

SMALL AND DISTRIBUTED WIND WEBINAR

March 16, 2011

Coordinator: Welcome and thank you for standing by. All participants will be in listen-only for the duration of today's conference call.

Today's conference is being recorded. If you have any objections you may disconnect at this time.

I would now like to introduce your host, Ms. Trudy Forsyth, please begin.

Trudy Forsyth: Thank you (Terri). So, my name is Trudy Forsyth, I'm with the National Renewable Energy Lab and you are listening to and seeing the Small and Distributed Wind Webinar.

I'm going to be moderating this session today as well as giving a presentation on North American Small Wind Turbine Certification, but our first presentation will be given by Heather Rhoads-Weaver of eFormative Options on Small Wind Policy and Market Trends.

That will be followed by Mike Bergey with the Distributed Wind Energy Association giving an overview of that new organization - Distributed Wind Energy Association, again.

And then I'll follow-up with Small Wind Turbine Certification. And I have one slide about North American Board of Certified Energy Practitioners Credential for Installers as well.

So to ask a question, click on the Q&A tab up at the top. On my screen it's on the left. Type your question in that box and then click, Ask, to send it. And we will be answering questions at the end of all three presentations.

So I would say, let's start with our first presentation.

Heather Rhoads-Weaver launched eFormative Options in 2005 to guide energy choices by forming and advancing sustainable ventures.

Current clients include the Small Wind Certification Council, The Local energy Alliance of Washington, and The California Wind Energy Association.

She was awarded DOE NREL's 2006 Small Wind Advocate of the Year; served as AWEA's Small Wind Advocate, and was the founding Executive Director of the Northwest Sustainable Energy for Economic Development Group.

She previously worked as Policy Associate for the Northwest Energy Coalition, Program Manager for Global Energy Concepts, Senior Outreach Coordinator for the National Wind Coordinating Committee, and lobbyist for the Iowa Citizen Action Network.

Heather holds a M.S. in Environmental Science from the University of Northern Iowa, and a B.A. in Science in Society from Wesleyan University.
So Heather, are you on the audio portion Heather?

Heather Rhoads-Weaver: Can you hear me now?

Trudy Forsyth: Now we can hear you.

Heather Rhoads-Weaver: Sorry about that.

Trudy Forsyth: You were probably muted weren't you?

Heather Rhoads-Weaver: I thought I took it off. So thank you Trudy. I'm going to be moving pretty quickly through my slides this morning. I just got some new maps from DSIRE that I'm pretty excited to show you guys, but that means some of my other slides I'm going to skip through pretty quickly.

I just wanted to mention that most of this work has been funded through the U.S. COE grant, and Trudy and (Tony) at NREL have been instrumental in helping us with this project, so I really appreciate that Trudy.

So just as a quick intro so you can kind of get a sense of scale for the type of turbines we're talking about, you can see the graphic here. I like to just show a small two kilowatt turbine up right next to a megawatt scale. And you can see that, you know, it's quite a big difference.

Our project is supporting the DOE goal for increasing and expanding the market for distributed wind in this country five-fold by 2015. And I think we're on a good trajectory to do that. I'm going to be showing a forecast towards the end of my presentation.

We're going to be really seeing a Web tool and a guidebook this summer that shows how incentives can be even more cost effective and it's a real simple tool that only two inputs will need to be selected.

So the wind resource is assigned to states and the turbine models are actually populating with power curves. And it's a pretty exciting tool.

A lot of the assumptions can be adjusted and it's based on a feed from the DSIRE State Incentive database. And it can calculate four different economic metrics - cost of energy, net present value, internal rate of return, and simple payback, so I have some results from that coming up in a few slides here.

But as part of the background for our project we conducted a questionnaire primarily aimed at policy managers and manufacturers just to get a little bit of background on what they thought were the most important issues off their first small wind economics.

You can see there is quite a lot of similarities of payback period is what people are really concerned about -- upfront costs and also the siting and permitting.

The question about why solar is more frequently funded than small wind, was interesting. A lot of incentives are solar-only, and we got some interesting answers about why that is.

We also were curious which states are seeing the most sales for distributed wind and this specifically was talking about up to 100 kilowatts.

You can see Texas, California; Iowa are some of the top states, which also happen to be states that have renewable portfolio standards. So that's an interesting overlap there.

But we found that actually production incentives and payments are the most important for keeping the cost of small wind down.

And then of course, getting permits and getting approval to install your turbine is another challenge that's faced.

