K-12 Wind Schools—Installation Process

The Illinois Clean Energy Community Foundation's (ICECF) K-12 Wind Schools Grant Program is based on the success of the Solar Schools program. Although there are not many Wind Schools with completed installations, potential applicants and current grantees have a number of schools across Illinois to visit, to call, and to ask for guidance.

This document is an overview of the installation phase of the project, but talking to your counterparts in schools with existing installations is going to be helpful as well.

Preparation: Phase One

Selecting a location is a critical first step in moving forward with your project. Although you may have an idea of where you want your turbine installed, a final decision is usually made with the help of your Wind Site Assessment and an installer. To pick a location, you need to look at the factors that will help determine the suitability of the site. It's a good idea to first consider different locations without an installer. Once you determine a few possibilities, review your options with a professional. Here are some basic factors:

- *Wind Conditions:* Your Site Assessment will help identify a few options.
  - *Trees and Buildings.* The further away you place your wind turbine, the less turbulence there will be in the wind, which leads to more consistent wind and better overall performance.
  - *Wind Speed.* The higher off the ground you are, the stronger the wind will be. This is a very important consideration when selecting a tower for your turbine. You may also use this information to guide your turbine choices (some perform better at different wind speeds).
- *Consider your local zoning requirements.* There may be local restrictions on how tall your tower can be, and where it can be located on your property. These issues may limit how many suitable locations will ultimately be available. Speak with your town or county zoning board to understand what you need to do.
- *Consider your neighbors.* It is likely that some neighbors may be hesitant to have a wind turbine near their home. It is important to work with nearby residents to help them understand what the technology is about, and what it means for students and the community.
- *Consider your electrical connection.* Figure out the distance between your wind turbine and the closest electrical connection. Most buildings have a place at which it will be possible for your installer to connect the turbine to your grid power. A longer connection will cost extra for wires and may cause a drop in power as it flows the extra distance from the turbine to the electrical connection point. Of course, the further away the turbine is from any trees and buildings, the better the wind conditions.
- *Could there be vandalism?* Vandalism is not a major problem, but is something you may want to consider when selecting a location. Monopole towers are difficult to climb, and it is unlikely that the turbine will be damaged.

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- ***A mock up is a great tool.*** You can add a turbine onto an existing site photo. Some installers can also do this for you. This is a good way to help people visualize how the installation might look. At elementary schools, teachers may be able to do this. At high schools and junior high/middle schools, there will probably be students who can do it.
- ***Teacher training.*** You should check www.IllinoisWindSchools.org and www.need.org for upcoming teacher training workshops and send as many teachers as you can. These are invaluable for students as well as teachers. You learn a lot about solar and wind energy technology, and also get material to take back to your classroom.

Preparation: Phase Two

Most schools talk to more than one prospective installer, but there are some things that you can do ahead of time to make this process more useful:

- ***Determine a few potential locations (see Phase One).*** Your location may determine the type of installation you want. Preparing for your meeting with an installer by understanding the locations you plan to choose can save time and help everyone make a good decision.
- ***See what other schools have done.*** Look at the pictures of the various school installations that have been completed on the www.IllinoisWindSchools.org website. By taking a quick glance at every picture, you can better understand the wide variety of installations available.   Consider visiting schools to see installations in person.
- ***Get advice from other schools.*** Call at least one school from the web site and ask them about the installation, their installer, their experiences, and any advice they might have for you. Typically it is best to make this a peer exchange. So if you are a principal, call the principal. If you are a teacher, ask for the teacher involved with the wind project. If you are in facilities, then ask to talk to someone in facilities.
- ***Get your IT person involved as early as you can.*** Ideally, you would have your IT person talk to an IT person at another school with an existing system and meet at least one installer to go over the IT part of the project. A mandatory part of the installation is that data be available on the www.IllinoisWindSchools.org website. Data is going to be streaming through your internet service and your IT person will need to make sure that part of the project works.

Teachers + Principals + Facilities + IT: For the initial meetings with the installers, it is best to have as many people attend as you can arrange. Teachers need to be involved from the first moment the project comes up because in the end it is an educational project. Principals have paperwork to sign, district procedures to address, and a long list of other tasks such as raising money and writing checks. The facilities staff should always attend meetings with prospective installers to address technical issues, and provide access to important parts of the building. Members of the IT staff should also be included for at least one visit (see above).

How many installers do you meet with? There is no easy answer to this question because every school district—public or private—has different rules. If you are experienced with wind electricity, you will have a better idea of what you will want. If you have zero experience with wind electricity, you should take more time and talk to more installers and call and visit other existing wind schools to gain more insight into the process.

