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NCTC-LIVE

>> What we would like to do start with my first guest, Charles Newcomb of endurance wind.  
welcome, Charles, and thank you for joining us today.

>> Thanks for having us.  
it's exciting to be part of the effort, to illuminate the tiered approach and we're thankful at the association that we have an opportunity to share our story, because it's a different story.

>> It really is.  
Charles is a technical director at endurance wind power and he is representing the distributed wind energy association.  
he's worked and distributed wind since 1997 and interestingly he's worked in the public realm with the Department of Energy and the national renewable energy lab.  
and in the private realm.  
and in his experience of a period of 12 years he worked on fundamental research and program support and project development.  
so I believe Charles will have a wealth of information to share with us today.  
when we talk about projects that are not utility scale, wind.

>> Excellent.  
if we can launch to the first slide.  
so, again, with endurance wind power, we're one of the many organizations that make up the distributed wind association and from here I have control of the slides.  
a couple goals that I would like to cover during this presentation, one is not everybody knows what distributive wind is, so I want to provide a little bit of context what distributive wind is and part of that means highlighting between distributed wind and other forms of wind, primarily distributed wind when they think of wind.  
I want to provide insight how the tiered approach works for distributed wind, the tiered a approach you just mentioned, and a live discussion where we learn not through a few slides, right?

So when I think of wind power or when many people think of wind power, they think one of the other of two energies, they think of an old wind mill, because there are millions around the turn of century or they thousand a wind farm, and that's it.  
that's where they stop thinking.  
we want to put a wind turbine in our backyard, are you pumping water for cows or one of those monstrous things?  
No, I have something different.  
what is the different thing?  
Let's talk about it.

they come in different sizes and installed in different ways.

onesies, twosies.

and they can be used in different ways.

the way the energy is used tells a lot what the project is for and who the champion was.

when we talk about the size, let's start with utility scale, because that's what most people are familiar with.

they're familiar with big wind farms because they're visible and in the news a lot.

they're large.

they can take up many tons of square miles.

you drive by on the high bay and sometimes half an hour or 45 minutes to get by one.

these are shorter, 80-meter towers, 250 feet tall, but the main industry scale is closing in around 100-meters and a little taller in some cases.

the energy from these projects, because it looks like a power plant is being delivered to some distance load.

it's not necessarily used in the community nearby.

In contrast, the community scale project, like this one just south of Boston on the coast, they use fewer units because it's used to meet a dedicated community load.

the project footprints are smaller, so instead of tens of square miles, it may with tens of square feet.

something that would fit in a football field or something like that and the tower is often because the turbines are -- the towers are often smaller.

finally the energy on these kinds of projects is typically injected at the distribution level, so it's being used by that community locally.

it meets a local need and it provides a local value and benefit.

finally, small and distributed wind projects, what we're talking about from the tiered approach, these are more often than not single units with a small footprint, something that would practically fit -- the footprint would fit on your dining room table.

the turbines are shorter, not necessarily for going conclusion, but you can't afford a 100-meter tower on a 5,000, \$10,000 turbine and the energy is being used to meet an onsite specific need like a home or school.

I'm going to cover the spectrum here, you'll see a single turbine, GESLE turbine in Fairfield, California at a Budweiser plant.

in the middle we have 1.5 in Kodiak island, out in Alaska, three turbines.

on the right-hand side, another set of SLEs in the Colorado green project and it's 142 mega watts if I remember correctly.

it's what I would think of as a real farm.

they all use the same model, same make and model of wind turbine, so it's not about often what size the turbine, but where is it installed and how is it being installed and what is it being used for and what is its therefore perceived risk?

Let's talk about the siting options and how they differ.

when you think about siting from a large wind perspective, exclusion, what should we avoid, tier 1 Christi mentioned.

let's stay away from water and known habitat areas, congregation areas if you will.  
in contrast, a small distributive project at a school where you've got tens of acres, this one is actually closer to 60 acres or so, and let's think about exclusions here.  
you can't put in a parking lot necessarily or may not in a parking lot, certainly not on top of the build or football field, so you're left with open space.  
by the time we're done with exclusions we're down to the area about the size of a house, so options analysis is pretty limited in that perspective.  
so I think that's important to understand, when we're thinking about distributed wind as opposed to big wind, utility scale wind, we're talking about an area that is pretty open with fair amount of options available you in terms of siting, versus I got it in a parking lot, wind power at a car dealership and I can put it in very few locations.  
so I'm pretty confined and it's not an unspoiled necessarily environment.

Projects value, they're not small ventures by any means.  
they're hundreds of millions of dollars.  
the appropriate biological investigation may cost tens, hundreds of thousands of dollars and that's appropriate for a project of that scale.  
and start contrast, residential scale may be tens of thousands of dollars, like 10 is thousand dollars, maybe \$20,000, so asking that scale of project to do a voluntary effort, that may cost thousands of dollars would be probably hard to swallow for most of the residential projects.  
so it's important to think in terms of a sliding scale.  
that's what we're working with the service, which is exciting for us.  
so the service recognizes there is a difference between large projects and small projects and they recognize that a sliding scale, sort of a right sizing, if you will, of the approach is the right approach.  
and that -- they've suggested -- they've indicated even in the guidelines themselves that generally speaking in most situations, small wind, distributed wind represents a minimal hazard and therefore should be subjected only to tier one and two in terms of landscape level and site specific, not necessarily preconstruction.  
we get to stop there, which is exciting to us.  
The question is, how do you make that more transparent, more clear to the very folks so they can step up and do something voluntarily at their own cost?  
So, again, as Christi mentioned, tier one is just a general ecological context of the project itself, what should we avoid?  
Again, landscape level perspective, where should we be thinking about it?  
Interesting on a distributed scale project, if you think about the image of the school, it would take up a tiny corner and you have one little area.  
the question is, can we provide this context to the service so they understand what we're doing and then can we go to the project level, site specific and say, okay, do we have these concerns present at the project location?  
If we do have concerns, project concerns of these types at the project location, then we need to keep talking.  
we don't get to wander off and say we're done with tier 2.  
that's important.  
again, the vast majority doesn't mean all the time.

I can certainly find a project that would be inappropriate, and certainly find large turbines where you think that's a concern, but it's not a real concern because it's an area that's already disturbed.

what is the sliding scale again?

The sliding scale on the left-hand side of the image, you see the residential project, and appropriate thing here might be you're independent biological consultant could be the high school biology teacher.

that's appropriate, small, cost effective, somebody locally, you don't pay transportation costs, et cetera.

and when your project is a few thousand dollars, it's appropriate.

on the other hand, the GE1.5, the Budweiser plant, that might cost several millions of dollars, yeah, you're going to have to do an environmental assessment.

some sort of assessment that is more appropriate for that scale of project.

So it's exciting for us and we're looking forward to the questions, but it's exciting for us to see fish and wildlife so engaged and invested in increasing transparency and right sizing of this tiered approach to distributed wind.

we're very thankful for that.

and we think the tiered approach and the way the Fish and Wildlife Service is looking at it will promote, in fact, more compliance with these voluntary guidelines and the distributed wind association is committed to working with Fish and Wildlife Service to develop the tools and resources and sample documentation that will facilitate folks complying with a voluntary process like this.

thank you very much.

and Kristy, now we're looking forward to questions, right?

>> Before I move on to the questions, I would like to bring up a few points that you mentioned.

I think this is a very interesting concept.

this is not the utility scale like we said, these are smaller turbines, fewer turbines, and as you mentioned, sometimes it's a very large turbine, but maybe a single one.

and particular location.

and what I think is interesting, you can still apply to wind energy guidelines to these projects.

now, as we said, we anticipate that the majority of these projects will only go through tiers 1 and 2, but if needed, if it's a high risk area, it's possible to go through the rest of the guidelines even for a single turbine project.

>> Absolutely.

and what happens is that you have to make an assessment.

the developer has to make an assessment.

the homeowner has to make an assessment.

is it worth it to go through that?

Can my project economics support such an endeavor.

if the answer is yes, absolutely, I'm Wal-Mart, I want to put this thing in, I see a tremendous benefit for having it here and I'm absolutely willing to pay for it.

that's a great thing and you should do it.

if, on the other hand, you're a homeowner, you might want to cut bait and say I wish I could do it, but, you know, I'm in a high risk area, what am I going to do, right?

>> Absolutely.

and I also think it's very good to point out here that with tiers 1 and 2, there are several online resources

>> That's right

>> That do not cost anything for a homeowner or a school or a small business to actually use.

for example, the Fish and Wildlife Service has their information planning and conservation database, the ipack database.

there is the American wind wildlife institute database and also nature serve.

and all of though will provide later on as an online resource, but there are several free available to the public databases so that a homeowner can actually get this information on their own.

they don't --

>> No cost.

