C-BED is an acronym for Community Based Energy Development. Most of us would not be here if C-BED legislation weren’t passed in 2005. For me C-BED is two things; 1. Energy legislation that encourages utilities doing business in the State to work with Minnesota residents and businesses organized in the State to facilitate locally owned wind projects, and; 2. A consortium of people with a broad based background developing locally owned wind projects, some of those may be located right here in your community. You should know that there are many involved with C-BED legislation to refine it and to, hopefully, make it better for locally owned wind projects. It is an ongoing thing, there is a lot of special interest big corporations that are vying to get a piece of CBED, perverting, in my opinion the definition of CBED, and the C-BED Initiative would appreciate your help if your interest is in community wind.

There are several ways in which to structure your project, my discussion here is based on the option of going down your own road without a finance partner with turbines. I think the information here is pertinent regardless of what your development strategy is. There is a lot of talent in MN that can help you develop that strategy.

All wind projects are replicable, there is very little “secret” information relative to the amount of information it takes to finance your project, but all information from your project should be treated with confidentiality. That means confidentiality agreements or non disclosure agreements need to be in place prior to your sharing information with those outside your group.

All wind projects take a lot of work to implement. For finance purposes you have to fully bake your project and I have included a very brief overview/outline which I think are important permitting aspects and I will talk about some of this over the next ½ hour. It is a waste of your time and money to try to short cut the process. We are generally talking about 10’s of millions of investment dollars, for example; a 20 MW project will cost approximately 38 million dollars to construct in 2008, most of these dollars usually are coming in to your project from outside sources. These sources thoroughly scrutinize your project to enable them to make a smart choice as to whether your project would be a worthwhile investment. I think it is important for prospective developers to consider first and foremost the financing aspects, keeping due diligence and fatal flaw analysis in mind always while designing your project.

I think it is worth mentioning here that prospective wind project owners obviously have to work within the group to make things happen in a timely manner. By that I am referring to the local owner group. Too often I have seen projects lose out on opportunity because the decision making process takes too long. Too many people making the decision and nothing ends up happening. For the most part, some of these people probably should not be trying to make decisions on their own. Try to avoid this if you can.

All projects have to be permitted, big or small, Local or State. I have spoken with many people regarding the permitting process and some have indicated a willingness to permit projects as cheaply and easily as possible. This usually means going through the “local” process, ie; County C.U.P. or other which generally is not as thorough as the State permitting process because generally Local governments are not very knowledgeable with wind. In my opinion it would be a mistake to go through the local process, depending upon the size of your project, especially if you consider that your whole financing depends upon the building permit being in place, along with all the environmental feedback that comes with the process. The State process is the final say. Period. Start early in acquiring the information for your project and pull it together. You will
want the answers and the ability to communicate confidently when the finance people ask. Thoroughly kick the tires on your project.

The County process generally does not include an “environmental worksheet”. This is an important distinction from the State process and probably the biggest concern that finance entities may have with going through the local process. The reason is; at the 11th hour a disgruntled neighbor could file a complaint and make the project go through an environmental assessment consequently forcing the project to reschedule (if you even get that far on your financing).

We have learned that successful completion of a wind project depends on a careful judgment concerning a variety of factors that relate to the capacity of a community to develop a project. Assuming you have the land the most important of these factors include; a developable wind resource, transmission/distribution lines located near by, the ability to interconnect in the period you target, an interested utility, committed and knowledgeable project leadership, provision of information through the open meeting process and identifying the structure and your financial resources. In this respect, there is no substitute for an intimate knowledge of local community conditions, and that has to come from the community, combined with and in depth knowledge of development potential.

A significant challenge comes in working with utilities and interested communities that are willing to work with local developers in developing C-BED wind projects. In the case of utilities it may be that the process takes so long, for many reasons, and, also there currently seems to be a shift towards utility ownership. In the case of communities, some of the challenges to implement a wind project may be because of NIMBY or other local opposition. Up front, early and open dialogue sharing good project information with the community is critical for the implementation of wind.

Most projects will take several years to get the wind resource verified, completion of engineering, a pro forma constructed, power purchase agreement signed, the interconnection studies completed, interconnection agreements signed, turbine supply commitments, construction contracts and permits approved. It will take huge cooperation from everyone involved, the utility, the turbine manufacturer, Federal/State and Local government, and especially the community to make a wind project successful. Above all you will need to be patient and flexible, because how you see your project today may not be what you end up with, necessarily, 3 to 5 years from now.