Installer Selection

Schools can hire any installer they want so long as their district guidelines are met. Every school will have its own procedures for making selections of contractors. Here are some things to remember:

1. ***How many other wind installations has this installer completed?***
2. ***Is there a prevailing rate of wage issue?*** If you have to comply with a prevailing rate of wages requirement, ask any installer you talk to how that will be handled.
3. ***Check installer references.*** Since it is unlikely that any school would select an installer who had not completed at least one other wind school installation, what do the schools who have used the installer in the past say about him or her?
4. ***Online Data.*** At the other wind school installations that this installer has completed, is the data up and on line? If not, it may be due to the school's IT system, but it may also be due to the installer. If you do not see the data, you should call and find out the cause.
5. ***Prices.*** The grant is a reimbursement, so you must pay the contractor before you get the ICECF funds (unless the contractor has agreed otherwise). The grant is for 90% of the cost of the system, up to $40,000. Make sure you can afford the installation and also understand how much you will have to pay the installer to get started and what kind of payment schedule you will be on. Also, read your grant agreement from ICECF to make sure you understand what you need to do in order to receive your payment. Live online data is one of a few important components required to receive your grant. Be careful of hiring an installer purely on cost. You may not get all the required components.
6. ***Read your contract.*** Ask for and insist upon getting a written proposal that you can review on your own schedule. You have plenty of time to hire a contractor. If you like everything about the installer, then ask for a copy of the agreement or whatever document you will be signing and pass it around to others involved with the project, the teachers, the IT person, and maybe even the lawyer for your district or school. You are going to be obligated to make payments for equipment and services and you need to know what you will be paying for and how much it will cost you. You also need to know about the warranties. Turbines have a warranty, inverters have another, and the rest of the pieces may have another. Data collection systems come with their own warranties. Be sure to organize this information for yourself. References will be the best judge of an installer's quality of service and warranties.
    a. Who will you call if there is a problem?
    b. Will the installer clean up after they are done?
    These questions are better to get answers for ahead of time. You can also put the conditions that are important to you in the agreement.
7. ***Warranty.*** What if your system stops working in one month? Do you have to pay for a service call? What are the steps involved for contacting the installer? This information is going to be in your agreement with your installer, but you need to understand these terms.
8. ***Interconnection.*** Finally, will your installer help you with an interconnection agreement with your electricity provider (example: ComEd or Ameren)? If not, you will be responsible for getting the interconnection form and filing it yourself. Remember that you do not get your grant funds until your data is on line and the system is operating.

The Installation

The installation can take one long day or parts of two or three days depending on the type. Generally, it is not time consuming if your installer knows what they are doing.

In this grant program, ICECF requires the turbine to be visible from school grounds in order to enhance the educational value of the technology, and encourage regular maintenance by staff.

There will be an inverter. There is wiring from the inverter to the electrical connection inside the school. There is a data collection system and that has to be connected to the school's internet (remember to include your IT department). When the installation is complete and the data is flowing through your school's internet, you should be able to see your wind electricity generation on line.

What if you need an extension?

Each grant comes with an expiration date. You are given a year to complete your installation, but there are situations that may cause you to need additional time. If you are going to run out of time--do not wait until your grant has expired. Send in an extension request at least thirty (30) days prior to the expiration of your grant. Make sure your letter includes:
   a) a summary of what you have accomplished on your wind project to date,
   b) a workplan and timeline for the installation of your wind turbine,
   c) the reason(s) for needing an extension,
   d) the date to which you wish to extend your grant.

The Foundation will review your request and determine if the extension will be granted.

After the Installation

1. Grant funds are paid by ICECF only when a project is completed and operating. Review your grant agreement to make sure you meet all the requirements, especially those in the Reporting Requirements section. Your ICECF online account will allow you to upload a Final Report Form, as well as the other items below that are part of the Final Report. Please upload these to your account.
   a) Final Report Form,
   b) copies of any invoice(s)/proof of payment for the installation of the wind turbine,
   c) photos of the completed installation, Wind Celebration, etc., and
   d) copies of lesson plans and other educational materials being used in the school to teach about wind energy.
2. Two possible hold ups on the release of grant funds.
      a. Your funding request submission is incomplete.
      b. Your data must be online and publicly accessible at www.illinoiswindschools.org.
3. You email us a picture that you want on your school web page on the Illinois Solar and Wind Schools web site. Email a picture to Glen@LearnEnergy.org
4. If you have questions:
      a. About the grant: GMartin@IllinoisCleanEnergy.org
      b. About anything else: Glen@LearnEnergy.org