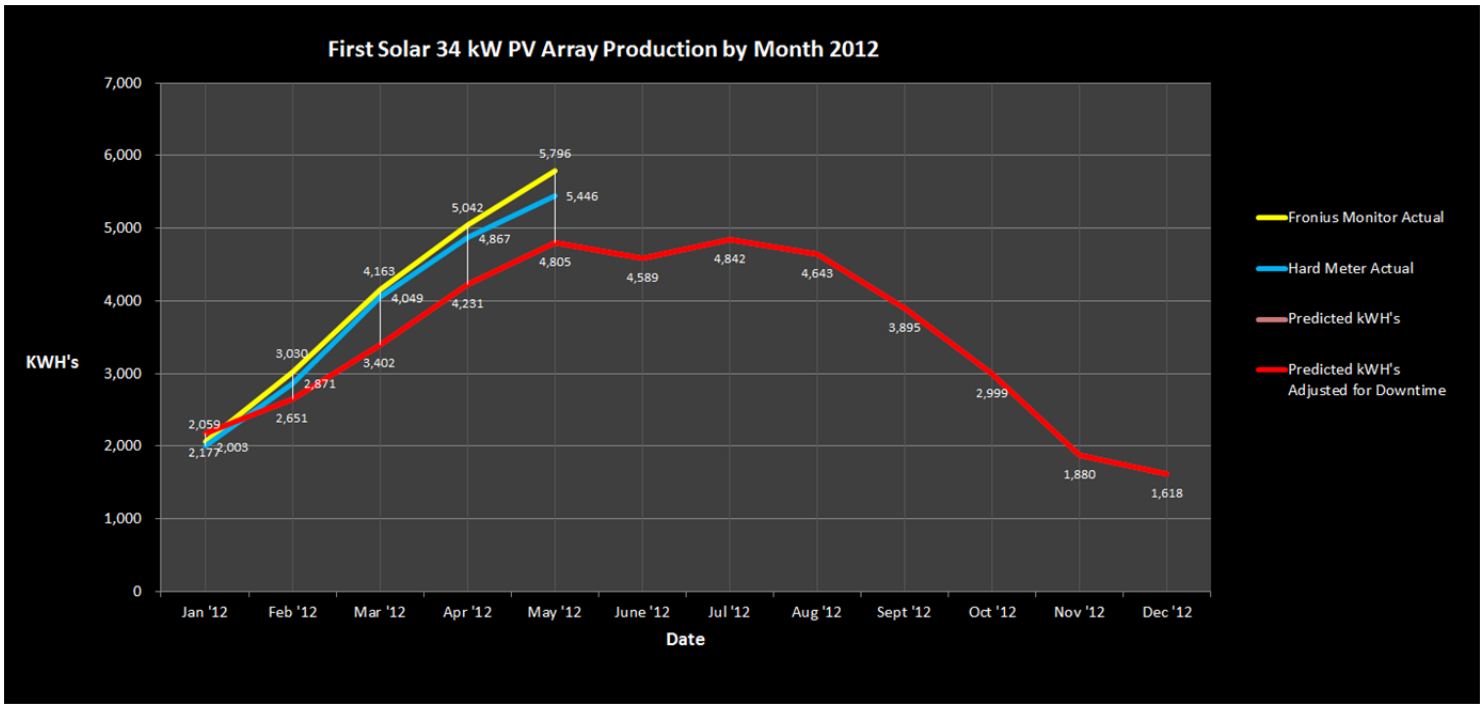
PV array energy data report.

34 kW Photovoltaic Solar Array - Toledo Campus

The graph below is just amazing! The array contintues to produce more than expected each month! In this month's case:

Predicted kWh production for April was **4,805 kWh's**. Actual productrion was **5,796 kWh's, a 21% increase!**

The graph below is very clear **(Examine the yellow line)**: *It should continue above the red line all summer long!*



Thankfully, we've had a lot of sun in recent weeks and that's made a considerable difference in production!

Hopefully, very soon, you'll be able to see a real-time readout of the production data as soon as the internet monitoring system is fully configured and a link established on the **Project Green** site.

We will also be having a live camera view along with the internet monitoring system. We still have some camera issues to work out, but hopefully within this month, perhaps we can get all this done. I'm still optimistic.

Until we can get an image to the web, here is a live camera view link (from the old camera) to both the existing small PV array in the turnaround area of ET as well as the large array area pictured above: (the focus is as good as it can be for now.)

https://www.owens.edu/green/toledo-pv_array.html

Note:
As I mentioned in the last report, very soon now, I hope to have contributions of both wind and solar systems to the ET building's electrical load. Now that the semester's over, I have some breathing room! Other more immediate priorities are being taken care of, as requested and I really should have these updated in a month.

Should be quite interesting for sure!

(At the same time, I'm trying to finish my own home, Solterrra. . . . it's a big challenge)
(A contractor's home is never done. . .)

1.06 kW Photovoltaic Solar Array - Toledo Campus

This is the small array in the turnaround area at ET and is generating just fine.

No changes here. (The new dome camera will show this array as well as the new 34 kW PV array.) As mentioned, as soon as we can get an image from the new camera into a link, we will provide it.

Hopefully soon we can get these links working, now that summer is here.

Solar Thermal Panel System - Toledo Campus

Not sure if the small additional work was done in the circulating loop from the solar storage tank to the large 80 gallon hot water tank on the mezzanine floor. Jim Mahaney and John Potts (our new Facilities Manager) are working with Joe Peschel to make that happen. I will check with them again.

The single Heliotrope solar thermal panel should be providing hot water for the Engineering building's bathrooms. The 4 ft x 6 ft panel is mounted on a slab just outside the atrium and office area and can easily be seen from the atrium. Antifreeze is circulated through the panel to collect the sun's rays and then this heat is transferred to a storage tank in the utility room. The future plan is to add panels from different manufacturers and see how production changes. December and January are the worst months for solar insolation, but even some thermal energy is collected on cloudy days.

All the above will be used for training purposes by students in the **Alternate Energy and Sustainable Systems technology**, a new two-year program under Design Technologies. Once all systems are running, Owens will have the most diverse and high-tech technologies of any school in the state. As always, stay tuned for more developments!

Any questions, comments, or clarifications, call or email.

Thanks,

Ralph Semrock
Associate Professor,
Design Technologies
Owens Community College
PO Box 10,000, Oregon Rd.
Toledo, OH 43699
Office: 567-661-7463
Cell: 419-346-8930
ralph.semrock@owens.edu