Some of the issues you will be dealing with as developers or owners of projects will be;

Land leases need to be compliant with Minnesota law and fair compensation needs to be offered. Some things that you may want to consider are:

1. lease periods with extension options included.
2. lease payments and royalty payments
3. decommissioning
4. assignment
5. make sure you have the legal description of the land and the owner correct
6. legal representation that does not argue too much with you. The leases should be reviewed by legal counsel familiar with wind.

Wind resource assessments. This is one of the most important aspects of your project, start early. It’s okay to use the DoC’s wind map that was generated by WindLogics giving capacity factors of turbines at 80 meters or annual average wind speeds at those levels. You could get a very general idea of whether your area may have a wind resource worth developing. Work with the State’s DoC to determine if a finer resolution for your area is available which you could use to identify potential pieces of property that may work better than others. Generally speaking you should be identifying high topographical areas relatively close to the interconnect point you want to tie in
to. Once you have identified a suitable location, secure the land and place a met tower, immediately, with instrumentation to monitor the winds. Ideally 1 – 2 years of wind data from your site will be needed, longer is better, assuming there is no data close by your site, don’t short cut. I strongly urge you, regardless of whether there is wind data nearby to install the met tower. You HAVE TO KNOW the wind resource on your property to determine the turbine that is suitable for you resource. Very important. Some turbines do well in 7.5 m/s wind speed averages and some don’t.

**Turbine choice.** Briefly, go with a turbine manufacturer that has an established track record and has a model available that works for your wind resource. In order to finance you generally will need a strong balance sheet from the manufacturer, a good maintenance plan and an established track record. Once you have chosen the appropriate turbine you will need to negotiate several agreements some of which include:

1. Turbine Supply - Pricing/Turbine Down Payments and Milestones
2. Maintenance and Support
3. Availability and Warranty
4. Spare Parts/Inventory
5. Cost of Parts
6. You may want to have the manufacturer include a euro hedge if you are purchasing turbines in euro.

The document is thick and obviously there are many things in a TSA, but it needs to be a finance able document and it is paramount to get good representation, just as important as the PPA, the Interconnection Agreement and other contracts since it is a long-term relationship with the manufacturer these documents are setting up.

**Micro Wave Beam Path Study.** These types of studies are important to determine where your turbines are placed on site so as not to impede micro wave signals. Since it costs so much to install a turbine, foundation, roads, electrical, crane and associated labor, to spend the little amount of money it takes to do this study is good insurance to make sure that your turbines are not in the wrong place. This will be required from most finance entities for financing purposes.

**Transmission and MISO.** Most projects will be interconnecting to a MISO utility, in this area the following utilities are MISO members:

1. Xcel Energy
2. Otter Tail Power
3. Great River Energy
4. there are others.

Get in to the MISO queue as soon as you can. The application is a $10,000.00 fee for projects over 20 MW’s. Once MISO evaluates your application they will schedule a conference call to scope your project. The call will include your project representative, MISO engineering representation and utilities that your project may affect. Within approximately 3 weeks of that scoping call you will get a contract for a System Impact Study (assuming you waive the Feasibility Study) from MISO that you will have to sign and send back to MISO along with a $50,000.00 fee.

As of today, your project will go into a Group Study, the last I heard; they were in to Group 11 which is scheduled to be studied in 2011. This timing may change over the next year or two because MISO has been receiving a lot of flak from regulators and developers regarding how long the process takes.

Once your project has completed the System Impact Study there will be another conference call to discuss the outcome of the SIS, probably a series of conference calls, and then you will be
given the option to move to the next phase of the interconnection process; The Facility Study. This study, as of now, costs $100,000.00 and should be complete within 6 – 8 months. The purpose of this study is to ascertain what the costs will be to connect your project to the grid. This will include any reconductoring, breakers, capacitor banks, whatever it takes to minimize the impact of your project’s interconnection with the intent on maintaining system reliability.

If you are connecting to a MISO line this is generally the process. When presented a study contract you always obviously have the option to opt out consequently ending your project.

