

ASES SMALL WIND CERTIFICATION COUNCIL WEBINAR

July 13, 2010

Coordinator: Welcome and thank you for standing by. At this time all participants are in a listen only mode. During the question and answer session, please press star 1 on your touchtone phone.

Today's conference is being recorded. If you have any objections you may disconnect at this time. Now I will turn the meeting over to Miss Karin Sinclair. You may begin.

Karin Sinclair: Okay thank you. So I wanted to welcome everybody to the ASES Small Wind Division Webinar. My name's Karin Sinclair and I'm the Co-Chair of the ASES Small Wind Division.

Today's topic is the Small Wind Certification Council and our presenter is Larry Sherwood. So Larry's the President of Sherwood Associates which is a renewable energy consulting firm and he has nearly 30 years of experience in the renewable energy field.

He has a number of different responsibilities. He's the Project Administrator for the Solar America Board for Codes and Standards. He's also the author of the annual IREC which is Interstate Renewable Energy Council report entitled US Solar Market Trends. And he's the Editor of the IREC Small Wind Newsletter.

And today the hat he's going to wear is as the Executive Director of the Small Wind Certification Council. He's previously been the Executive Director of

ASES. He's a graduate of Dartmouth and he lives here in Boulder, Colorado in a PV powered home. So I'm going to turn this over to Larry.

Larry Sherwood: Good day everybody and thank you for joining us today. I have some slides that you'll see up on the screen. And as I go through the slides, I encourage you if you have sort of clarifying questions as we're going through the presentation to type them in the Q&A feature that's on the little toolbar at the top of your screen there.

And the questions that are clarifying in nature I'll answer during the presentation. And at the end of the presentation, we'll open the phone lines up and people can ask questions verbally or you can continue to use that question and that answer feature if you want.

So with that let's get started. The Small Wind Certification Council is a new non-profit certification body that's been created to serve the North American market. SWCC certifies that small wind turbines meet the requirements of a new AWEA Small Wind Standard. And we'll talk about how that certification works and what the standard is.

And the certification can be used as incentive eligibility. So for state incentives and possibly in the future for the Federal Tax Credit, this would be one way to qualify a turbine to receive those incentives.

The problem that we're facing in the market before certification is that the turbine specifications are not standardized. So what this means is that each manufacturer can choose how to list the rating of their turbine and there's no consistency from turbine to turbine even on what the criteria are for the performance ratings much less that they haven't been tested in a consistent way.

And what we find because of that is that agencies and utilities that are giving financial incentives want some way that gives more credibility to the performance numbers of the turbines. And likewise consumers need also the same kind of credibility and installers who often are picking the turbines to recommend to consumer. They want numbers that are comparable from turbine to turbine that they give them some confidence but also give confidence directly to the consumers.

And we did some surveys of turbine manufacturers leading up to the creation of the Small Wind Certification Council. And through that we discovered that less than half of the turbine models on the market had even been tested.

So, much less that they had been tested to any standards or any - by any third party organizations, but just that they hadn't even been tested, a lot of them, on the market. So you can see that there's a crying need for something to deal with these issues.

So certification is a way that allows consumers to compare different products and it allows the agencies that are granting incentives to have greater confidence of the performance as well as the safety and the durability of the turbines and that the turbines that they're giving incentives for have all been tested and evaluated to the same standards.

So all this leads to better credibility for the industry and better protection for the consumers. So the consumer would have some notion that a turbine that they go out and look at have some basic level of testing and scrutiny that it's gone through.

So before I get further into talking about the different programs, I wanted to just stop and say what a standard is, what certification is and what accreditation is because we're going to use those terms throughout the presentation.

A standard is a written document that says how a product or a person would be evaluated. So a standard typically in the wind world is done to give an indication of how to test different wind products.

There are different organizations that write standards. And standards are usually written in a consensus process that allows input from a wide variety of stakeholders in the product process.

So examples of organizations that write standards related to wind turbines would include the American Wind Energy Association which is the standard that SWCC uses, the International Electrotechnical Commission which is the body that writes international standards for wind turbines, The British Wind Energy Association has a national standard in Britain related to wind turbines, and Underwriters Laboratory writes standards that relate to safety of wind turbines.