>> They don't even have to write to the fish and wildlife center

>> That streamlines things quite a bit and allows us to move forward at the pace we want to move.

>> Then if something does come up, certainly a homeowner or any other project developer can come talk to the Fish and Wildlife Service and then we can discuss the project and what is really needed and get the details and see what is appropriate for that site with the level of -- what the level of risk may be and what the cost for wildlife monitoring may be if there are any.

so it certainly is appropriate to apply the guidelines.

you know, again, like you said, we look at the relative costs.

we look at the relative risks, and it should be commensurate with the project.

>> That's right

>> Thanks very much, Charles, and what we'll do is go to the roundtable to take your questions.

and remember, please enter your question into the chat box and we'll see it here in our studio and we'll answer it to the best of our ability.

so thank you and we'll see you at the roundtable.

>> Well, hello and welcome to our roundtable.

I'm here again with Charles Newcomb and we're going to take your questions on distributed wind energy and how this works with the wind energy guidelines.

and I see we have a couple of questions coming in, which is terrific.

remember that chat box is where you can type in your question.

we have a couple things we thought we would go over while people are sending in their questions.

one of the things that we had been talking about here in the studio are tools to use for the tier 1/tier 2 analysis.

and we talked about some GIS tools here, and that is something that I think we could sort of elaborate on for our audience, Charles.

>> Of course, it's also a way to get people to hang out after the five-minute break, because the next speaker is going to be introducing the GIS platform for the state of Ohio as an example of some of the other GIS platforms, and it's a free service provided by the state there where you send in the project location and then they generate a map layer for you that indicates the level of risk where the project is located.

so you can know whether you're in a green, yellow, red, orange, whatever kind of location, and that's incredibly helpful and a very sort of short form way of establishing whether you're in a high or low risk area, even as a layperson, I can read green, yellow, red, right?

So I think that's one of the ones out there, so I encourage people to hang on and wait for the next presentation to catch that, because she does cover that in a little bit of detail.

>> I think that's a really good point.

and we will talk more about some of these tools in general that are available for tier 1 and tier 2, and as you heard in Charles' presentation earlier, we anticipate that a lot of distributed wind projects will be focused mainly on the tier 1 and tier 2 and one of the nice things about the guidelines is that it is risk-based, and it is developer driven.

so if the developer determines that there is a risk, Fish and Wildlife Service, or the state has informed the developer that there is a potential issue out there, the developer may choose to do preconstruction studies.

even on a small wind project.

but, again, the level of effort is really dependent upon the anticipated risk.

so it's kind of nice.

it's meant to be user friendly and flexible for the specific project that's out there.

>> That's absolutely right.

I think one of the finer points that is missed is that many of us who have been interacting with the service as in the past may have been interacting because we were coming through some other agency, whether it be AG or Department of Energy or some other nexus that triggers a section 7 informal consultation.

that was our front door to the Fish and Wildlife Service.

in that case somebody else was making the risk determination and in that case often the lead agency, whether it be AG or energy or somebody else, some -- I guess a bunch of the defense department was doing that as well.

they would make the determination of whether they were ready to take on the risk.

so for many of us developers, that was sort of happening behind the curtain, right?

Suddenly it's interesting, I think there's a really important difference, is that the service and the new tiered approach requires the developer to make that assessment of whether they're willing to accept that level of risk.

the service provides feedback as to what the level of risk is.

they don't say yes or no you can't do the project, you actually as the developer has to say, am I willing to take on that risk?

How do I mitigate that risk?

There's different ways of mitigating the risk.

I can change the project type, location, design or can do, perhaps, a mitigation kind of approach where I acknowledge an impact and teaming up with somebody else, existing bank or something else.

or I forget -- oh, other mitigation forms would be some sort of curtailment, right?

>> Right.

>> But you have to ask the question, can my project support, from a cost perspective? Again, a homeowner with their little 1.5 or 2.4 kilowatt machine probably can't, but somebody who is putting in one of those big turbines at a Honda plant can afford that because it's a 4, 5, \$6 million project, right?

>> Again, it's based on the risk.

car manufacturing facility may not need a tier 3 type of preconstruction study or they may. it really depends on the risk.

but there's no reason why we can't work together to figure out what is appropriate for that particular project.

so I think that's very important.

and also there is something else we talked about that we talked about in the first broadcast but probably bears repeating here, is a thing called the precautionary principle.

and this is a concept that you'll hear from Fish and Wildlife Service and other wildlife agencies and a lot of other organizations where these agencies, Fish and Wildlife Service tend to be very conservative when it comes to assessing impacts to species and their habitats.

we're going to err on the side of the species.

and that's because if there's not a lot of information out there, we don't know what those impacts may be, but we don't want to have risk of accidentally impacting negatively impacting or harming the species and/or their habitats.

and so we have a tendency to say, oh, we have less data, so we're going to be even more concerned.

we're going to assume more risk until proven otherwise.

and I think it is one of those...

And now you start having the data, which will allow you to kind of get the context that you lack today.

I think that's really important.

>> Absolutely.

when we don't have a lot of information available, then, again, we're more conservative.

but if we have some information, then perhaps our additional options we weren't aware of previously.

>> Yeah.

>> So having data even for a small turbine can be very valuable.

and it helps us with our understanding of what is actually going on out there.

>> That's right

>> And it works both ways, in both of our best interests to have that information.  
>> I don't mean to be too promotional about the whole concept, but I do think there's a lot to be said for it and I think it actually can be pretty transparent and pretty simple.  
so we've been talking about the kind of guidance that the distributed wind energy association is working on to put together so that people when they write in they don't just say, well, here is the location, the long of my project, what do you think?  
It's here is where the project is, here is the ecological context.  
here are the maps that support that perspective.  
here is the type of tower, it's a tubular tower.  
it's not guide or it is guide.  
it's at a certain height so it doesn't have lights, right?  
These are all the kinds of aspects of the project that allow you to assess the risk.  
if I just say, here is where it is, I'm going to get a form letter that says, tell me about the overhead transmission lines coming into your turbine.  
you're like, hello!  
it's the developer's fault if they're not providing the right information.  
that's why you get those responses.  
>> Absolutely.  
the more information the better on the project, even though we understand there's business proprietary information that, you know, we all have to consider, but as far as those details about the project that can be shared with Fish and Wildlife Service and with state, it helps us with our project assessment, risk assessment.

Why don't we go ahead and take a few questions now that we have got quite a few here on the screen.

I see our first one is about vertical access turbines.  
does the service, Fish and Wildlife Service perform assessments on new turbines such as the VAWT, the vertical access wind turbine, versus the propeller style?  
And Fish and Wildlife Service does not perform any sort of technical assessment at all.  
we do rely on developers and the Department of Energy, national renewable energy lab to provide us with information about various technologies.  
and, you know, I realize different styles of turbines out there and we do watch them so we're knowledgeable should a developer come to us and say, hey, I want to use this new style of turbine, so at least we know what they're talking about, but we don't perform any assessments.  
now, I do understand there have been some initial indications that vertical shaft turbines may have a lower risk to birds, potentially bats as well.  
however, those reports have not entirely been verified nor have been done on a large scale, so even though they're still under consideration, we're happy to consider anything, I just don't know how reliable those reports are yet and I think that's something that will continue to discuss with our agency partners and our developer partners.  
Charles, you know more about these different technologies, would you like to add anything to that?

>> Yeah, I would suggest that the predominance of machines out there are horizontal access machines and so, you know, I wouldn't even say vertical access machines make up



1% of the market yet.

I'm not saying they don't have a tremendous amount of promise.

but I think that statistically they don't represent much of the market yet and therefore statistics, based on those alone are going to be somewhat inconclusive early on.

so as you say, until we have more data and more projects out there, how do you really know?

Are you comparing it?

Frankly there's not that many studies on horizontal access machines.

I can think of less than three or four that really have been peer reviewed, that kind of thing.

>> All right.

another question.

our company has a bird and bat friendly roof mounted device.

are these being studied because they're different from propeller systems in relation to safety?

And Charles, I think I'm going to throw this over to you before I take a stab at it because, again, you know probably better than I what a roof mounted device may actually look like. I have a picture in my mind.

>> I showed that slide a little bit ago that compared, you know, the utility scale project out on the prairie, and then the bergie on the lattice tower in the parking lot.

now, a big piece of the biological puzzle and the risk assessment is tell me a little bit about the environment, where is it, right?