So this is one of the just updated maps from the DSIRE database that's all been validated as of today. It shows performance based incentives as well as rebates and grants, rebates and incentives, and also buyback programs for renewable energy credits.

You can see there's a lot of activity going on in quite a few states, but there's certainly room for improvement.

This shows net metering policies across all the states. And in the left corner here, you can see that there is a lettering score with a color-coding system that's assigned to the Freeing the Grid Report.

So you can see which states have what's considered the best policies, like Oregon and California, and which states are really not doing - not keeping up with the rest of the country.

But one drawback of the Freeing the Grid scores doesn't take into account which states have statewide net metering policies versus investor owned utilities only.

So I asked them to make us a map of which states have statewide net metering policies and it's pretty interesting to see of course, that's where a lot of the wind resources out in the rural areas.

So this slide shows some of the ARA funding that was available just during the year of 2010. Most of that is spent by now and a lot of that money, even though it might have been available for small wind and solar, not very many small wind projects were funded under that unfortunately.

And finally this slide shows current state performance based incentives, rebates and tax credits, and you can see which states kind of shine here as far as really good policies - Oregon, Hawaii, Maryland, Massachusetts, and we'll see how that plays out in a couple of my next slides.

So we also documented just how many wind turbines have been funded by state incentive programs. And as of late 2010 there had been 1300 wind turbines under 100 kilowatts funded by incentives nationwide, totaling \$29 million.

What's interesting is that the average size of these projects is just under ten kilowatts, whereas in the same time period the average size of all turbines sold in the U.S. was quite a bit smaller; less than two kilowatts.

And looking at the amount of funding given out, the average was about \$20,000 per turbine, but there was a huge range, all the way from \$2000 up to in one case -- Alaska I believe was almost \$700,000 for a large turbine. Sorry - a larger small turbine.

And then the average incentive payment given out was \$2.40 per watt which is still quite reasonable. And I just noted that this slide is sorted -- the states are sorted here -- by the number of total units that were funded. So you can see that obviously California funded the most turbines.

So this slide shows the results from our modeling tool that gives you the internal rate of return for the top ten and the bottom ten states. Hawaii comes out on top in part because of their good policies, but also because of the high retail rates there.

And you can see some of the other states that are doing pretty well as far as positive returns and then a lot of states with unfortunately negative returns. And a lot of these have very low retail rates, so this takes that into account.

My next slide show the cost of energy which it does not necessarily take into account the retail rate that you're offsetting. And Oregon comes out on top here because of the combination of policies that they offer.

In the same sense a lot of the states at the bottom have virtually no incentives for small wind.

And wrap up here; I wanted to show the growth trends post the number of units that is steadily increasing here, and also the kilowatt capacity or megawatt capacity of the small wind market which has an even steeper curve which is great to see.

Just looking forward, we're starting to see more production based incentives as opposed to capacity based.

The PCE Program is something to keep an eye on. It's currently not in effect but it could be a really powerful tool in the future.

And net metering policies really do still stand room for improvement. We're starting to see some movement towards meter aggregation which can help with some sighting issues, and also certification requirements that Trudy is going to be talking about.

The Renewable Energy Credits currently aren't a big driver, but they certainly could become that in the near future, so small wind is looking to sustain some healthy growth rates provided the incentive support structure remains intact.

Unfortunately the Recovery Act funding is pretty much gone -- it's in the past -- but we're starting to see a lot more other federal programs showing interest in distributed wind, primarily with the idea that small wind can really add value to a local economy and add jobs and a lot of local pride.

So the next up for our projects, we are finalizing some of the debugging and we're going to have one or two more beta test sessions. If you're interested in participating you can sign up on the Web site I'll show on the next slide.

We'll be doing some more case studies looking at potential what if scenarios. For example if certain incentives increased by a hypothetical amount or some new incentives were put in place, how would that affect different scenarios.

And we're just really looking to see - to provide guidance on how the limited resources that are available can be best directed.

So I just wanted to thank all of the state energy program managers in particular that have helped provide data for our research.

And the Web site here in the lower right will show you, if you sign up there, you can get notices of when our tool is made public.

And I think we're taking questions at the end; is that right?

Trudy Forsyth: Yes, that's right. Okay, thank you Heather.

Our next presentation is going to be given by Mike Bergey. Mike Bergey is a Mechanical Engineer who has been actively involved in the small wind industry for 35 years.

He is President of Bergey Windpower, the third largest small wind turbine manufacturer in the world and the only major manufacturer still owned by its founders.

Mike served on the Board of the American Wind Energy Association for 26 years and was its President twice.

