June 16, 2011

Everyone,

New Alternative Energy and Sustainable Systems Technology Degree

Enrollment continues to grow in this new curriculum, as previously mentioned.

Construction of trainers is on schedule and we are currently waiting for the first shipment of trainers to be delivered by month's end. Some may or may NOT be here for our School of Technology Open House on June 21st. It would then be a bonus to show any prospective students the equipment they'll be working on, along with the real world 50 kW turbine and 34 kW solar PV array.

Equipment has been ordered for both Toledo and Findlay campuses, and this new degree will be one of the areas Marketing will focus on through the late spring and summer with billboards, radio commercials, TV spots and in print! That is very much appreciated!

We hope to have completely full classes by the time school starts in August. ET-102 has been designated as the "Green room" where all AE classes and labs will be taught.

More news later as it develops.

Main Green Link on Owens Website

A few changes here (check the last paragraph in this section).

We are continually making small changes and re-arranging items as new information is assembled.

Soon we will have 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.

Due to IT having an immense amount of work on the Data Center and the campuse's IT infrastructure, those new links above will have to take a back seat for a short time. Perfectly understandable. I'll keep you all posted as they develop in the future.

Again, from the Owens home page, click on the large array picture that periodically cycles through at the top of the page. From there, you'll be taken to the **Project Green** home page.

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

We had some aerial photos taken by a company called Blimpshooter.com who used a helium balloon and a remotely controlled camera to take high pictures from around 4-500 feet. Mr John Hrosko took shots of the 34 kW PV array as well as the large 50 kW turbine! You might have spotted the balloon if you looked outside that day.

I met him Monday of this week and the few shots on the next page show you how he accomplished his task: Our marketing department might want to look at what he ended up with? Could be very useful!

Electrical Energy Usage on Campus

I will do another series of graphs at the end of the 2nd quarter of 2011. It will be quite interesting to see how the usage patterns develop! Stay tuned until then.

ODOD News

No changes here. As I mentioned a few weeks back, initially the ODOD thought that the Advanced Energy Fund grants for all Ohioans would be halted with the new Governor's proposals, but I spoke with a David Meadows, an energy program developer at the ODOD who processes these grants.

He mentioned that even though the rider of the legislation that established these grants expired Dec 2010, there is still about $8 million in the fund each year for the next two years. So. . . grants WILL continue to be offered to all Ohioans for the next two years and he added that legislation was being introduced to extend the fund at the end of those two years. The grant processors will also ***not*** be moving to the private sector.

It's interesting to note that this **$8 million** comes about each year from all of us in the state paying just **$.09/month** on our electric bills to the utilities in the state, and the utilities in turn pay this into the Advanced Energy Fund. So no tax dollars are used.

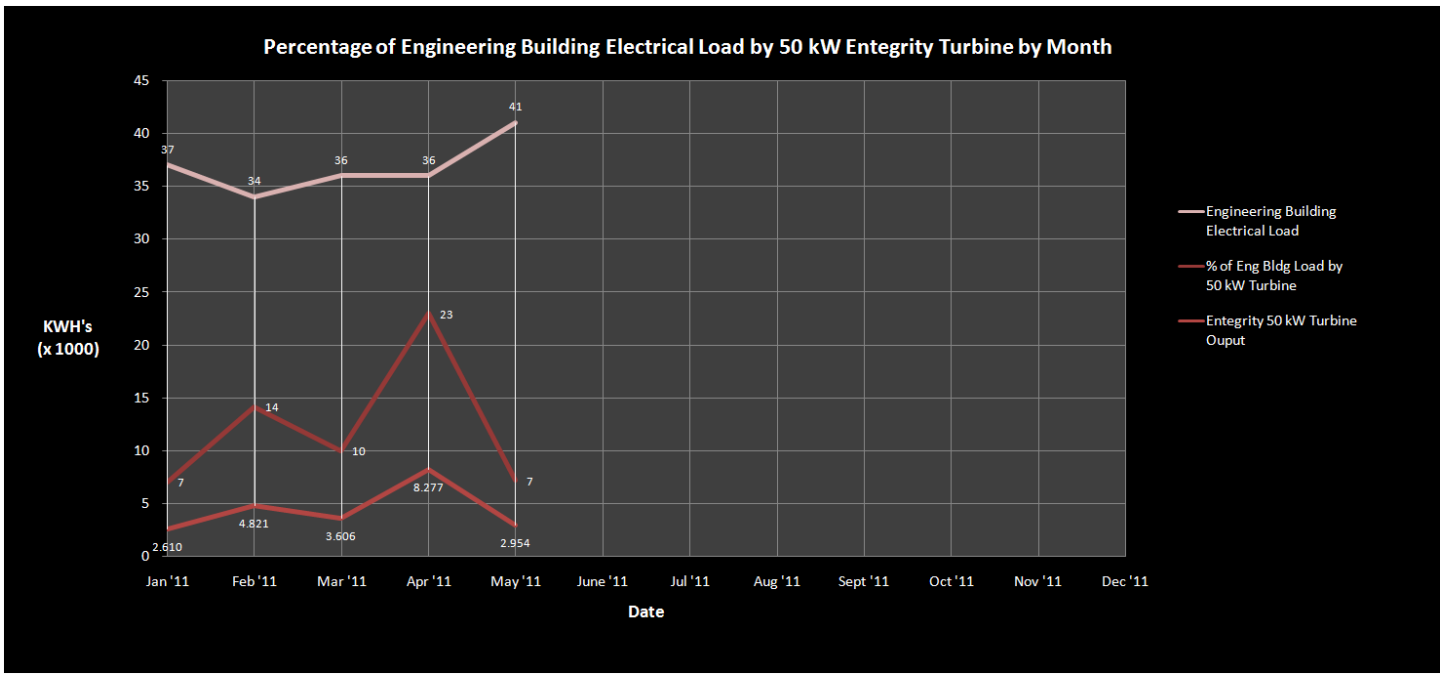
Imagine how much more this fund could grow if we paid. . . say, just $.50/month on our bills?