You could argue that the turbine on the roof of a house is a pre-disturbed area, right?

The roof of a house is not a typical nesting area or congregation area.

and so that alone would represent a lower level of risk.

also houses and windows are known to be far more dangerous to birds frankly from a volumetric perspective.

there's lots of birds crashing into windows.

I was at my mother's house and she was talking about a cardinal that hit her window three times in the course of an afternoon.

you don't hear the same thing about wind turbines, because they don't hit a wind turbine more than once.

the point being that a wind turbine on top of a house is actually another risk on top of a larger risk.

so I wouldn't say that the technology has a lot to do with the actual risk in that situation.

>> That's a very good point.

I also think that there is an element of the unknown here.

I don't think there are a lot of post construction studies going on on roof mounted turbines, so it's hard for us to understand the risk.

however, if there is an opportunity to do that, say, working with the distributed wind energy association or another industry group such as that to maybe do a coordinated effort to do some surveying, that would help us understand.

so we wouldn't pass up that opportunity, but I don't know of any studies at this point that would be looking at that situation.

>> That's right.

Like the vertical access machines, rooftop mounted machines, I'll speak for the distributed wind energy association on this and I'll say that we encourage good siting for wind.

we're into this business for two reasons.

one, it's a fun business, a fun place to work.

two, most of us are sort of environmentally motivated and I think over the last couple days of conversations with you guys, you guys appreciate that the wind industry in general is proud of its environmental positive image.

we work hard for that and want to maintain that.

as such we are very proud of the fact that we site a turbine in a very productive location.

we tend to seek locations where the wind is strong, we've got good access to it, not in a sheltered area.

we discourage projects down in a valley or behind the trees or god forbid towers shorter than the trees.

so we tend to discourage siting of projects in and amongst harms not because we think there's a safety issue but an access to wind issue.

if you look at the guidance you need a little acreage, quarter acre or half an acre, depends on the size of the machine, so the notion of putting it on a house is antithetical to that siting concept.

therefore that propagates through most of the industry and therefore this share of the market share for roof mounted machines is very, very small compared to the many, many thousands of machines out there, and therefore again you have very limited data set and I would argue that until we see that market sector begin to get real traction, then you can start to have some data we'd be able to answer that question.

I don't mean to dodge it that hard, but --

>> No, that's really where we are.

that's the reality at this point.

Will the service approve the local --

>> School teacher.

>> High school teacher to provide a biological site assessment?

And it really depends on the situation.

now maybe it is appropriate for that to happen.

it really depends on what is going on with the project we're talking about small turbines, done single turbines.

and if it's being sited at a school it may be appropriate.

it really depends on the qualifications of the person involved and the type of project and the concerns that we have.

so, you know, again, every project is unique, and so I can't say definitively one way or the other.

>> Can't say in all cases you can say not in all cases do we do that.

>> So it really does vary.

is it possible?

Yes.

but do I know how frequently?

No, I do not.

but we do want to have the expenses commensurate with the risk.  
we really are conscientious of that situation.

>> So let's take a small farmer in eastern Colorado where I'm from.

out by Burlington, 20 miles north of Burlington and this beautiful plains country, a lot of farming out there.

and the farmer who has a small ranch and there's not a lot going on out there and he wants to put a small two and a half kilowatt machine 300 feet from his house out at the corner of a field.

there's not a lot going on and it's a small turbine.

the nearest real biological consultant is hundreds of miles away.

it's a small home scale project that cost \$15,000.

you know, the nearest person who has any biological input is the high school teacher.

that might be an example where it might be appropriate.

what he's going say is I've been to this site, I've reviewed this site.

I've looked at the maps provided by the various databases.

I've identified that the nearest whatever habitat is tens of miles away.

the farmer is -- his veracity has been determined and I think we're ready to go ahead and provide this information to the service as truth.

that's what he's providing as verifiable perspective, right?

>> Exactly.

remember, this isn't done in isolation.

we're talking about tier 1 and tier 2 assessment where we've used online and state resources.

so this is not done just as, you know, the high school teacher going out there and relying entirely on their report, because they may not be familiar with everything out there, but it is used in conjunction with a variety of other --

>> Databases.

>> Databases and assessment tools.

>> Absolutely

>> As well.

it can be a biologist from the company.

it doesn't always have to be a consultant hired to do this assessment

>> Because, again, the risk of that development ultimately falls to the developer or the homeowner.

>> And actually I would like to bring up a good point here that I think we have talked about and haven't really brought up that right now not every homeowner or developer is talking to the Fish and Wildlife Service or the state agencies about their projects, so the idea is just to get them to talk I to us so we can share information and let them know about potential concerns is a huge step forward.

so even if it's the high school biology teacher who is helping with this, that's already better than some of the levels of communication we have had in the past.

and the fish an wildlife service guidelines do allow for that type of communication because we do want to encourage people to come to us.

it's meant to be incentive, not disincentive.

if that's what it takes, that's what we need to do.

>> That's great to hear

>> Let's go to the next question.

what are the ramifications of oil or other contaminants spill?

I'm presuming this is a localized spill from fluids used during -- inside or part of -- yeah, construction.

so turbine related fluids, such as oil, lubricants, other types.

and, Charles, did you want to try and answer that?

>> Yeah, it's like any other spill on the farm, right, or in the backyard.

you're filling up your lawn mower with gasoline and you spill it there, then you know, yeah, it's going to be a problem.

do you need to call in the fire marshal?

I don't know if you need to do that for a gallon, but I actually don't know the answer.

I grew up on a farm and I'll admit freely because I think the statute of limitations is over, but we used to keep dust down on our driveway by pouring oil on it.

ish I know there's interesting practices out there, but more importantly small wind turbines -- very few actually have oil in them, right?

Only the induction machines with the gear box have oil in them.

and even that amount of oil is small and it's contained and it's serviced on a regular basis.

so the notion that you would spill oil out of one of those machines is -- it would be very unusual.

let's put it that way.

I haven't heard of it in a small wind turbine and you don't hear with a big one where you have 50 gallons of oil.

vast majority of small turbines are variable speed and have no gear box, so they have grease.

it's sort of like, what happens -- you going to get a grease spill from your bicycle?

That's the scale we're talking about.

the bearings are that big.

it's not a real concern

>> You're right, there's a scale difference here that makes all the difference.

I do know when I looked at large turbines, I have seen oil dripping off the tips of the blades because there was some failure somewhere in the system or something going on, but that was very rare and it's usually addressed fairly quickly.

and there may also be a state level consideration and maybe we can ask our state representative later on about this, because often the states will talk about how to handle a spill, what is the appropriate response to a spill and so they may have more information than I do at the federal level for -- again, for what is actually fairly small occurrence associated with smaller turbines.

>> When you describe oil on the blades, that brings to mind what that kind of spill is and that's a different kind of spill that does actually happen.

it's usually a hydraulic leak that happens, if you have a blow-out in rotor, it will leak through the pitch bearings and come down the blades or soak the tower.

the thing is those are usually confined to tower itself and make a mess out the tower, but hydraulic fluid is fairly viscous, so it doesn't blow around and scatter on the ground. if it goes inside the tower, there's an OSHA issue where you've got to clean it up, because it's on the climbing apparatus.

so there's access machines an entire protocol for what happens and -- there's an entire protocol for what happens and how you dispose of it.

you dispose of it using normal methods.

I can't think of a small turbine, under 100 kilowatts that uses hydraulic as part of their pitch system.

some may, for a braking system, but that's a small amount of hydraulic fluid and doesn't blowout like that.

we're talking about a hydraulic unit on a machine that does that.

we don't have that issue.

most big turbines have transitioned to electric mechanical.

they have small amounts of hydraulic fluid anymore.

kind of a historic issue.

>> Again, that's why it's so helpful to understand the actual technology being used.

if you're talking about what is the potential for spills, how do we clean this up, it may be that the type of turbine influences that discussion.

>> The northern power systems turbine, it's got grease, like these auto greasers and I think that's the only lubricant on the entire turbine, right?

It's great.

our braking system is actually pneumatic, not hydraulic because we're not a fan of oil leaks, so we use air.

so there's all kinds of technology out there.

>> That's really good to know, thank you.

let's take another question.

DOD has installed distributed wind, can how the public access the data?