Then there would be a body that would certify that the turbine meets the standard. And so there could be different organizations that could do certification. And you also could certify people.

And so NABCEP, the North American Board of Certified Energy Practitioners is an organization that certifies people. And they certify that they meet the requirements of a specific standard or other written and defined requirements.

And the third term is accreditation. And the different organizations that are involved in the certification and the standard writing process are accredited. And so they're accredited to do different functions that show that they have met certain requirements that are defined again in standards.

So the organizations that write standards are accredited. So AWEA is accredited to write standards and they meet certain requirements in order to have that accreditation.

Organizations that certify products are accredited to do that. Organizations that do testing can be accredited to do the testing. And organizations that do training or educational institutions, they also are accredited.

So standards, accreditation and certification we will talk about as we go forward.

So the certification that the Small Wind Certification Council provides is not the only certification that's out there. This little chart shows the different types of certification that are out there. If you look at the little wind turbine and the box of the wind turbine on the top of the tower, you'll see that it says that SWCC certifies the mechanical, strength, durability, function and performance. And we will talk more about that as we move forward.

But also different nationally recognized testing laboratories, those are the NRTLs, N-R-T-L. They certify this electrical safety of the turbine and the controller. And Underwriters Laboratory is developing standards for that certification. And then there are a number of different labs that will certify the electrical safety of the turbine and the components.

Down under the house at the bottom is an inverter. So if a turbine has an inverter today that inverter would need to be certified to UL Standard 1741. And again it would be one of those nationally recognized testing laboratories that would do that certification.

Then the little guy down in the - on the ground who's doing the installation, that person can be certified by NABCEP, the North American Board of Certified Energy Practitioners. And they have just started a small wind certification program and the first exam for that program will be in September and the application deadline for that exam I think has just passed or it's right around now at any case.

And then in the current world, a professional engineer would certify the tower and the foundation. There is work underway to develop standards for the towers. And there could potentially be certification by somebody in the future of the towers in addition to the turbine itself.

And then the last piece at the very bottom is that the National Electrical Code has a new article that applies to small wind turbines. And in the National Electrical Code version that's adopted in 2011, it will include that small wind code. For those of you who are familiar with PV installation, this small wind section is similar to Section 690 of the code for PV equipment.

So that shows the landscape of the different people out there. And let me just pause for a second and ask if anybody has any questions, you can type a question in if you want on all that. I'm going to move on after this to just talking about SWCC certification. So if you have questions about any of the other certifying bodies or standards, this would be a good time.

Okay? We'll move ahead. So this is the same slide that we had at the beginning just to remind you how SWCC fits into all these different certification organizations. And SWCC has the specific mission of certifying that turbines meet the requirements of this AWEA Small Wind Turbine Performance and Safety Standard. So it's a very specific niche in the certification process that SWCC meets.

So the SWCC certification is an independent confirmation that the turbine has been tested per the requirements of the AWEA Standard. It only basically says that the turbine has met the requirements that are specified in the turbine. It doesn't say make any other qualitative assessments about it in terms of its reliability, its safety, its efficiency, whether it's good or bad.

All those types of ascertains are not covered in the certification. It's just meeting what - how the requirements are outlined in the AWEA Standard.

And the other thing is that although we always call this the AWEA Standard, AWEA does not certify turbines. So SWCC was set up as an independent body to do this certification in large part because AWEA decided that they did not want to do the certification because as a manufacturing organization, they would be seen as having a conflict with that certification process.

So in the scheme of certification that SWCC is doing, there is a manufacturer who is wanting to have a turbine certified. And then there would be a testing organization that actually does the field testing for the turbines.

And then SWCC certifies that the turbine meets the requirements of the standard in terms of the testing and also there's a number of performance indicators that come out of the certification and we'll talk about those later.

So it's important here to realize that SWCC does not test turbines itself. Testing is done by other organizations.