He chaired the AWEA Small Wind Committee for over 20 years and chaired the AWEA committee that wrote the new AWEA Small Wind Standard.

He helped found and serves on the Board of the Small Wind Certification Council. He currently serves as the Acting President of the Distributed Wind Energy Association and co-chair it's Federal Policy Committee.

He will be providing an overview of the Distributed Wind Industry's new national trade association for us today. Mike...

Mike Bergey: Thanks Trudy. Can you hear me okay?

Trudy Forsyth: I think you're still a little soft.

Mike Bergey: All right, so I'll try and speak up. Thanks for the opportunity. It's a great pleasure for me to be here to provide a glimpse of our new trade association which we're actually quite proud of.

This is a pretty good time for the small wind industry. It's the best business environment that I've seen in my three decades.

The industry did about \$80 million domestically in 2009. I expect that that's probably up around 20% last year; for my company was up over 50%. So there's good opportunity for growth.

We have high electric rates. They're often increasing faster than inflation. We have a lot of consumer interest. We have a supportive federal administration and I can't necessarily say that about the Congress as a whole, but certainly administration is supportive.

But most important of all, two years ago we obtained for the first time in 25 years, a federal tax credit for small wind systems. And that more than anything else, in combination with the state programs that Heather was talking about, have really accelerated the growth and the opportunity for industry.

But there are challenges. We still face a tremendous barrier in the permitting. Lots of people who would buy small wind systems are discouraged or even prohibited from putting them in, and so that's our biggest industry challenge.

We have some new institutional barriers that are emerging; some of it where small wind is caught up in the wake of trying to deal with some issues with large wind, but it's something that is affecting us.

We have a lot of problems with inexpensive and substandard imports, particularly from China, that are given Americanized names. And when they don't work well in the field there's no one to fix them.

We have some hyped marketing claims, and we've found that the public can't really sort that stuff out.

PV prices as many of you know have dropped precipitously over the last two years and that gives us stiff competition.

And last of all the recession has certainly affected the pace of growth for our industry.

We decided, a number of people involved in the industry who have been talking over the years and sort of griping about how we're sort of lost in the shadow of large wind at our existing national trade association, finally got off the dime this last summer and put our effort and our money where our complaints were and formed a new national trade association DWEA -- Distributed Wind Energy Association -- specifically for the small and community wind industry.

By distributed wind we mean behind the meter really of any size. So it's not 100 kilowatts or less or a megawatt or less, but it's really behind the meter. It's distributed.

We want to promote the best interest of the industry of course, and we want to appeal to a broad range of members, and particularly the dealers and distributors and installers who really haven't had a home within a national trade association.

We intend to work on supportive federal, state, and local policy initiatives to get favorable policies. We want to address barriers. We want to provide a unified voice for our industry, unalloyed by the, I'll call it, restraints and concerns of the large scale wind industry.

We want to develop best practices for industry and we want to participate in education activities.

One of the things that we felt strong about in putting the association together was to make it a home for the legitimate long-term players in the industry and not make it a home for the bozos and shysters that unfortunately are in our industry.

And so we have a robust code of ethics. We actually have criteria on the membership application that we hope will help keep out some of the riffraff. And so we're looking at things like unrealistic performance, claims, dishonest sales hype, and questionable practices.

So if we get an application from someone in the industry who's notorious for using short towers, putting stuff on rooftops or only in the urban market segment, that's going to raise a red flag and we're going to ask some questions.

So we hope to have a high level of quality players in the association.

We are led by Jennifer Jenkins who has five years experience at Southwest Windpower and certainly knows the small wind business very well.

We have a slate of acting officers that represents a broad spectrum of the industry. We're acting because we haven't formed a Board of Directors yet, but that will change.

And we've been guided by the officers and a steering committee that again, if you're familiar with this small wind industry, you'll see a number of famous names from our industry who've helped to put this together. A lot of people put a lot of volunteer work in to get this off the ground.

We have five committees. The top three -- Federal, State, and Permitting -- have the bulk of the activities and I'd like to cover some of their work for you today.

The Federal Policy Committee works of course on federal policy. We're represented very ably by Lloyd Ritter in Washington, DC. For those of you who don't know Lloyd, when he was working for Senator Harkin, he was the principle staff author of the Title X or Title IX -- I'm sorry -- renewal portion of the Farm Bill.

So the biomass programs, the wind programs, REAP and that sort of thing all came from his pen. So we're very lucky to have him representing us.