That's an interesting question, and it really depends on the military facility and how transparent they are with their information.

and the Fish and Wildlife Service encourages anybody with a wind facility out there to share data with us and with the state so we better understand what is going on with wind facilities.

now, if you're talking about wildlife impacts, you can probably get that information from Fish and Wildlife Service or the states because usually we receive a post construction monitoring report and that gives us information about wildlife impacts.

however, there's another type of information that is generated which may not be publicly available.

and that would be the proprietary information about electrical generation of the facility, some of the technical aspects of it.

may actually be protected because either it's business proprietary or there may be a security issue with it.

and so not all information is publicly available on DOD installations, but I would recommend talking to the DOD facility and asking what their policy is and gain that information from them directly.

>> I think that's right.

when I was with the lab, one to have complaints from our field engineers is they would go to onsite with various folks from other labs to take a look at the prospect for when installation, and because they lacked the security clearance they couldn't go into the electrical inter-connection room where some of the folks from the other labs who had the appropriate clearances could.

so it was a non-nuclear clearance, but a step up in security clearance, so the DOD facilities are pretty well -- I mean, under invitation you can get on to the property and look at it, but you can't go into many of the buildings.

and so it's hard enough for you to share information from a big develop.

imagine how much harder if it's on a military base.

it's very difficult.

but I love your opinion -- well, ask them and they might share that information and they may well because they're very proud of their achievements when they get them in

>> Absolutely.

it depends on the facility and the people who manage the facility.

all right.

another question.

has there been any formalized assessment on cumulative impacts of distributed wind power on wildlife so that it's not the responsibility of any individual school or a small business?

And I think that's a really great question because we were talking about cumulative impacts, and some of these issues, because that's really where the big concern is for wildlife agencies.

it may not be just one turbine that has an issue.

it may be multiple turbines as an aggregate may pose a concern, but do you know of any formal studies right now?

>> Is we're talking about the lack of data.

>> Exactly.

>> And I know that whenever I've tried to, like, be definitive about it and try to cite studies I always have a very hard time finding studies that I can cite.

in fact, I guess it was in a position paper from the distributed wind energy association to you guys when we were talking about trying to figure out how to help you to understand the difference between distributed wind and utility scale.

and one of the points was a quote from the state of Wisconsin where someone from the natural resources department said you know what, we have not been able to find any reports -- like nobody invests in these studies because, you know, generally speaking nobody has been able to demonstrate a clear risk.

so it's hard to find funding to do the study.

when there's not a clear risk.

like put the money into something that does have a clear risk.

it's differently to find those things.

the challenge for us, the guidelines themselves say in a vast majority of cases it's not a concern.

so, yeah, the vast majority is not in all cases.  
similarly in distributed wind, when we ask the question, can we put this here?  
You'll say, where?  
Right?

It really depends.  
and so we had to be careful when we think about risks sort of accumulated risks, it's like,  
where?  
Right?  
Kansas or in Hawaii, right?  
Along Lake Erie where it would be accumulated.  
it gets back to site specific thing and a lot of people get frustrated when they speak with  
biologists because the response is often "it depends, I need more information."  
it's true.  
it depends.  
you can't make sweeping statements, so I caution people for reading too much into these  
cumulative effects when the effect is so localized, right?  
Does that make sense?

>> I think that is a good point.  
I will say Fish and Wildlife Service is concerned about overall cumulative effects and it may  
not be from one small turbine and may not be one small turbine at a school but maybe a  
utility scale facility as well as small turbine as well as maybe road construction or other  
energy extraction at a landscape scale.  
and that is something we are working on and it's very difficult to do a landscape scale  
cumulative effects analysis, but we are working on it.  
we're trying to figure out how to do this, especially with discussions with climate change  
and policies such as that.  
so it is, but I think you're right.  
in general we don't have those studies on small wind and cumulative impacts over  
whatever given area it might be.  
>> That's the advantage of lowering the friction for the tiered approach for distributed wind  
so you can get more data.  
you don't even know how many -- we can quote as the industry association how many  
installations are out there and there's tens of thousands of them, but you don't have that  
information.  
and it's unverifiable in so many cases for you, at the project level, because we'll say, well,  
there's 25 in this state this year and 35 over there.  
you don't have the latitude and longitude and ecological context.  
since all those things matter, it's like, so what.  
I've got all these numbers.  
they're irrelevant unless I know where they are.  
>> We need more to go on with that.  
Another question.  
Are you working with state associations such as a small wind certification council or  
NYSERDA?

I know on the local level we try to work with a variety of partners but that might be at the field office level or at the state agency level.

have you worked with some of these other --

>> So the certification council is the certification body, ANSI approved certification body that takes a turbine and looks at it from a safety and performance perspective and says, basically sort of seal of approval that says, yeah, this machine is going to do what it says it's going to do and do so safely and for a long time.

NYSERDA is New York state, incentive organization that looks to the SWCC as well as ITAC interstate technical advisory council, and to make sure that they're supporting projects with turbines that have been certified, because they don't want to -- people have made the mistake in the past of supporting through grants, projects, with turbines that maybe don't last very long.  
right?

So I think from the fish and wildlife perspective, you would care to a degree that the turbines are safe, but frankly from a risk perspective on your perspective, you're like, well, the turbine stops operating at year 2.

it's no longer spinning.

now it starts to look like a cell tower.

I don't know.

counter intuitive, but you might say, I like the correlation there.

the one that stops working, it's safer for birds.

we don't actually know.

>> Fish and Wildlife Service is not doing technical evaluations on the machines.

we rely on industry and other organizations to inform us approximate

>> In many cases the tower is -- poses as much risk as the rotor itself.

>> As we've seen in cell towers

>> Communication towers

>> Absolutely, we can have high migratory bird impacts there.

but that's another discussion.

let's go to another question.

utility scale wind studies regarding avian mortality, breakdown results in birds per mega watt or turbine, what studies exist that evaluate risk ratios?

I assume those are risk ratios for, again, distributed wind, but since we don't have a lot of studies for distributed wind, I don't know how that would be reported.

would it be reported out per mega watt?

>> It's an interesting thing.

whenever we've had to do that kind of analysis, we do it on a swept area basis.

we do a comparison.

one and a half mega watt machine might impact one to three birds per year, right?

And so we take our turbine and say it's 1/100th the size of that thing.

but it's important to understand that most of those studies have been done on wind farms.  
and we would argue that a distributed turbine all by itself out in the lonesome is much



easier to avoid as a bird and if you've looked at the radar plots of going over with the ducks and you see them actually avoiding the turbines.

birds generally speaking are relative -- they have avoiding behavior.

so it would be very conservative to do AI straight -- to do a straight ahead ratio and we stop and indicate it's conservative, but we don't know the degree of conservatism frankly.

I don't know how well that answered the question.

>> I think, again, because we don't have a good study out there or series of studies out there, we really haven't developed that kind of language, that type of understanding, because with utility scale wind we've been doing studies for several years now.

so we've developed this nomenclature and these ratios, so that's something that could still be developed over time.

>> Maybe we were discovering a new systems benefit charge that can be tacked on the utility bill for biological studies.

>> Oh, dear

>> Wouldn't that be nice?

>> Be careful.

all right.

another question.

are distributed project developers such as homeowners required to report bird kills to the Fish and Wildlife Service?

And how many kills does Fish and Wildlife Service permit?

Well, actually --

>> 24 hours.

>> Legitimate question.

yes, ideally anybody who takes migratory birds, federally listed species, we would want to know about that.

and we do have tracking database.

in fact, for transmission line it's self-reporting database.

the thing is we do not have an incidental permit for migratory birds.

we do for federally listed species such as the Indiana bat, but we do not have that currently for migratory birds.

and so while we do encourage people to report any kills of any wildlife to the state wildlife agency and official wildlife service that might be associated with the wind turbine facility, there may not be a permit involved, so I can't give numbers.

really it depends on the species and circumstances on how many individuals may be permitted for anything.

right now we don't have that permit available for migratory birds.

>> But when something endangered is hit, you do -- isn't it 24-hour?

>> We do ask for a 24-hour reporting so that should something happen, contact us and the state agency within 24 hours.

and that's what is usually used by a utility scale and any other developers

>> And the other half is how many kills are you allowed to have?

If there were a take per Middle Tennessee, how much money do you have?

Not cheap.

>> Well, I don't know if we had a migratory bird permit, what that would be.

>> A bald eagle or something.

>> Yeah, eagles are a whole different subject matter, but, you know, again, I couldn't say how many.

I don't know because that program doesn't exist.

all right.

why don't we move on to one more question e.

if I am a homeowner self-financing my own turbine why contact the Fish and Wildlife Service?

There's no federal nexus.

and that's an excellent question.

>> Great one to end on.