**Pro Forma.** In order to construct a pro forma you have to gather your construction costs and do your engineering for your project. Some turbine manufacturers include in their TSA the cost of the crane, installation, etc. Some do not. You will have to couple your construction costs to your wind resource assessment and turbine’s power curve, maintenance and operations costs, property taxes, insurance, to ascertain what the “all in” overall cost will be for your project’s construction and year to year operating costs for the life of the PPA you will propose. Once you have these costs, along with the production estimates from your turbine, you can construct the project pro forma in order to develop a pricing proposal to a utility. I think it is important to point out that C-BED projects are front loaded and on the back end you have to be realistic about the cost of parts and labor with profit as it relates to operations and maintenance. There is a lot of people in the industry that feel C-BED projects are not being realistic in terms of long term operating costs. Be realistic and work with the manufacturer and when you hear their optimism be skeptical. The average gear box life is currently in the 3 to 5 year range, not to mention main bearings, generator bearings and other equipment that will fail.

Currently, construction costs for 2008 projects are in the 1,850/kW to 2,200/kW installed, it may be higher depending upon whether or not you need a low wind turbine on a 100 meter tower. It may also very much depend on the size of the project and whether or not you have the ability to aggregate with another project or with several other projects.

Your pro forma should include line items for all costs including caps on interconnection costs and caps on facility upgrades. You will not know these costs until the Facility Study is completed so it is impossible for you to determine what your all in capital costs will be and you may already have a PPA with a utility without having considered these costs which currently are the responsibility of the project.

Also, for negotiating purposes with finance, you may want to include a section in your pro forma to have an idea of what the return expectations may be for those investing in your project. This will give you an idea of whether or not you project is finance able the way you are presenting it in terms of pricing to the utility. You need to be realistic.

This may get dicey because there are so many ways to structure financing and ownership, but you have to have a pretty good handle on this in order for you not to be taken advantage of. Regarding IRR’s a pretty good rule of thumb is for unlevered return expectations to be in the 6 – 7 % after tax range. This may change but it is the current marker in the financial community. If you are representing your project it will be critical to know what return expectations are from finance sources and what your options may be in regards to structure and ownership. Pick a structure but model your pro forma with the unlevered return expectation and you should be able to realistically assess your project’s feasibility.

This is one of those aspects of your project which are and should be secretive. Don’t share any information on your project without a confidentiality agreement or a non disclosure.

**Second opinion verification of the wind resource.** No matter what, you will have to have a second opinion concerning your wind resource and turbine performance from an engineering firm that specializes in these studies that is acceptable to your financing partner. It is not enough to do a WindLogics study you will have to have met data for you project. This is usually generated
from an on site met tower. As of today I know of no turbine deals that have been financed purely on WindLogics point or EMC-P studies and I do not believe that they have any positive influence from a finance perspective when you talk to finance sources. You can finance on met data but you cannot finance on point study data.

**Power Purchase Agreement.** Most PPA’s from utility to utility are somewhat standard. The CBED Initiative is working on a full blown standardized contract that would provide agreements which would enable CBED to aggregate PPA’s that could be done with several utilities for the purpose of easy finance. As of right now it is difficult to finance a single 20 or 25 MW project simply because they are too small. In being able to aggregate projects and standardizing the PPA’s from utility to utility C-BED hopes to be able to increase financing options for locally owned wind projects.

Other than the usual things that go into a PPA we mentioned above that pricing is critical and needs to be flexible. Make sure your PPA pricing is solid and based on manufacturer’s proposals “in hand”, engineering and construction costs.

Frequently, especially with Xcel Energy, the process takes such an inordinate amount of time that by the time you are ready to sign your deal the capital costs of the project have changed significantly and enough for your pricing to not be finance able. Some of the reasons may include;

1. Turbine costs have risen due to supply and demand, exchange rates have risen, the cost of steel, copper or plastic and oil have risen. These all have the potential to affect your pricing. Some of these issues may be come less pertinent as time goes on because many manufacturers are basing operations in the U.S. and you will be paying more and more in dollars. Also, if you have a proposal in hand, which you need to construct your pro forma, the only thing that should change is the exchange rate assuming you are paying in part by euro and possibly the cost to ship.
2. Your interconnection facility study is in and you find out that it will cost you 2 million dollars in interconnection costs and facility upgrades to interconnect your project.
3. Construction contractor-make sure the constructor can do the job at the pricing in your pro forma. Transformer prices change, anything with metal or plastic involved in the manufacturing process has the ability to affect the pricing for your project.