Some of the things we're working on are streamlining the USDA Grant Program for small grants, making it less burdensome for the farmers, trying to grow DOE support for distributed wind research development and deployment, looking to FERC or perhaps legislation to help us with any competitive utility practices.

We're working with the FHA on financing programs, particularly interested in things that do not have recourse to the home equity.

We're working to try to get categorical exemptions for wind systems - larger scale wind systems in distributed applications. We've got quite a bit of data showing very low to zero impacts on those, so we're working on that.

We're looking for some sort of a federal preemption of local zoning regulation. This would be - it's a steep hill to climb, but we're starting with trying to eliminate the PE Wet Stamp Requirements that sort of means that an

engineer in Texas doesn't know how to engineer foundations in Oklahoma which is physically absurd, but nonetheless the law.

And of course we want to promote federal use of wind systems.

Our State Policy Program is active in five states. These are the top priority states by the membership, that's New York, California, Ohio, Oregon, and Texas.

We have representation in all of those states except Oregon, and we have advocacy programs underway, in some cases trying to shoehorn our way into proposed solar only subsidy programs or trying to work on permitting or trying to help clean up some problems with existing rebate programs like in California.

We have a lower tier list of states where we've active sort of on a case-by-case basis as needed with legislation or problems as they come up, sort of driven by member interest.

And we're supporting bills and initiatives in a number of other states as we can.

In the Permitting and Zoning Committee which is extremely active - has probably about 20 people actively engaged, we're addressing our biggest barrier, the permitting barrier.

We're doing that with reference pieces, one-pagers, frequently asked questions. We have a - right now we're using the AWEA model which a number of us helped write, but we're working on our own model ordinance

which will cover not only very small turbines but also the medium scale turbines that are involved in community wind.

We're putting together an installation map so you'll be able to tell where small and community wind distributed wind systems are installed.

We're trying to figure out how to put together a zoning hotline and other assistance programs on the permitting issue, and we're even looking at some legal interventions where nothing else seems to work.

I'll point out that the Web site contains one-pagers. You'll find those, I think, pretty informative and with good information refuting the NIMBY claims on a number of issues, and I would invite you to visit those.

Our current activities are primarily membership recruitment where as I said earlier, we're particularly interested in recruiting dealers, installers, and suppliers and that is going very well. March is membership month, and that's rolling right along.

We have an exciting new partnership with the National Association of Counties under their Green Counties Program. We see a lot of opportunities here to make boards of supervisors and city councils or county councils aware of the opportunities and give them the ammunition they need to perhaps speak directly with their planning people who have made it more difficult to install wind systems.

So there's a great opportunity for outreach and education. We're very excited about this work with NACO.

And we're working with the American Energy Association on a joint Small and Community Wind Conference which will be held in Des Moines, Iowa in September of this year. And by joining forces we think we can have a more exciting program and be able to bring our dealers in and have a much stronger trade event.

And then we're working to expand our federal activities.

So there's a lot going on at DWEA and I've really been pleased to be a part of a team that's gotten together. And with very little money and a lot of sweat, we've been able to put together an association that's long overdue for the small and community wind industry.

And I think we'll pay great dividends to the businesses that join and hopefully to the states and federal governments that are helping to support the growth of our industry. Thank you.

Trudy Forsyth: All right, Mike thanks for that presentation as well.

So now I have the (unintelligible) pleasure of introducing myself which is always a little interesting, but here we go.

I've been involved with Small Wind since 1995. I lead our Distributed Wind Projects at the National Renewable Energy Lab. I'm part of the Wind Technology Center, and historically, for about a decade, I spent about half my time on technology and standards and testing, and the other half of my time doing outreach and education through Wind Powering America.

I'm on the Board of the Small Wind Certification Council. I'm on the Board of the Women of Wind Energy, and I'm on the Board of the American Solar Energy Society at present.

I've been involved in co-leading our IEC activities -- International Electrotechnical Commission. The international community is about ready to release a Committee Draft on the Small Wind Standards, 61400-2, and I'll be wanting to share that with as many people as possible.

And we have submitted a draft of IEA -- International Energy Agency -- Recommended Practice on Consumer Labeling of Small Turbines, so there aren't country borders in the labeling of products. So that's good enough.

I'm giving a presentation today that really was developed by Larry Sherwood who's the Executive Director of the Small Wind Certification Council.

And it's almost 100% about the Small Wind Certification Council, but with a slide at the end about NABCEP, North American Board of Certified Energy Practitioners.

So let me just jump right in to it so we can get to questions. So why is certification important? Well these are the top level things.