>> The idea is you may have something out there that you're not aware of and it could be a potential issue down the line.

so, for example, let's say you're a home owner, you want to build a turbine and unbeknownst to you, you have a bald eagle nest which happens fairly frequently in the east.

>> A mile away.

>> that is a mile away and you want to put up this turbine.

and if something happens you could be in violation of the bald and golden eagle protection act.

and that would put you in a very precarious position.

and you wouldn't be very comfortable.

that's why we recommend that anybody who is interested building these turbines to use our online resources, to talk to the field office, to find out, is there anything shea should be aware of and if so, you know, are there steps that you can take to minimize these risks or potential impacts.

again, we want to make this as user friendly as possible.

so as we've said, the Fish and Wildlife Service has online databases and resources that can be used.

states have a variety of tools that can be used.

and the idea, again, is, if you know what you're going into, then there may be more options available to avoiding any potential issues in the future.

>> They are indeed voluntary guidelines.

>> Absolutely.

>> That's what the title says, but the notion is it's very inexpensive insurance.

insurance from having the book thrown at you if something goes wrong.

it's about intent and being intentional with the way you develop your project and not a cowboy, not that there's anything wrong with cowboys.

they're good people.

the point being is that if in fact there is a take -- let's say there is -- the eagle's nest is five miles away or seven miles away, something out of the radius of immediate concern and not in the traffic direction toward a lake or something else.

normally in the green zone in Ohio, but you've done everything, evaluate and made sure you have good communication with both OD and Jennifer Norris and you guys and you've done everything right and then it happens.

the chances of serious sanctions happening right then are lower than if you just kind of go, oh, whatever, I just put it up, my money, I can do what I want.

in fact you are interacting with species that are protected.

there's a difference between hitting a bird with your car, which is purely accidental unless you're setting it up, and putting something in the air that actually intersects with space where these protected species are.

>> Absolutely, where we do know there is a potential for impacts, and like you said, it may be incidental, but it still may happen.

one last question here.

are there any grants available to help obtain these studies?

And that's a good question, but I don't work in the grant program.

I'm not sure if you know of any grant programs?

>> So USDA has historically provided funds for sort of feasibility studies for projects and this thing would fall under there, but the notion for distributed projects, again, for tier one and tier two, this is not a huge financial outlay.

in the guidelines because it puts in the hundreds of hours for tier one and tier two, but I think those numbers are meant for large wind project, not necessarily distributed wind.

when you think about sliding scale and distributed wind, what is required, you're touching databases and getting the data off of them and working to develop, you know, a context of what the project looks like, providing this service, saying, hey, I've given you this information.

I think I'm in a low risk area because of these reasons.

I've had somebody validate, independent third party to say, yes, I'm in a low risk area.

here are all the project details so you're not confused with the big wind turbine.

the service reviewer has viewed this webinar or this webcast or this broadcast and so they have a context of what distributed wind is and they can say, yes, you've successfully completed tier one, tier two, thank you very much, entered you into the database.

we don't think you at this time need to proceed to tier three, preconstruction studies, have a nice day.

we can say, look, we've done our work.

it didn't take that long.

distributed wind energy association is working to develop these forms people can fill in so they're getting the right information to the service.

what grant would you need?

>> Exactly, that this is a very low cost easy access type of situation and so that anybody can take a look at this, have a computer, essentially can access a lot of these resources without any cost.

Well, thank you so much, Charles, for joining me and for answering these questions.

I really think the audience found this very helpful.

I know I did.

I understand there are some other questions.

we don't have time to get to them right now.

we will answer them later when we post our questions to our website.

and we'll post that website address later, but it is [www.fws.gov/windenergy](http://www.fws.gov/windenergy).

we'll have that with our resource section when we post this broadcast and the supporting information.

what we're going to do now is go ahead and take a five-minute break and we'll come back to talk about state agencies and coordination and how states follow the tiered approach.

>> Thanks.

>> Well, welcome back from the break and we're ready to talk to our next guest.

and we're entering our second segment of this broadcast where we start exploring in more detail the state coordination aspect of the wind energy guidelines.

and how does this work with the state process?

How do the states feel about the wind energy guidelines in their own project review on their own states?

So joining me right now is Jennifer Norris.

and welcome to the broadcast.

Jennifer has been a wildlife biologist for the past 20 years in a variety of roles, including working for the Fish and Wildlife Service, universities and currently a state agency.

she's a wildlife research biologist with the Ohio department of natural resources.

she's in the division of wildlife.

and she does have a diverse background, including teaching at universities and serving as an assistant editor on a certificate publication.

Jennifer's current role is as Ohio DNR's wind energy biologist and state biologist.

so Jennifer, thank you for joining us today.

appreciate it

>> Thank you, Christy, it's an honor to be here on the fourth broadcast and be able to provide a state perspective.

I think you'll see from our presentation today providing certainty is beneficial as well as the state process can parallel the fish and wildlife guidelines.

because my presentation today is an example of Ohio, I thought it would be good to start off with some background information and to start off with the wind energy resources in Ohio.

so as you can see from this map, Ohio has some superb and excellent resources.

most of those are offshore in Lake Erie, but we do have spots in northwestern Ohio that provide some valuable resources.

wind resources.

so, again, some background information.

in 2008 there was two pieces of legislation that were passed.

senate bill 221 and house bill 562 that were relative to renewable resources.

Senate bill 221 said 12.5 Ohio's energy source will be renewable and produced within the state by 2025.

house bill 562 gave the regulatory authority to the Ohio power siting board for wind facilities greater than 5 mega watts.

Ohio DNR is a board member of Ohio power siting board, therefore in 2009, Ohio DNR division of wildlife developed preconstruction for commercial wind facilities.

So what is Ohio DNR's role in wind energy resources in Ohio?

How can we help wind energy development in Ohio and as well protect wildlife resources?

The first step is to devote staff resources with experience and technical skills.

coordinate with partnering agencies.

develop tools for developers to assess risk.

provide monitoring protocols to yield consistent data for project evaluation.

communicate early and often with developers and consultants.

so one of the tools that we have developed is a GIS-based planning map.

you can see from this map the colors are very similar to the previous map, however, it's based on what we know for the wildlife resources.

areas of concern for wildlife resources.

so in green are the minimum perceived risk and in red are the extensive perceived risks.

relative to this are our pre-construction monitoring protocols.

the minimum perceived risk surveys include breeding bird surveys, acoustic bat monitoring and raptor nest searching.

you can see moderate an extensive add on additional survey requirements.

so, again, I thought it would be beneficial to provide an example.

this is an exam, a hypothetical scenario of a project being developed in northern Ohio near the lakeshore.

it is a project that has moderate resources for wind energy.

now overlaying that project on our wind wildlife map you can see that there is an area of concern in that north region of the project.

there's also some green areas in the project area.

the required pre-construction monitoring requirements include those listed here.

however, if the developer decided to move ever so slightly to the west and to the south, acknowledging that that's not always easy, but if they were able to do this, they would reduce their monitoring requirements significantly.

this is very similar to the tiered approach and the reduction of monitoring requirements with less perceived risk.

this is very similar to the tiered approach and the reduction of monitoring requirements with less perceived risk.

So also in Ohio we have post construction monitoring standard requirements.

as part of an Ohio power siting board certificate of operation, their condition that the facilities must conduct two years of post construction monitoring.

at ODR, we take an adaptive approach that it's one plus year, so after one year, we

evaluate the post construction monitoring data that has come in for that year and assess whether there can be a reduction or even completely eliminate the second year of monitoring.

the post-construction monitoring occurs between April 1st and November 15th.

that way we are capturing migration seasons for both birds and bats in Ohio.

you'll notice here I have two listed protocols, option A and option B.

option A was developed in 2009 and option B was developed in 2011.

option A has 25% of the turbines are searched daily twice the blade length.

option A has 10% of the turbines searched like option A and the remainder of the original 25 are searched on a three-day interval with a 60-meter search radius, and the remaining turbines are searched through a double sampling approach using roads and pads.

So the objectives of our pre- and post-construction monitoring are to determine whether a facility is having an unacceptable level of impact on wildlife.

and evaluating rare events.

these are very similar to the U.S. wildlife protocols and guidelines.

and their objectives.

our objectives as a state agency are a little bit more extensive in that we're wondering if there's temporal or spatial variation in impacts or we also want to be able to make site specific minimization recommendations.

and in the long term provide Ohio specific data.

so finally the status of wind energy development in Ohio, we have over 70 proposed projects and they're outlined in blue or actually the counties are outlined in blue here.

so it's quite extensive and you can see there's a lot of proposed development in Ohio in the northwest corner.

there are seven projects that have already received their power siting board certificate.

one of which received a habitat conservation plan, or developed a habitat conservation plan and received their incidental permit.

two projects are currently constructed in undergoing post-construction monitoring in Ohio.