So SWCC was set up with a startup funding from the US Department of Energy and the New York State Energy Research and Development Authority. And at the bottom is a list of a number of other states and the Canadian Federal government that helped in the development of the business plan and the initial organization of SWCC.

The business plan that we have calls for the applicants to pay fees. And over time those fees will allow the organization to be self-sustaining on an ongoing basis.

So let's talk a little bit about the standard. So the AWEA Small Wind Turbine Performance and Safety Standard was adopted in December of 2009. This standard was adopted through a consensus process with a lot of different stakeholders providing input over a long period of time.

There's sort of a parallel standard in Britain. The BWEA Standard, British Wind Energy Association Standard, which is virtually identical to the AWEA Standard, it has some differences primarily in the acoustic arena. So there's parallel process happening in North America and in Britain as it relates to certifying small wind turbines.

The AWEA Standard is based on international standards that have been developed for small wind turbines. So it's - it is based on those standards but it's made some modifications to those standards and it was written to ensure that the quality of the wind turbine can be assessed and it can be done in a - with reasonable costs in terms of doing that.

Testing wind turbines is expensive. And one of the concerns in the whole process is how to make this - I'm not sure I would say it's not inexpensive, but how to make it more affordable.

So through the AWEA Standard, it defines what turbines are eligible for this certification program. And the first item is that the turbines must be newly manufactured and they must produce electricity.

The size of the turbine is determined by the swept area of the rotor or however the spinning item is on the turbine. And that needs to be 200 square meters or less. It often is a turbine that's 65 kilowatts or less. There's some turbines that are smaller than 65 kilowatts in capacity but have a larger swept area. So they do not qualify for certification. It's completely based on the swept area.

Both horizontal and vertical access turbines are eligible. The - pretty much all the technologies of small turbines that are out there would be eligible to be certified.

For the most part, it - because of the way the standard is written, the towers and the foundations are not part of the scope of the SWCC certification. The only way that they become part of the certification is that as part of it, the loads that the turbine puts on the tower are defined in the certification process. And so that would provide design guidance to what would be an acceptable tower and foundation system.

So the certification is based on two parts. One is an evaluation of the wind turbine design. So this is a structural analysis of the turbine that makes sure that the turbine is structurally sound. And then the second is field testing which both determines that the turbine holds together when it's operating in

the field and provides measurements for the power output of the turbine as well as the sound that the turbine creates.

So the field testing does all these different items that you see here. And for the power performance part and the acoustic part, it comes up with information for each turbine. So these are not pass/fail tests. They give power and acoustic information that's unique to that turbine. And then that information can be used by consumers to decide which turbine they might want to buy.

The safety and function tests and the duration tests are pass/fail tests. So a turbine must pass those tests in order to be certified. The duration test is a test where the turbine must operate for a set number of hours, and a defined number of those hours must be over a certain wind speed. And the performance of the turbine must be within certain parameters at the end of that test compared to what it was at the beginning of the test.

So there was a question that came in about this that I was holding off on, but this shows who SWCC will accept test reports from. So we will accept test reports from accredited test organizations.

So remember at the beginning, accreditation, so a test organization can be accredited to do wind testing. At the moment there's only one accredited lab in North America that is testing small wind turbines and that is the NREL lab. There are five to ten labs in Europe that are accredited to do wind testing.

So the second type of testing organization would be a non-accredited test organization that's independent of the manufacturer. And in this case, we would accept a test report from that test organization but we would do an onsite audit of the test site to give some level of confidence that the testing that's being done is meeting the requirements of the standard.

And then the last item is that we would accept test reports directly from manufacturers. In that case we would require the same onsite audit that we would have for a non-accredited test organization. And then there would be further scrutiny that would happen of the manufacturer testing.

One of the key components of the further scrutiny is that we would do unannounced site visits of the manufacturer test site to make sure that the testing was up to snuff.

And so the testing can be done outside of North America. You know, pretty much any test site is acceptable to us. The choice that a manufacturer makes on the test site has a big impact on what the cost is for them to certify the turbine with SWCC.