Of course it allows consumers to compare different products. And for those who represent funding agencies, whether state, utility, or privately held, having turbines that have been tested to standards and then have that joined with an evaluation of the mechanical safety of the system in order to get an SWCC credential is very important in stabilizing the market.

And the most interesting thing for me really, being involved with small wind for as long as I have is that the development of the AWEA standard had lots of different people involved and engaged.

And the development of the Small Wind Certification Council had a lot of states involved who initially put up money to see this organization put together, and that was in 2006.

And the SWCC really opened its doors in February of 2010 after the AWEA standard was finalized in December of 2009.

So there's lots of certifications and standards, and people tend to use those words interchangeably, but they're distinctly different in that a standard sets requirements that a product needs to meet.

Certification of that is through - it can be accredited testing organizations or unaccredited testing organizations, and that accreditation is given by outside entities.

So in looking at a turbine system you see the top part -- I didn't want to do that -- you see the top part of the turbine and this is the upper part of the turbine; the rotor.

And it's the SWCC who certifies for mechanical strength, durability, function and performance of the system against the AWEA standard.

Now note that that does not include the tower or the foundation. That work is done by a licensed engineer and thereby working on that barrier to eliminate wet stamps and DWA is doing, is very important.

Also, there is the NABCEP piece -- North American Board of Certified Energy Practitioners. They certify the installer.

There is still a - let's go to NRTL -- Nationally Recognized Test Laboratories -- are working to develop electrical safety of the whole turbine system, not just the inverter which the inverter has been handled historically by underwriter labs and other NRTLs, and those are certified to an IEEE 1547 standard as you see there.

And last but not least, a group of energetic folks led by Dr. (Rob Wills) and (Robert Prowse), put together a national electric code language that is now in place as of the 2011 article - National Electric Code Article.

So the requirements of equipment for the AWEA standards are in compliance with the IEC standards, so they need a newly manufactured electricity producing turbine with a maximum swept area of 200 meters squared. That equates to about 60 or 65 kilowatts in turbine size.

And it's not specific to orientation either horizontal or vertical axis turbines are eligible within the IEC standards, and of course the AWEA standard has taken pieces and part of a variety of IEC standards.

So there's alignment internationally as well as in North America for the AWEA standard.

Part of it is provided by field testing and that field testing includes power performance, acoustics, and safety and function, and duration.

The power performance is in compliance with IEC 61400-12-1 as specified in the AWEA standards. And you see a variety of information that that test provides.

And the acoustics are in compliance with 61400-11 -- that's an IEC standard - - again, per the AWEA standard.

And then the last two, safety and function, and duration testing are done per the design standard for small wind turbines, and that's IEC 61400-2. And again, that's reflected in the AWEA standard.

So there's a variety of testing organization that can provide test results to the Small Wind Certification Council as partial, meeting part of the requirements for an SWCC certification.

One would be an accredited test organization which NREL is one of those, but there's also allowance for non-accredited test organizations, but there need to be some on-site audit work as there is allowance for manufacturing testing which also requires on-site audits and then further scrutiny.

Testing outside of North America is acceptable and it's acceptable at any of these levels, one, two, or three. And we're seeing some interesting crossover internationally with that.

Now the SWCC has a listing of 26 test organizations which are going to be participating in providing the SWCC part of the requirements against the AWEA standards.

NREL is supporting regional test centers. We have four of those and those really are a satellite testing. Our engineers work very closely with those

different organizations and their names are let's see, Intertek out of New York, West Texas A&M in Amarillo, in Canyon, Texas, Windward Engineering, Spanish Fork, Utah, and then Kansas State University with Colby Community College in Colby, Kansas.

Incidentally, we do have an Annual Testing Workshop. This year it's going to be the last week of July in Amarillo, Texas and is being sponsored by West Texas A&M, and that's really where we try and share information.

You can also go to our Web site and see the results of our independent testing. All of those test results are in the public domain and you can see them there. They're also accredited so those test results can be used by manufacturers to get a SWCC credential or if appropriate, an IEC or another country's credentials.

So here is a certification process summary. The applicant submits a notice of intent and that's followed by a certification agreement. Those turbines are then listed as application pending.

Then the manufacturer starts with their field testing and design analysis. The minimal amount of time for field testing is six months, but it's more typical to take one year and that's because of the duration test requirements that requires 2500 hours of run time plus some high, high winds.

Those test reports then are submitted with a certification application as well as the design analysis that's submitted for technical review. And a certification decision would be made, and if granted, that information is on the Web site.