So, again, because I've been focusing on Ohio-based projects, I thought it would be good to have a comparison of other states.

this is just a sample of other states and the diversity of regulatory authorities and what is mandated as far as survey requirements and whether they have standard protocols or they're site specific or they're not at all.

so my final thoughts are that states providing these regulatory certainties for the industry is beneficial.

also, the state wildlife laws and authorities can parallel the U.S. Fish and Wildlife Service guidelines.

coordination between state agencies and the guidelines, U.S. fish and wildlife guidelines is very possible.

>> Thank you, Jenny.

I appreciate that.

I think it's very interesting to hear about the state perspective on this.

I think it's also very important for people to hear that the wind energy guidelines that the

service puts forward are very similar to what a lot of states are looking for, so there are a lot of parallels.

they can be run concurrently and this should be a compatible type of situation.

I also think it's very interesting that you have a GIS mapping tool.

this is not the only state who has such tools.

the western governor's crucial habitat assessment tool, as well as North Carolina all have GIS-based maps that can be used by the public and by regulatory authorities to understand what wildlife needs might be out there.

so I think that was very interesting.

thank you very much, Jenny.

>> Thanks again for having me.

>> Absolutely.

what I would like to do now is move on to our next guest.

>> I'm here with our next guest, Kathy Boydston.

and Kathy formerly worked with the Texas parks and wildlife department.

she was there for 26 years and she headed up the wildlife habitat assessment program which includes the Texas natural diversity database.

and in June of 2013 she retired from the state and went to work for the Association of Fish and Wildlife Agencies.

where she is is the wildlife and energy liaison.

she now works with all 50 fish and wildlife agencies and the provincial territories on energy and wildlife issues.

she has worked on wind and power projects in Texas since 1999 and was appointed to the wind turbine federal advisory committee and was a major participant in the development of the services land-based wind energy guidelines.

so Kathy, welcome to our broadcast.

it's good to have you here.

>> Thanks.

it's good to be back.

I'm glad to be working with all of you again.

it's great.

I wanted to talk a little bit today about species habitat conservation Tate concern and where they're addressed in the guidelines.

as was mentioned earlier, I do work for the association of fish and wildlife agencies and do represent all 50 states at the national international state and local level.

they played a major role in development of the wind energy guidelines by addressing state issues during that process.

so we're now going to discuss species of concern.

you should all be familiar how they're listed and how they're addressed.

these species should be listed in the state wildlife action plan.

that information should be available in natural heritage databases and also with county lists and hopefully this information is available on most state websites.

and in most of the state wildlife action plans they were addressed as species of concern.

they're now addressed as species of greatest conservation need.

The definition of habitat fragmentation is taking a block of habitat and dividing it into segments so that the remaining individuals in those segments have problems with reproduction, survival and dispersal.

it's important to also recognize that habitat fragmentation can result in the loss of use of the area or displacement by those species that are sensitive to human activity or presence of structures.

habitat fragmentation can be beneficial to some species and not others, so the scenario on the slide may represent problems for some species but not for others.

So habitat fragmentation, when we asked the wind industry to address that during the guidelines process, it was a major negotiation point and we spent a lot of time and a lot of discussion, a lot of long days and nights during the federal advisory committee process and on this very topic, so when we all came to agreement on this, we considered it crossing a major threshold.

so this was a really big win for fish and wildlife resources and also helped with strategic habitat conservation.

now, during this process, the state agencies committed to developing the list to species of habitat fragmentation concern along with Fish and Wildlife Service to reduce the number of species that wind industry had to address during this process.

so the species of habitat fragmentation concern should be a subset of the species of concern and it's not -- it should be inclusive of all species, not just birds.

in some states it could include game animals such as mule deer.

habitat fragmentation could be identified to potential for that should be identified in tier one or tier two process when siting their projects.

in order to help wind industry develop a system in that tier one and tier two process, that's why we wanted to go ahead and have the list ready.

and we're working with the Fish and Wildlife Service offices and state agency personnel and have discussions on this list, we all seem to think they're probably going to be short, probably 20 species or less and most everybody in the states already have like a mental list anyway of what species will be affected by habitat fragmentation in their state.

now, tier four is split into two segments.

A addresses fatalities and B fragmentation.

To determine actually on the ground surveys predict that species of habitat fragmentation or habitats are there but also intended to evaluate whether there's potentially significant adverse impacts and whether the mitigation in tier three was sufficient or there's additional mitigation needed.

So in order to speed up the process or try to help the development of these lists, we decided to work on draft criteria.

the Fish and Wildlife Service and several state agencies participated in this process and came up with these draft criteria and the draft criteria are that they must be on the species of concern list, they must be shown to be negatively affected by fragmentation as



determined by fish and wildlife agency through the state wildlife action plan, the natural heritage database, the county lists, and in-house biological expertise.  
and it has to be likely to be present in the one project area.  
and that includes any movement that might occur across the area through migration or other landscape level movement.

Now, the idea was that for the state agencies and the Fish and Wildlife Service to use these criteria to develop their list and then get together and compare the lists, to see if the criteria were working to see if any species that made the list that shouldn't have or if there were species that should have been on the list and weren't.

there also needs to be documentation, some type of documentation from a relevant state federal travel agency that shows-has some indication, some information that indicates these species are affected by habitat fragmentation resulting from a wind development project.

in order to kind of standardize the list and help matching device standard across all states, we thought -- we recommended it would be good if we could classify the list by TAXA with habitat descriptions and that also indicate why the species was in there.

we are trying -- we're developing a pilot project right now, working with Fish and Wildlife Service regions and two state agencies in those regions and testing these criteria and we're going to roll that out.

the results to have pilot project at the north American meeting in March.

and I wanted to make it clear to everybody that this is not the only opportunity that people are going to have to work on these criteria.

these are just draft criteria, again, that we're testing to see how it works and then we're going to roll that out and give all the state agencies the opportunity to comment on these criteria and see if they need to be improved.

and that concludes my presentation.

>> Excellent.

thank you, Kathy.

I think that's very important for everybody to understand that in the wind energy guidelines we're not just talking about species of concern.

but we have this other element that relates to the habitat and that's for species of habitat fragmentation concern.

and we haven't used that a lot in our own analyze yet, but it's an important component because it's large scale projects in many instances where we have a lot of them on the landscape.

now, you mentioned a pilot project for species of habitat fragmentation concern developing the lists.

which states are involved in that pilot project?

>> Right now Texas and Ohio.

>> Excellent, thank you.

this isn't the final.

people will have a chance to take a look at this, comment on the lists and have some input

into it.

so thank you very much, Kathy.

I found that really informative.

>> Great.

thanks for letting me be here

>> You're welcome.

what we're going to do is go to the roundtable so we can take questions from our audience. remember you can enter your questions into the chat box on your screen and we'll see it here in the studio.

>> Hi, we're back at the roundtable and I have Kathy Boydston and Jennifer Norris here.

we're ready to take your questions.

and I see we have some questions up there.

I think it would be helpful if we went over a couple of points that we touched on earlier.

and something that we've been talking about both in presentations as well as in our conversation earlier with Charles was the availability of low cost or no cost information for anybody out there, whether it's a homeowner or someone work negative a federal agency or consultant, and we were talking about GIS tools.

in' from the Fish and Wildlife Service side, as I said, we have an online tool called the information planning and conservation tool, IPAC, which can be found on the Fish and Wildlife Service home page.

but that's an online tool.

as I understand it, states may handle this a little differently.

it may not be online, but you have information available that the public can access.

so Jenny, did you want to talk a little about that process?

If someone wanted to get this information from a state wildlife agency, what they could do?

>> Sure.

most state agencies have an environmental review process and usually a contact is online and the process is usually that they're looking through databases, whether it's a natural heritage database or other databases, whatever knowledge or background information that the biologist need to review a project.

one example is in Ohio our GIS tools that we use to develop or assess potential risk to wind facilities.

and I showed a map of an example of such.

>> Right.

so the homeowner would write in, use the contact information online and then they could write in a description of their project, where they're located?

>> Right.

>> And the state would respond?

>> yeah.

>> With information they could use?

How much does that cost?

>> It's free in the state of Ohio.

I'm not sure about all the states, but most environmental review processes in different states are free.

>> Excellent.

thank you.

Kathy, did you have anything you wanted to add about environmental reviews since you formerly worked in Texas with the state wildlife agency in Texas?