Something to think about . . .

50 kW Entegrity Wind Turbine - Toledo Campus

The turbine continues to function well.

The graph below shows the contribution of the turbine to the ET building's electrical load. Last month in April, the turbine alone contributed **23%**! In May it dropped considerably to just **7%**. When combined with the output of the 34 kW PV array later in this report, the total contribution goes considerably higher!



Our Hawkeye dashboard issues, currently, are up and down because of all the IT work that's been going on. Most of the time, we are maintaining good connectivity to the turbine and with the data reporting system. So the dashboard of real-time data continues to be up and running now, but there may be glitches from time to time.

And as mentioned above, you can now see this link displayed on the main **Project Green** site.

wind turbine live webcam and wind speed data.

2.4 kW Skystream Wind Turbine - Toledo Campus

No changes here. The turbine continues to function well. You can see this turbine in the foreground of the above live camera view of the large 50 kW turbine.

We hope to have a separate link to show more text and information on the smaller Skystream.

2.4 kW Skystream Wind Turbine - Findlay Campus

No changes here. This turbine also continues to function well.

As mentioned earlier above, we will have a live camera image of both the Findlay Skystream and PV array from a dome camera when the workload of IT lightens up. The priority to get this done has to take a back seat, however, to all the current IT work that is being accomplished.

We are working with IT, T & C Communications, and the green link committee to get this information ported to the web and accessible as soon as we can.

Please be patient.

1.7 kW Photovoltaic Solar Array - Findlay Campus

No changes here. The array continues to perform well.

As I mentioned last month, we should start to see a reversal of the two technologies in the next 2-3 months as the winds die down for summer and the solar radiation picks up.

The same dome camera mentioned above also shows this array in the same view. The link below will be on the page when it's done, once the Panasonic issues are resolved.

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.