There has been a slight change in the SWCC policy in that they're now going to be posting information on turbines under contract which that indicates that

the applicant has executed a certification agreement with the SWCC -- number 2 on this list -- or under test, which indicates that the small turbine has been installed at the test site, commissioned, and instrumented and is collecting data. That would be number 3 on this list.

And then finally, report submitted, which indicates that the applicant has submitted a complete test and analysis report to the SWCC with a certification application.

Conditional, temporary certification which I'm going to talk about in one of the next slides -- so here it is right here -- indicates that the SWCC has granted this certification as defined in their policy.

And it may be that a turbine is tested to other standards, the most common of those is through the United Kingdom and the British Wind Energy Association, or maybe the turbine has been tested and credentialed to IEC standards.

So that's another way to, you know, keep the market open and transparent across country borders.

So there's a variety of ways that people can pursue this SWCC credential. This attempts to describe them all with the assumption that on the left here, it starts with this Notice of Intent to Apply for Certification and then it goes through a variety of different activities to come out on the right with an SWCC certification application.

There will be a label provided and that label will have rated annual energy, rated sound level, and rated power. It's a little different than the IEA recommended practice, and so once that recommended practice comes out, I

wouldn't be surprised if a few things change with the Small Wind Certification Council label.

To get to the Summary Report go to smallwindcertification.org to understand the background of the turbine that is indeed certified.

So here's the exciting news, this is a list of certification applications pending. It's not just U.S. manufacturers. As you can see it's non-U.S. manufacturers as well as horizontal and vertical axis turbines.

So it will be interesting and exciting to watch these companies as their machines go through the certification process.

Certain states have already said that they're going to use SWCC credentials as a way to qualify turbines for their incentive programs, and Heather who gave a great overview of the incentive programs today.

So Energy Trust of Oregon, and Focus on Energy which is in Wisconsin, are looking to have SWCC certification be a requirement as of January 1, 2012. (Unintelligible) and the Mass Clean Energy Center, California Energy Commission and a variety of other states are considering this as well.

And then lastly I'd like to talk about the North American Board of Certified Energy Practitioners. That work went on for several years. The first exam was given in September of 2010 and the first eight people which are listed there received their certification as a small wind installer.

And those exams are given twice a year so we'll see this list expand over time.

And we're also working with NABCEP to create a wind site assessor credential that can be used in the future as well.

So I think that's my last slide, and (Sue) I would say take us to the questions if you will.

Let's see here, I've got a display of questions.

So, will there be a copy of the presentations available for future use and reference?

Yes, we will be posting the Webinar presentations in the windpoweringamerica.gov site by next Friday. So you'll be able to see those there.

Okay, let's get to some of the next questions. Heather, this will be for you. How have utilities/state rebates impacted growth and how will market growth be impacted by performance based incentives and rebates running out.

Heather Rhoads-Weaver: Well I think my slide showed that incentives are really increasing the kilowatt size of the market, so most of the incentives are for grid connected turbines.

And I think especially with net metering and better interconnection policies, we're starting to see definitely an increase from the, you know, really small off-grid turbines that had comprised the bulk of the market for the sector to those that, you know, really could power a business or a farm, you know, that's really more providing power to the grid.

So I think the second part of the question was, what about the money running out?

Trudy Forsyth: Yes, what about the money running out for the...

Heather Rhoads-Weaver: Well, any time there is a short-term incentive program, you know, it certainly helps get a few projects installed and that helps with kind of getting the market going. But it's better when there's long-term programs that really helps sustain the market.

So, what I hope will happen is that some of those short-term programs that we saw will be replaced by longer-term either state level or federal incentives.

You know, we do have a really good federal tax credit right now, but having something like a national feed-in tariff would really help a lot of the states that don't necessarily have the resources to fund their own incentive programs.

Trudy Forsyth: Yes, that's right. Okay Mike, here is a question for you about the Distributed Wind Energy Association.

Can you detail the criteria for a new manufacturer to join without prejudice for their new technology? Who decides who's eligible? How is a new company's technology protected?

Mike Bergey: Sure, good question. We don't really care so much about the technology. We don't even ask what the technology is, but we do ask what's the claim appear or we set out the criteria that we're going to look at.

And so we might go to a Web site to find out, you know, what the performance claims area.

If somebody is claiming higher than a 45% coefficient of performance which no small wind turbine has ever achieved, then that's grounds for not accepting a membership application.

We want - we're looking for information that might mislead customers in terms of what to expect or really bad sighting. You know, you have some that might say that the only place to put them is a rooftop, and anybody who puts a wind turbine on a tower on the ground is following bad practice. That's not something that we would take kindly to.