Is that a similar process as to what you had in Texas or any other input now that you work with all 50 wildlife agencies?

>> I think Jennifer described it really well.

most state agencies have a process like that and in Texas you can also send a request in to the heritage database and get that information back in a really timely fashion.

anybody can.

anybody can send in information regarding, you know, information for school children, homeowners.

you know, big and small developers, so there's no -- there's no charge.

most states don't charge for that information.

and, you know, it's good to go on the state's website, I think, and see what tools are available through that state, because the various states have different tools that are available that you can use online.

and different levels of information are available

>> Excellent.

I think that's very helpful since we had questions about that earlier too.

everybody should be made aware of what tools are available at the state level as well as the federal level.

and there is one other thing I think that we could talk about maybe in a little more detail.

how the state process meshes with the federal process.

And I know, Jenny, you and I talked about this, you know, as we were preparing for this, and I think this is something our audience might be interested in hearing.

>> Sure.

>> If you could talk to us a little bit, you know, does one come after the other?

How does this work?

>> Yeah, I think I mentioned in my presentation that the processes can parallel each other. our GIS tools that we use, the maps, that's essentially the tier one and tier two process under the guidelines.

our pre-construction surveys, that's your tier three in the guidelines.

and tier four and five are post-construction monitoring.

so they can parallel each other and there's a lot of similarities if not exactness to the two, the protocol on a state end and the guidelines.

>> Excellent.

I appreciate that because sometimes people may not understand exactly how this works. and they're designed to work together.

certainly when we built the wind energy guidelines, we very much had state processes in mind.

and Kathy, who sat on the federal advisory committee and she represented her state and several -- actually several states.

we had several state representatives, but it wasn't everybody from every state.

and that was certainly one of our discussion points, was making sure that this would be compatible with state processes.

>> Yes, we went -- actually, the people that were on the FAC, we had a subset of committee members that worked on that issue.

we went through all the state guidelines at that point in time and flushed them all out and made sure that the federal guidelines -- -- that's why they were intentionally developed...

We tried to ensure there would be no conflict any state regulatory processes or voluntary processes.

>> Excellent.

>> I think it's important to point out that the state authorities are somewhat different than the federal authorities.

usually state lists are a lot larger, have a lot more species on them than the federal ESAs. so because of this, you know, what a state biologist might look at is going to be slightly different.

and one process doesn't trump another process.

>> Exactly.

I think that's a really good point.

thank you.

>> I would like to add to that also, I think, at the state level, they may tend to look at different resources in addition to a federally listed species, you know, and state listed species as well.

they may have other aquatic resources they manage that could be impacted by the project. so they have somewhat of a broader look than the Fish and Wildlife Service

>> Exactly.

And that's why it's good to work together and communicate with both the state and federal agencies because then you get a more complete picture of what you're dealing with when you're proposing a project.

well, we've got a few questions up on the screen, so why don't we go ahead and get to our questions.

in Ohio are turbines typically an open or wooded areas?

Is vegetation a problem in post-construction monitoring and search radius?

All right, I think this one is yours.

>> Yeah, great questions.

the industry has predominantly developed -- I think I showed a map and I was quick to not

point out the pink outline of the two projects that have been developed there in western Ohio.

western Ohio is predominantly agriculture, so there isn't a whole lot of issue as far as vegetation for a structure, so post-construction monitoring is relatively easy.

now, we do recommend in the three-day search intervals that they have cleared plots, so that is our recommendation.

sometimes the developers have taken that to the daily search plots as well.

so vegetation has not been a bias in our post-construction monitoring

>> Okay, great.

thank you.

looks like another Ohio question.

do homeowners installing a turbine need to comply with the same pre and post-monitoring process in the presentation?

>> That's another great question.

no, the monitoring protocols are for greater than 5 mega watts.

that's what the power siting board process regulates.

however, we do recommend that our process can work for smaller wind facilities, the single turbine sites.

so our siting process in particular is a good idea and an easy process for them to go through.

if we -- if they are looking to site a project in an area that maybe the wind resources are great but the wildlife resources are also great, which aren't necessarily compatible view, then we would make recommendations maybe moving the turbine or not siting that project in that area.

>> All right.

thank you.

Kathy, it looks like you've got the next question.

what are the next steps and future work expectations following the roll-out in March 2014? And I presume this is a rollout of the habitat -- species of habitat fragmentation concern list you mentioned in your presentation.

>> Yeah, that's what I'm assuming too.

good question.

what we're planning on doing is rolling that out, the draft criteria and the results of the pilot project at the north American in March and we'll take input from the states that are there and the people that are there but we're also going to roll that out to all other fish and wildlife agencies through AFWA and get comments back on them.

we would like to go ahead and finalize this probably within the next few months, because this is something -- this is a commitment that we made that the states made to the Fish and Wildlife Service and to the industry through this federal advisory committee process, so we want to go ahead and fulfill that commitment.

those lists aren't out there so we don't want people struggling, what are species habitat fragmentation concern, what are they, should we be addressing these or not.

it's just one more step in implementing the guidelines

>> Absolutely.  
and we did, together, agree that this was a priority for us.  
it was something we needed to take into consideration.  
both Fish and Wildlife Service and the states are interested in these lists.

All right.  
another question.  
as a new information is obtained from the wind industry how often does ODNR plan to update their risk assessment maps?  
Jenny?

>> Yeah, great question.  
again, we're not only obtaining our data from the wind industry but also other developers, other researchers in the state gathering data on birds and bats and other resources, wildlife resources in the state.  
so we're constantly updating it.  
that's actually why we don't put out spatial layers because they're constantly updated, so it's a pretty continual process.

>> Okay.  
thank you.  
that's good to know.  
all right.  
and I think, actually, that's the case for most.  
when I was in the field office, we were always getting information in and trying to keep up to date with it.  
and it's great having these GIS tools.  
but it is also a whole other workload for keeping this current and available.  
I think Kathy you were talking about that as well earlier today.  
in our conversations.

>> Yes, it. It even actually requires additional staff, you know, because most of these agencies are understaffed already and it requires staff just to keep the GIS database updated with information that is in our files, much less information that might be coming in from some of the studies that we get from wind developers or other -- you know, other types of development that we work on.  
it's hard to keep up with the data flow, but we do our best.  
also with Fish and Wildlife Service, we constantly -- at least at parks and wildlife, there's an agreement where they try to update their database simultaneously and update the information with the nature conservancy and other people that maintain those data sets.  
so it's a constant data flow, data update system.

>> Right.  
thank you.  
and that is something that sometimes we almost take for granted in this day and age, are these GIS map layers.  
but there are people behind them who are having to input the data.

quality control on the data.  
making sure that it is actually usable and accurate.  
so that's really helpful to know.  
so thank you.  
all right, another Ohio question.  
how much did it cost to develop the GIS overlay of wildlife?

>> We actually did it in-house.  
my predecessor developed the initial database.  
so yeah.  
>> Okay.  
>> I don't have exact figures, but whatever his salary was.

>> Exactly.  
so this was a state initiative?

>> Yes  
>> And followed through.  
all right, so thank you.  
and I don't know if -- do you have any idea of costs-  
>> No, I don't.  
>> I think it's usually the personnel cost.  
if you have someone suave with GIS and can make the models, and my predecessor was definitely that individual, so he started the database and the modeling that we used for these maps.

>> And I think there's the start-up cost and also there's a cost associated probably with the software purchase and maintaining the server and all that, you know, so it's --  
>> There are costs associated with it.  
we may not know right here.  
we have not necessarily looked at the bottom line.  
but, yes, so there's software costs, the hardware costs, personnel costs and in other projects not associated with wind energy, I know that we worked on other GIS layers and we had to bring in some experts and we had to pay for their time, and we actually helped the states to digitize some of their data, so for that.  
so there are a lot of costs that go into it, but it may vary depending on whether it's done by an outside source or in-house or all of that.

>> I think too, nowadays, when researchers through their permit system are providing data back to state agencies and U.S. Fish and Wildlife Service there is spatial data connected to their species data or what they're capturing out there, so it makes it a lot easier to upload it into an already developed model.

>> I think that's a good point too.  
thank you.  
all right, another question.

what are some examples of mitigation recommendations when a wildlife conflict is evident?

Is mitigation banking an option?