If it's an accredited test organization, it's going to be considerably less expensive than the other two options because our fees are based on the amount of effort that we have to do. And if we're doing onsite audits, other site visits, there clearly are additional costs involved in doing those visits.

I can tell you of the 14 turbines that we have received so far, they are being tested at nine different test sites in five different countries. And some are at accredited test sites, some at the NREL site in Colorado and some at accredited test sites, two test labs in Europe, and then the remaining six test organizations are non-accredited test organizations in the Number 2 category.

We have no application so far for certification that where manufacturers are planning to use manufacturer testing.

So we have on our - the Small Wind Certification Council Web site a list of test organizations. We have 26 different organizations that are on this list right now. And this is - we don't accredit. We don't sanction or in any way endorse the test organizations.

These are just different organizations that have indicated that they intend to test turbines and they're interested in other people knowing that that's what they intend to do. And we give in the list certain details and parameters about those test organizations.

There also are four new regional test centers that the DOE and NREL have funded through a recent grant solicitation process. And we have received applications from a number of turbines that are being tested at at least one or two of these regional test centers.

If you want to get an idea of what kind of testing and what reports look like, you can go to the NREL site and see the reports of the turbines that have been tested at NREL. One of the features of the NREL testing is that all the results are publicly available so you can go there and see what a test report looks like and for the turbines that have been tested, the - some of the test results.

So here's the summary of the certification process. So the first item is that the manufacturer would submit a notice of intent to submit an application. This notice of intent gives us information on the turbine and how the testing is planned to be done.

And that's an important step early on the process to make sure that everybody is on the same page and that there's no surprises at the end of all the testing. That - from that notice of intent, we develop a quote for the manufacturer on how much it's going to cost to certify the turbine.

Again this depends a lot of on whether it's an accredited or a non-accredited laboratory and other details of how the certification is going to happen. And then we enter into a contract with the manufacturer. And that contract we call the certification agreement. And once that is agreed to, we list them on our Web site as an application pending.

The one thing about the application is this is an application that comes from manufacturers. If a dealer or a distributor wants to have a turbine that they represent certified, you know, either the manufacturer would need to apply for this certification or the manufacturer would need to designate the installer or the dealer as their agent in the United States for going through the certification process.

But this is a product certification that primarily is designed to come to before the manufacturer of the product.

Then the next step would be to do the field testing and the design analysis. Typically the field testing would take a minimum of six months. In many cases it would take a year or more to perform. And the length of time that it takes to do the field testing is in a large manner going to be dependent on where the testing is done, how much wind there is and how long it takes to complete the required tests.

It's not 100% required that the notice of intent be done before the field testing is done, but obviously since the field testing takes a long time to do, if the field testing is not up to the requirements of SWCC and you submitted the test report without consulting with SWCC, it would be possible that we would reject the field test results and you'd have to start all over again.

So that's why we're trying to get people to submit early in the process so they know what's going on.

So then once the field testing is done, the test reports and the design analysis would be submitted with the final certification application. We would do a technical review of the test reports and the design analysis.

And we have a certification commission that has three commissioners who are independent of any manufacturer. And those three commissioners would review everything that has come in and they would decide whether or not to grant the certification. And then once the certification is granted, the information would be added to the SWCC Web site.

There's - there will be a label which is like an EPA miles per gallon label that will give rated annual energy, rated sound level and rated power for each turbine. And this is calculated at the wind speeds that you see in this slide.

In addition, there will be power curves and more detailed sound data that will be published on the Web site. So if you know the wind resource at a specific location that you're wanting to build or erect a wind turbine, you can compare turbines at that expected wind speed and not just use the rated wind speed for the turbine.

So where we are in this process is we began to accept the notices of intent in February earlier this year. And at the present time we have 14 turbine models who have submitted the notice of intent and we have put together a certification plan and a certification agreement. And those 14 turbines are listed on our Web site as application pending.

We expect the first turbine to be certified late in 2010. Pretty much for a turbine to be certified in 2010 the testing will need to have been done or mostly done at this point in order for that to happen.