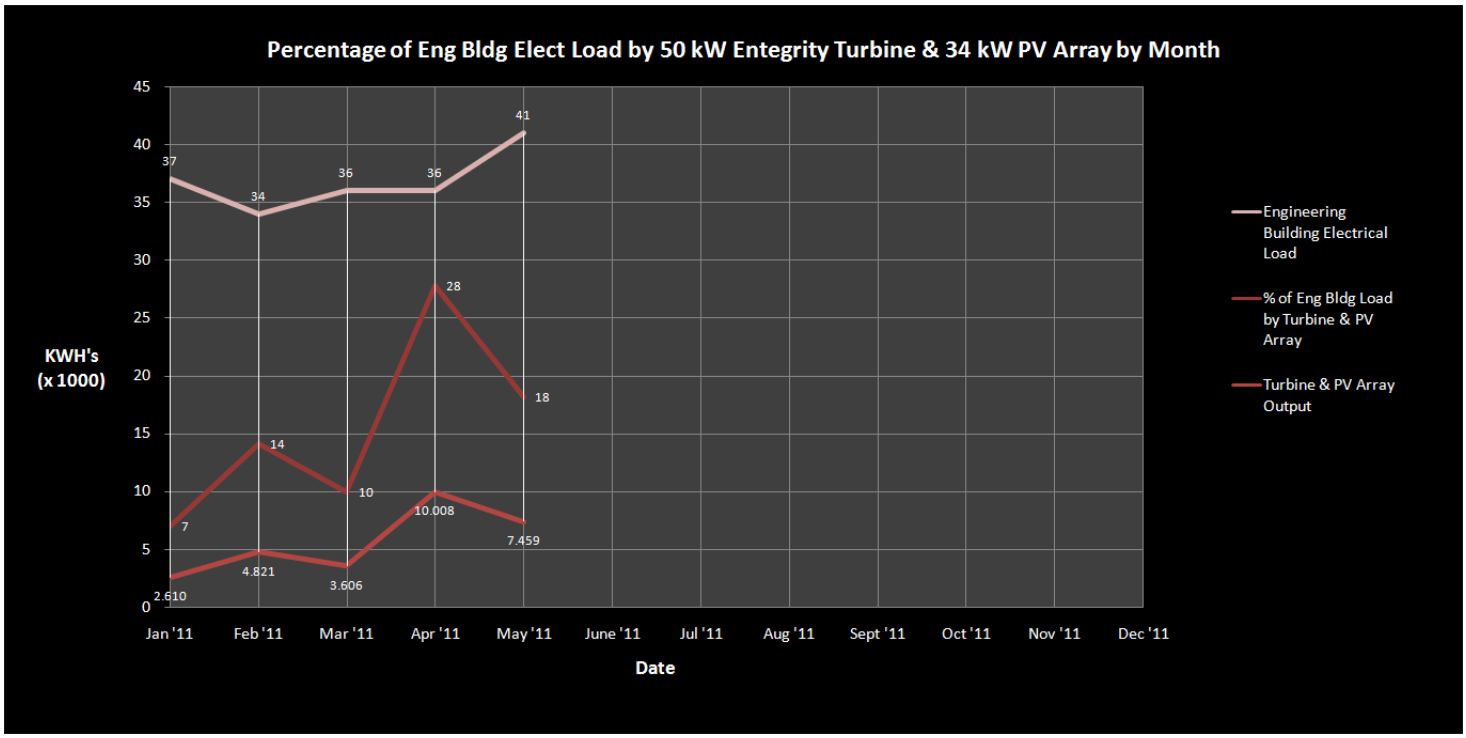
Check on this link there:

PV array energy data report.

34 kW Photovoltaic Solar Array - Toledo Campus

The array is functioning wonderfully well and we continue to feed power to the ET building.

See the graph below that shows the contribution of BOTH the 50 kW turbine AND the 34 kW PV array to the ET building's electrical load: A very substantial contribution of both in April shows a whopping **28%** of the electrical load! And in May, again a very sizable **18%** contribution! It's interesting to compare the two graphs of just the turbine above and and both turbine and PV array.



What's really exciting is that the energy-saving work in ET is still not completed yet! I'm optimistic that the contribution could reach perhaps 40% once the building's full control is implemented.

Starting next month (hopefully), 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. Again, that has to take a lower priority with all the work IT has to do. I'll keep you posted.

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 a month, perhaps we can get all this done. I'm 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

1.06 kW Photovoltaic Solar Array - Toledo Campus

No word yet on whether the state electrical inspector gave us final approval. Waiting to receive word from Jim Mahaney, who is super busy right now.

I did, however, connect the array to feed power to the ET building to *protect the array panels*, since they have been offline for over 3 months now, and we don't want to suffer damage to the panels.

Once the inspection's done (with explanation as to why they're connected), then the FE interconnection agreement can be sent to them for approval.

(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.

Solar Thermal Panel System - Toledo Campus

Also still awaiting a report from the professional plumber who is to examine our plumbing system in ET. Jim Mahaney is also overseeing that. The issue is that we have no hot water in a timely fashion in the entire building. The flow controls put on all the lavatory sinks do slow the delivery somewhat, but the problem seems deeper than that.

The single Heliotrope solar thermal panel continues to provide 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, and by Workforce and Community Training. 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,

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