All right, well, we did have this conversation with Charles quite a bit with mitigation banking. and there are a variety of mitigation recommendations depending on the species, location of the project, the type of project.

so it's not easy for us to say here is the generic list.

in the back of the wind energy guidelines, there are best management practices for reducing impacts to species and habitats that are fairly generic that talk about construction elements and such.

but generally the rest of that information is really based on species and the project itself.

and I do know that for example, in the bats we talk about curtailment and other species we have buffer zones.

we have a variety of options but it's very difficult to talk about this without the species and the project.

that's why you communicate with the state and the federal agencies.

>> And there's always all kinds of sources of mitigation banking options.

in other words, where mitigation banks are located, there's a lot of online information through the Fish and Wildlife Service through the Corps of Engineers and also through the various states.

if you're work negative a certain state, you can go to the Fish and Wildlife Regional Service or state office and they'll know where mitigation banks are located in their state or fish and wildlife region, and there's the website we talked about with Charles called RIBITS that has all the mitigation and conservation banks listed online.

by state, I believe.

you can long into that and -- log into that and check into that and see where the closest mitigation bank is to you

>> So mitigation banking is certainly an option if this is available.

now, I don't know how many mitigation banks have actually been set up for wind energy projects at this point in time.

still relatively new.

so I don't know if any of those banks have been set up.

but it is something that we are discussing at Fish and Wildlife Service, as we look at our banking agreements and options for going forward with mitigation banking.

so sit an option if it isn't right now, we're hoping it will be in the future.

again, it depends on the species, but I think there will be opportunities to come.

>> And I think through the habitat conservation plan that was recently approved or given an incidental take permit, the project in Ohio, they are doing some mitigation effort in that process.

so I think it's out there.

it's a new concept for wind energy, but it's out there and possible.

>> All right.

that's true.



exactly.

thank you.

all right.

another question.

what are examples of the draft criteria for species of habitat fragmentation concern?

Now, I know, Kathy, you went over those criteria in your presentation.

so maybe we could walk through that a little bit but provide an actual you know, example of the species that might fall into that criteria.

so start off with first is a species of concern.

>> Yes, I guess I'll use Texas.

species of concern might be something like -- I don't know, let's say -- I hate to use a game species.

I won't use a game species.

let's say something like the Texas horn lizard, a state listed species.

so then you go through that -- that's the first step.

is it on the species of concern list in the state wildlife action plan or is it listed in the database or on the county list?

Is that designation there?

And then the second criteria would be is it determined to be affected by fragmentation by the fish and wildlife agency using the action plan, the county list or the natural heritage database or in-house expertise that we know about these species?

And then the third criteria it has to be in a project vicinity.

the wind power project vicinity or -- and that includes does it move across that area in migration or other landscape level movement.

so the species of habitat fragmentation concern is the Texas horn lizard affected by habitat fragmentation?

Possibly.

so it maybe meets that second criteria and it's in the state wildlife action plan.

it's in the heritage database.

and it's on the county list for those counties where it occurs.

and then does it move at landscape level?

Well, it's in the project vicinity, but the -- I guess you might say movement area or the area where horned lizard would inhabit is fairly small.

so it's not going to have a landscape level movement.

so you would have to go through that process and take that species down and see if it meets all of those criteria and see is it actually affected by habitat fragmentation associated with wind energy development.

it might not be affected by wind energy development but it might be affected by road development.

different types of habitat fragmentation affect different species in a different way.

>> Exactly.

so one of the things that we want people to understand is that this is not for all species out there.

it is not for all migratory birds or all game species or whatever category you want to use.

it is a subset of species of concern and we need to have some kind of indication that they

are sensitive to habitat fragmentation.

and one of the species we talked about was during the federal advisory committee, the warbler, that is a species known to have habitat fragmentation concerns and is very affected.

their reproductive rate is affected by edge effects and such.

while it is a migratory bird, it is also a bird where it was proposed for listing -- it was not warranted for listing, but we do have a conservation plan in place for the species.

so it is something that we have information on.

we have this documentation.

it's an otherwise indicated species of need here and because research has indicated that, it is sensitive to habitat fragmentation in general.

it's not just wind energy, but coal mining, road development, anything that might happen.

this might be a species that would fit species of habitat fragmentation concern.

same could be said potentially for the cheat mountain salamander.

they don't like to cross gravel roads, that might be an issue, because gravel roads are frequently used in wind energy facilities as a means to get between turbines.

mule deer, you know, it's a game species.

however, they have large landscape scale movements.

states monitor their populations.

and so mule deer might fit into that particular category.

we don't know exactly because we're still trying out the criteria and seeing what the lists will look like, but this might give you an idea of what might be on the list and how we work through the criteria.

>> I think there's a couple of things that are probably important to note just as you brought up is that the species of habitat fragmentation concern isn't just for birds as we've been mentioning, trying to get that point across it's inclusive of all species.

as you pointed out could include game species in some states if they're subject to habitat fragmentation issues.

and I think the other thing important to note too is wind energy is still fairly a new industry, the guidelines have been out there since 2012 but there is still a lot of things that we're still learning about wind industry and its effect on species whereas, you know, we might not have thought early on in wind energy development that a game species like mule deer would be affected by habitat fragmentation.

but the more that goes on, the more we might see that this might be a species that actually could be affected by habitat fragmentation.

where that may not have been an issue for that species, you know, previously.

>> Right.

exactly.

>> So it's kind of like the more development that goes on, the more we learn.

>> Exactly.

okay, thank you.

why don't we go ahead and take another question.

is there a time frame for the availability of the species of habitat fragmentation concern list

for all states?

And Kathy, do we have a time frame for all states?

I believe you -- we were talking about some months out.

did you have more of a concrete date in mind?

>> No.

well, we probably want to get it certainly by the end of the year, by the end of the calendar year, I would think.

wouldn't you?

And that would be my goal.

and I think as probably the goal to have service too.

this something that we want to get out.

and it's a good question because I am not sure -- we'll probably handle this in a way that hopefully each state will post their species of habitat fragmentation concern list on their website and get it readily available for developers and other people to look at during that tier one and tier two landscape level look.

and so we might want to think about where all of those lists would be posted and one site, you know, including on every state site.

so maybe there might be one place, maybe the AFWA website that you can post a link to all those different lists or have them all in one area

>> Could potentially be the field offices as well.

>> Absolutely.

>> All right, why don't we go ahead to one more question today.

does offshore wind typically have fragmentation concerns?

Would the underwater foundation be considered an environmental benefit?

Now, the wind energy guidelines are strictly land based.

and so our discussion has been focused on land-based wind.

I will say that having worked and currently working on some offshore wind recommendations is that fragmentation, I don't know if we've quite worded it as such.

what we have noticed from studies constructed in Europe that birds -- in this case birds, we suspect and other species too can be displaced by these projects.

if you have a very large project out in the ocean, that may be a very significant impact to the species when they have to go all the way around this large array of turbines.

but we're still trying to understand that.

we're working with other federal agencies, the bureau of OSHA and energy management and the DOE, department of energy, to try and better understand what is going on offshore.

in fact, it was only recently that we realized that we have bats offshore where we didn't expect to see them, way offshore in fact.

we have insects out there.

we have a lot going on offshore that we never anticipated.

so I don't know if we've used the term "fragmentation" quite the same way we do on land --

>> I think it's important, too, to think about the aquatic world, the Fishery movement and what impact a turbine base may be in the aquatic rule.

not being a Fisheries biologist I'm not sure.

I'm sure there needs to be a lot of research conducted on that.

>> Absolutely.

bone did hold a workshop and they talked about the underwater elements and there is a lot of discussion because it may be beneficial to some species.

it might provide an artificial reef type habitat.

marine animals, how do they react to this?

A lot of unknowns.

we're trying to understand this.

we're using European models and research right now to try to get a handle on this, but

we're going to be looking at that further as we go through our offshore wind

recommendations.

All right.

well, I think that's about all we have time for today.

and what I would like to do is thank all of our guests even though Charles is not on screen right now, but Charles and certainly Kathy and Jenny for joining me today, and I think this has been a great conversation.

I hope that you've enjoyed it and gotten a lot out of it as well.

again, we will be posting information to the website including this broadcast.

our information on the resources that have been mentioned and the basic learning points.

and as you can see, our website is posted there on the screen, [www.fws.gov/windenergy](http://www.fws.gov/windenergy).

and all the other broadcasts are there as well, if you want to see one of the previous broadcasts.

We will be doing another broadcast in this series.

and we're looking at the March-April time frame, and that will be a research update where we will talk about the latest in bat deterrent technology.

what is happening with some of the latest research coming out about sage grass and grassland birds and how they are reacting to large scale wind facilities.

so I hope you can join us for that broadcast.

we'll send out an announcement about it.

thank you for joining us today.