Most of the turbines are just starting their testing. So since it takes at least six months to a year, you know, we wouldn't expect those turbines to have final certification applications until later in 2011.

Here's a list of the turbines that have applications pending. This includes small turbines in, you know, the one to ten kilowatt range, includes at least one turbine that's in the higher end of the range of turbines that qualify for certification, some more in the 50 kilowatt range.

It includes horizontal access turbines, vertical access turbines. It includes turbines made in the United States, made in Canada and made in other countries throughout the world.

So although a small list in some ways, a lot of different products are represented on this list.

We talked at the very beginning about accreditation. And SWCC is pursuing accreditation of the certification process itself. And we have used the ISO/IEC Guide 65 as the guide to put all of our policies together. Guide 65 is the standard for product certification bodies. And so we eventually will be accredited by ANC under that guide.

One question that we get a lot has to do with what happens to certificate - to turbines that are certified in other schemes? So a turbine could get type certification to the IEC 61400 standards. There are one or two small turbines that do have that type certification.

In - a turbine could be certified to the BWEA Standard which remember the BWEA Standard is very similar to the AWEA Standard. And because there is an aggressive feed in terrace in the UK and it's a new program, there are many, many turbines that are going through the certification process in the UK.

So what happens to that? Can that certification be transferred over to SWCC or to certification to the AWEA Standard in the United States and Canada?

And we are - SWCC is coordinating with other certification bodies. And we hope that the manufacturers coordinate with all bodies so that we understand the requirements and we make sure that the test plans meet the requirements of all the different certification bodies when they're put together because it's easier to do the testing correctly the first time than have to redo it.

So we're setting up a process where there will be some portability of the certifications. We will automatically give what we call a conditional temporary certification to a turbine that has been certified to the IEC or the BWEA Standards.

And that conditional and temporary certification will last for 18 months and they'll have 18 months in which to bring the testing and the certification up to the requirements of the AWEA Standard.

And so if it meets all the requirements of the AWEA Standard, then we potentially would grant the certification directly. But if it doesn't, then we would grant this conditional temporary certification.

So there are a few differences especially between the IEC Standards and the AWEA Standards that would need to be dealt with in the testing to make sure that it's correct as it relates to the AWEA Standard.

And the other issue is if the turbine has been tested in Europe to 50 hertz electric system, it - we need to make sure that the performance that's being reported is correct in the 60 hertz electric system in the United States. And in some cases, that's going to be relatively easy to transfer over. In other cases, it's going to require new testing and depending on what's different for the turbine for the 60 hertz market, that testing could be simple or essentially having to redo the entire test.

So those are the types of things that we look at when we're looking at turbines that have been certified in other markets.

The states in the United States and Ontario in Canada are very interested in this certification process and are looking to have SWCC or certification to the AWEA Standard be a means to qualify turbines for their incentives.

And Oregon, Wisconsin, New York, Massachusetts have some path for SWCC certification in their requirements now. Many other states have indicated that they want to include SWCC as part of the path for qualifying turbines for their incentive programs or maybe the only path, but they're waiting for there to be a good list of certified turbines developed before they make that requirement.

So, getting sort of toward the end here, the certification label gives consumers the ability to compare products. It gives funding agencies and utilities the assurance that the turbines have been tested and they meet the requirements of standards.

They hopefully prevent or certainly reduce unethical marketing and false claims that give consumers more confidence in the products that they're looking at and increases the overall credibility of the industry.

So what we're looking at doing is filtering the turbines through testing and certification so that you don't just have any turbine with a Web site out there, but you know that there's some scrutiny that's gone into looking at the turbine.

And the end result is that you have good functioning turbines that are functioning as people thought they were going to function when they bought them and happy owners of turbines.

A couple places for more information, one is on the small wind certification Web site we have a frequently asked questions section that has a lot of questions that we've got in other Webinars that we've done. And I encourage you to look at that. There's a lot of good information there.

And the second is that we do send out a quarterly newsletter and other email updates from Small Wind Certification Council, and on the Web site you can sign up to get on that list.