That review is done by Executive Director Jennifer Jenkins, and if she's got a question she'll take it to the officers, the Executive Committee, and once we constitute, the Board of Directors.

We're just trying to police ourselves and we don't ask any proprietary technology information.

Trudy Forsyth: Right, okay. A comment from (Lisa Trudeau) in Minnesota - she says I'm very excited about the new DWEA efforts discussed here today. I'd love to learn more about Tier 2 Plans and activities in Minnesota.

From (Peter Johnson) - are there other certifying agencies for small turbines other than SWCC?

And yes, there are nationally recognized testing laboratories. UL for example is going to expand their scope past inverters to include the electrical system. I believe Intertek is looking to certify turbines for the - probably the world market as well. So yes, there are other entities.

For Mike Bergey, how will DWEA enforce its membership from the bozos and shysters? Kudos for your comments on the rebate issue in California.

Mike Bergey: Well it's - you know, we have the criteria for joining DWEA. We hope to - that's one filter. And then if someone joins and then becomes a bad actor, we have the Code of Ethics which violations are grounds for termination from the association.

So, you know, we've tried to come up with fair and reasonable criteria to sort out whether you're a long-term realistic player or an opportunist. And we don't really want to be a home for the opportunist.

Trudy Forsyth: Okay. A question from (Larry Flowers) to me - how will SWCC deal with rooftop turbine systems?

You know, this is a hole in the IEC International Standard in that there is no design classification for urban turbines. And consequently I think that's going to be quite challenging for some of those machines if they're not installed on a tower and then tested on that tower for the SWCC.

There is tremendous interest, particular in Japan and Spain on urban or rooftop or built environment turbines, and there is going to be work done under the IEA Task 27.

You can look at that under ieawind.org on the built environment with the idea that the IEA will do research for several years and then that will feed into the fourth provision of the IEC standards which the goal is to have a turbine design class specifically for the urban environment because it's so much more challenging to design for.

Let's see here, (Sydney Shaw) from Michigan - I am managing a DOE Sustainable energy Resources for Consumers grant and planned on installing ten small turbines. Who can I turn to to get some good advice on sighting small wind without doing a year-long study on the site?

Are there any seminars or workshops coming up in the near future on small wind?

Well (Sydney), my first answer would be there is a Small Wind Installers Conference in the middle of June in Stevens Point, Wisconsin. And that really is geared mostly towards installers and only for small wind turbines, but that might be a good place to learn more about small wind.

And my understanding is that there is a pre-conference workshop specifically on Zoning and Permitting. I think the email is smallwindconference.org.

Mike, what advice -- and Heather too -- what advice would you give (Sydney) on how to get good advice on sighting small turbines without doing a year-long study on the site?

Heather Rhoads-Weaver: Can I jump in first while you're thinking? So (Sydney), I was involved in a project very similar to this a few years back with Northwest SEED and we had a screening process where we took applications and we filtered their sites based on a lot of criteria and wind map data.

And I would encourage you to connect with Northwest SEED, Jennifer Grove, for advice on that.

Mike Bergey: I would just add that taking a year's worth of data is really old-school and really the only place where you need to do that is where you've got very

complex terrain and you can't be certain whether you're in a wind channel or a sheltered area.

But for most sites you can use the new digital wind maps that are available, a lot of them through the Wind Powering America Web site at DOE. Some of the manufacturers also subscribe to proprietary wind maps from 3TIER and TrueWind, and they can provide, you know, projections of performance really at any street address in the U.S. or any latitude/longitude address. So, there are many resources to that.

Probably the best advice I can give you is don't use short towers. You know, typically you have to be up 80 feet or more and if you've got 80 foot trees, you need to be up 120 or 140 feet, so put them on tall towers.

Trudy Forsyth: Yes, particularly if you're in an area with blockages in the wind - trees, or barns, or silos or houses or whatever, it may be you need to get up into the clean air.

And this is frankly part of the challenge with the built environment turbines is they get very dirty, highly turbulent air that the machine is trying to spin through and that's really the most challenging environment for wind machines of all sizes.

So sticking on the zoning, there's a couple of more zoning questions, here's one from (Andrew Young). Have any local ordinances been adopted that focus on swept area rather than capacity?

And secondly, are there any or many spreadsheets comparing different ordinances? I think that's to you Mike.