The point here is to base your project on real capital costs and try to consider contingencies. Capital costs may change especially due to exchange rates, interest rates, and interconnection costs, etc. then you need to be aware of this possibility and construct your PPA accordingly.

Your PPA needs to be predicated on capital costs and flexibility in this regard to not have to go back to the utility to try to renegotiate new pricing. Many times what happens is the utility is inflexible, regardless if it took them a year to approve your contract and do not want to renegotiate. Other times you are successful at renegotiating and your pricing changes again….it has been sometimes described like a dog chasing its tail. You just need to be smart about the PPA discussions…and support the CBED Initiative for standardized PPA’s.

**Permitting.** There are differing points of view relative to CBED permitting. Depending upon the size of the project you want to build you may or may not have to go through the State process, which I think the threshold is currently at 25 MW’s. Unless you are financing locally, in my opinion, it would be best to spend the money to permit through the State as it is the final say in whether or not you can construct your project, and it may be smart to permit through the State regardless of your financing.

The process is very thorough and allows for public participation and is handled almost entirely by the State. From a finance perspective, if you are financing through one of the big banks or the
investment entities they will probably want to see your permit process and what is involved. They will be evaluating their risk and whether at the 11th hour someone that does not want to see the project go will be able to file against it and make the project go through an even more rigorous permitting process. You want to be in control of the process and through the local process you have the least control.

Finance. There are many ways to finance and as many ways to structure. Be careful because they, the financing entities, want all the marbles. I hope those that want to do CBED do not approach this in a desperation mode willing to give the project away. Many people that are doing projects want so bad to do them that the deals they cut may not be the best they can do. There are many financing options out there; you just need to explore them.

Depending upon who you decide to get involved in financing your project you may have to give up significant residual ownership (after the flip) in order to finance, then again you may not. This is why it is paramount to explore your finance options or have representation from those that have some background in this. This is one of the most important areas in which to hire a developer that understands the various aspects it will take to finance your project.

I have seen residual ownership expectations/proposals from finance entities anywhere from 5 % to 75 %. It is ultimately up to the local owners that are in control early on to decide what they will tolerate in this regard. Where that residual ownership share is for the community will depend upon how much risk the local owners are willing to accept and what “all” you bring to the table. For example; is your project fully baked, are you bringing turbines to the table, how much capital are you bringing into the deal? All these issues bring value to your project and more economic benefit back to the community.

Keep in mind that often much of the dollars and many times the turbines are coming in from outside sources. In order to keep as much economic value for your project you may have to consider raising some of the capital your selves. Some of these things may include turbine down payments, true equity and possibly construction loans. You have to secure your turbines and you should begin thinking about how you intend to structure your project and what you and the other local owner’s appetite for risk are immediately.

CBED projects in the past have been financed in total (99.99 %) by either Edison Mission or John Deere. Very easy process but I don’t know if they are still interested or doing CBED in MN any longer. I would suggest exploring your many options in this regard, but the turbine payments may be difficult. The more money you can raise for your project the more economic value and control you maintain and the more economic benefits that flow back into the community.

I believe in C-BED and know there is a smart way to increase economic benefits to Minnesota, to do this I have been willing to take more risk on for the projects I am involved with to increase those benefits.

My focus for the last several years has been on developing relationships with turbine suppliers, finance entities and legal representation and I truly approach this as a team effort. The future for C-BED, in my opinion, may be in the ability to aggregate projects and maximize benefits in Turbine Supply, Turbine and Infrastructure Inventories, Construction, Operations/Maintenance, Insurance and Financing and the ability to restructure and refinance 20 years from now. We as C-BED developers need to have an eye on long term and realistic expectations and worst case scenarios. Considerations for utility partnerships may need to be structured in order facilitate the processes needed to implement C-BED. C-BED needs to start thinking like corporate developers and corporate owners if we are going to construct projects that make sense. We need to work together to develop smart projects for the benefit of ratepayers, our communities and our State to realize the full, long-term economic benefits we can with locally owned wind projects.