So with that, I will take some questions. Maybe I'll do a few of - let's see here - of the - let me do this one question here. Let's see. How do I see it? So a question is will building inspectors accept SWCC certification? And in general, the SWCC certification is a verification of the durability and a look at the performance characteristics of the turbine in terms of power output and acoustic characteristics.

And the building inspectors are looking more at safety certification and in many cases they require a safety certification that's been done by a nationally recognized testing laboratory.

And the new UL standards that are under development are really meant to provide the certification that the building inspectors are looking for. And so that's really a separate process from what we're looking at here.

So another question is has there been a range for the expected cost of certification? And the person says, is 30K for the certification, \$30,000 for the certification and \$100,000 for the testing, is that reasonable or is it 50/50 or what's the ratio?

I can say that the cost of the certification for SWCC, the range is between \$10,000 and \$40,000. The low end of that would be a turbine that is being tested at an accredited laboratory. And the high end would be a turbine that is - a manufacturer would be testing themselves.

I think typically the turbines that are being tested at the accredited labs have a higher cost for the testing and clearly the cost of manufacturer testing is less. So there would be sort of an inverse ratio of how the testing - and we have not done a survey of testing organizations to get a sense of what their range of costs is.

Another question - is the problem with misrepresentation unethical marketing of these units related to units not performing up to the technical specs as opposed to a misrepresentation of the wind resource at the location where a unit is going to operate? I assume. I can't actually see the end of that.

So I think that there are issues both related to whether the unit performs as advertised in the wind speeds that are advertised for the performance of the turbine. And then it's a separate issue whether the wind at a site is essentially overestimated when the product was sold to the consumer.

And so the wind resource isn't as high as the consumer wanted or I mean of course they would presumably want it to be as high as possible, but as high as is really there and therefore they're disappointed in the performance because the wind resource isn't what they expected.

And I think you definitely see both of those situations in the marketplace. And the SWCC certification is intended to deal with the issue of the product performing as the power curve said on the manufacturer's brochure. And the second issue of whether the site has the wind resource that was advertised is a separate issue that's outside of the (prevue) of the Small Wind Certification Council.

And there are various programs and things under way to deal with the wind resource assessment issue. I think the last Webinar at ASES or one of them was with Mick Sagrillo talking about this issue. And I think that NABCEP has in development a program to certify site assessors so that there's some scrutiny of the people who are making the assessment of the wind available at a site.

So I think that's the end of the questions that are listed here. I don't know. Do you want to open the floor up for - see if there are any audio questions anybody wants to ask?

Coordinator: If you would like to ask a question, please press star 1. You will be prompted to record your name. To withdraw your request, press star 2. Once again, to ask a question, please press star 1.

(Heather) you may ask your question.

(Heather): Oh great. Hi Larry. I was just hoping you could discuss for a minute how dealers and installers might be impacted by SWCC certification, whether they would be, you know, able to use the logo with their advertising or just how they might use the information.

Larry Sherwood: Okay. So in terms of the overall impact, I would say that in certain financial incentive programs around the country, you would need to be using certified turbines at some point in the future in order to qualify your customers for the financial incentives.

In terms of the marks and the labels that go with the turbine, there is a set of rules that the manufacturer will agree to in terms of how those marks are used. But those marks will be able to be used by dealers and installers as it relates to the products.

So the marks go with a specific product. It doesn't go with a company. So the XYZ Wind Turbine Company is not being certified and everything that that company does can't have the certification mark. But any advertising or anything that's related to a specific product, a specific wind turbine that is certified, that mark would be available to be used by, you know, however far down the sales chain people wanted to use that mark.

Coordinator: Our next question comes from (Amand).

(Amand): Yes. I had a question about the service life of the turbines.

Larry Sherwood: Yes.

(Amand): A lot of, you know, manufacturers would say that their turbine has a service life of 15 years. So what I wanted to ask you is does SWCC certify the turbine for its service life? I mean not just the performance but also, you know, the fatigue strained or any of the (DWD) issues for the service life of the turbine? Is it covering the scope of the certification?