Mike Bergey: Yes, I would say no, at least I'm not aware of any ordinances that directly talk about swept area, although if they -- and I haven't seen this either, but soon will I think -- if they reference the AWEA Standard which in turn references the IEC International Standard, that is for turbines up to 200 square meters or about a 60 foot diameter, and so they would obliquely reference them that way

But following the sort of the intent of your question, I think I agree with you, I think that that's a smart way to approach differentiation on policies.

Heather Rhoads-Weaver: Mike, I'll just add to that. You should watch out though. Sometimes they talk about blade tip height instead of tower height for a height limitation, and that's something we want to watch out for.

Trudy Forsyth: Yes, that's right.

Heather Rhoads-Weaver: And the second part of that question about spreadsheets comparing ordinances; Trudy does NREL have a report like that. I know that one was published by the Canadian Wind Energy Association a few years ago that covered some U.S. ordinances, But is there a good NREL report on that as well?

Trudy Forsyth: No, not that I know of. But you could go to one of the Wind Powering America regional meetings and maybe influence people there to have it be considered as work by NREL if you wanted.

Heather Rhoads-Weaver: Yes, I think it would be a really good project. Like the Freeing the Grid Report compared all the net metering interconnection policies, having a study like comparing the codes, you know, giving letter ratings to different ordinances would really shine a spotlight on the good ones and, you know, maybe reveal ones that really need to be improved.

Trudy Forsyth: Yes, I think (Andrew) is on to something there with that comparison. That makes sense to me too.

One last zoning question and then I'm going to switch to an SWCC question, this is from (Mia Teper) and it's for Mike.

I drove past your small wind turbine on Highway 138 by the California poppy fields and I'm wondering how we can get communities like Palmdale to ease zoning restrictions to allow one acre plus (unintelligible) to install small turbines. So this is a California specific question?

Mike Bergey: (Mia), I'm glad you raised the question. Los Angeles County is our industry's poster child for the place where the small wind industry has been hampered more than any other place in the country.

That county has - the eastern part of the county has some of the very best wind resources in the state. But the ordinances -- the county ordinance in particular -- is so egregious that it can take anywhere - it takes a very strong constitution on the part of the customer, \$8000 to \$14,000 and one to three years to get a permit, and that's if you want to put up a 2.4 kilowatt sky stream of a 10 kilowatt birdie.

If you are a business, you start with a \$17,000 application fee, so it's just horrible. And we have tried to - we did temporarily override them at the state legislature but that law, AB 1207 sunsetted.

We're continually working to try to get the State to preempt them. We're trying to get Supervisor Antonovich of District 5 to see our point of view and stop listening to the very few NIMBYs. There's really not that much public

complaint, it's just the policy makers. The planners don't want to see wind turbines.

So we're working hard on it. It's very, very frustrating and one of these days we will overcome.

Trudy Forsyth: Change happens slowly for humans. The last question is from (Matt Overine) asking, when will the SWCC see its first decals being issued?

My guess is the back side of this year, but I would really advise that you talk to Larry Sherwood -- I think it's larry@smallwindcertification.org -- and get his assessment because this is very dynamic activity that is starting.

Heather Rhoads-Weaver: Trudy, you know, I talked to him yesterday so I can give you a little update on that.

Trudy Forsyth: Go Heather.

Heather Rhoads-Weaver: Yes, so the SWCC will be coming out with an announcement probably within the next six weeks on the first conditional temporary certifications.

Trudy Forsyth: Oh, that's great.

Heather Rhoads-Weaver: But those will not include the labels. So the first labels will probably be by May or June.

Trudy Forsyth: Perfect. Thanks Heather.

Heather Rhoads-Weaver: Mm-hmm.

Trudy Forsyth: So thank you to all of you who asked questions. The questions really are invigorating and interesting.

I just want to let you know that there are future WPA Webinars; they're on the third Wednesday of each month at 3:00 pm Central.

You can see there April 20 is Radar and Wind Systems, and May 18 is Transmission and Wind.

And if you have any further questions about these Webinars or what's happening under Wind Powering America, you can see the contact information there.

And I want to extend a personal thank you to Heather and Mike for your excellent presentations today, and I'm excited to see the growth of the small wind industry.

As the three of us know, we're been doing this for over a decade and it's just fun to watch growth happen.

So thank you very much to the audience for your attentive listening, particularly since not that many of you have dropped off and we're now five minutes after the hour. Have a good day.

Heather Rhoads-Weaver: Thanks Trudy and thanks to the Wind Powering America Program for scheduling this.

Trudy Forsyth: Yes, I agree.

Coordinator: Thank you, that does conclude the conference for today. Please disconnect all remaining lines.

END