Larry Sherwood: So SWCC is certifying that the turbine meets the requirements of the AWEA Standard. And the AWEA Standard requires a durability test. And so the turbine would need to pass that durability test. But the AWEA Standard and SWCC doesn't really address what's happening in the long term with the performance of the standard.

So all we really know is that the turbine has met the durability requirements in the standard and the other items in the standard. The long term functioning of the turbine would more usually come through a warranty that would come from the manufacturer.

(Amand): Okay. So will - that doesn't include any destructive tests or anything like that, correct?

Larry Sherwood: No. The durability test is - yes, there's not a destructive test. It's a...

(Amand): Okay.

Larry Sherwood: The durability test is basically flying the turbine for the certain number of hours. And there are certain number of wind hours in higher wind speeds to

make sure that the turbine survives. But it's not running the turbine to destruction and seeing how it fell apart or when it fell apart.

(Amand): Okay. Bye.

Coordinator: (Manny) you may ask your question.

(Manny): Yes. So again, I'm verifying that you're not dealing with used turbines or refurbished or (opteded) or, you know, different names. We've been seeing a lot of installers or dealer (ship sinks) or manufacturers trying to convince us to prove manufacturer - they give you all kind of names, but other than - it's not a used turbine.

Larry Sherwood: Right. That's correct. This - at the current time, the way it's set up, it's just set up for new turbines. And we have heard from states primarily and I would say primarily states in your part of the world in the Midwest, the concern about remanufactured or whatever they're called. But...

(Manny): Yes.

Larry Sherwood: ...remanufactured turbines. But at the present time, we would not certify a remanufactured turbine. We potentially could consider expanding to that at some point in the future but not at the present time.

(Manny): Can I ask you for a lot of questions please?

Larry Sherwood: Sure.

(Manny): I know this probably not you proper forum, but is it possible to find out how other states are dealing with issues of remanufactured turbines...

Larry Sherwood: Yes.

(Manny): ...or the attitude towards that or not anything not new?

Larry Sherwood: Right. So I - yes I mean off the top of my head, I would think of Iowa and Wisconsin as two states that have definitely dealt with that issue.

(Manny): Okay. Iowa and Wisconsin. Okay. All right. Thank you.

Larry Sherwood: Thanks (Manny).

(Manny): Um-hmm.

Coordinator: At this time we have no further questions.

Karin Sinclair: So this is Karin again. I guess if we don't have any further questions, I would really like to thank Larry for giving an excellent presentation.

He wanted to remind us that these Webinars are recorded and transcribed and they will be posted on the Wind Powering America Web site, on NREL's Small Wind Web site and also we'll link those postings to the ASES Small Wind Division Web site. So, in a week or so you should be able to get those and share them if you have other folks that might be interested in this topic.

The other thing I wanted to say was the topics that we are hosting on these Webinars are topics that have been proposed by our Small Wind Division members. And for those of you out there who are not currently Small Wind Division members, we would encourage you to join ASES.

We have a very active division, especially within ASES. But there's a lot of activities going on with small wind as you can probably imagine. And one of the things is our Co-Chair is actually on the Board of Directors at ASES.

And if you choose to join, we would encourage you to select from the pull down menu Forsyth, T as a person you're sponsoring and the - your membership will go towards her fundraising needs. That's Trudy Forsyth.

It's \$89 for a professional membership and there's a lot of value for those of you are - who are actively engaged in small wind.

The other thing I would say is that we have two more Webinars scheduled for this year. We do them every other month. So in September, we will be covering the topic of Wind for Schools, that's Small Wind for Schools and Ian Baring-Gould from NREL will be the host or will be the guest presenter for that topic.

And then - so that's September 2. And then November 4, our last Webinar of this year we'll be looking at the issue of economics of small wind. So we'll be sending out notifications about the - those topics as we get closer to those dates.

And again, I would encourage anybody who's interested in small wind to join us and become an active member of our division.

With that, unless there are any more questions, I guess we will adjourn. And once again, I want to thank Larry and a round of applause for Larry. Thank you.

Coordinator: This concludes today's conference call. Thank you for participating. You may disconnect at this time.

END