Wind Energy and Eagles: The Problem, the Permit, and the Path Forward
September 17, 2014

Coordinator: Welcome and thank you for standing by. At this time all participants will be in a listen only mode for the duration of today's conference. This call is being recorded. If you have any objections, you may disconnect at this time. I would now like to turn the call over to Patrick Gilman. Sir, you may begin.

Patrick Gilman: Thank you very much. Good afternoon everyone. My name is Patrick Gilman. I manage wind energy deployment issues for the US Department of Energy. And I'm pleased to welcome you to this month's edition of our WINDExchange webinars.

We run this webinar series as a way to catch everyone up both on work that we are doing here at DOE as well as more broadly, on issues facing the wind industry. And we've got a great lineup of speakers for you today on a pretty important topic, wind and eagles.

And Tessa, if you want to advance the slides there, thanks. Today we'll have presentations by Wally Erickson who is the senior statistician and COO of Western Ecosystems Technology. He'll be talking about the eagle and wind conservation and permitting challenges.

Annie Mudge who is a partner with Cox, Castle & Nicholson, who'll be talking about the first permit that has been awarded under the Fish & Wildlife Services new rules around wind and eagles.

And finally, we'll have a presentation from Ian Evans who is a research associate with the American Wind & Wildlife Institute who will be talking

with—about research needs associated with the wind and eagle challenge going forward.

So the way this will work is we'll have the present—presenters go and they'll each give their presentations. And at the end of the meeting we're hoping to have about 15 minutes for questions. To ask a question, please use the Q&A feature at the top of your screen in the webinar.

Type your question in and we will get to those—as many as we can, at the end of the webinar, given the time that we have. Next slide please Tessa. Just a reminder for everyone that we do this again every month.

And the upcoming webinar series, we do this the third Wednesday of every month at 3:00 pm eastern. Next month we will be talking about the 2016 Collegiate Wind Compensation, a DOE effort that we're very excited about.

In November we'll be talking about recent developments in the economics of offshore wind. And in December we'll be talking about wind energy (siting) considerations. So without further ado, let me introduce our first speaker.

Wally Erickson has been a statistician with West since 1991 and their Chief Operating Officer since 2011. He has over 22 years of experience working with government, industry and environmental organizations to help solve wildlife and other natural resource issues.

And has managed or been a statistician for baseline studies, permitting or operational monitoring at over 100 renewable energy projects in 35 states. He has an MS in Statistics from the University of Wyoming and a BS in Mathematics and Statistics from Winona State University in Minnesota.

Wally, take it away.

Wally Erickson: Thanks Patrick. Well I'm going to start off—I get to go first so I get to set the rest of the tone for the other talks. I'm going to introduce the problem and discuss—focus on some of the technical aspects of navigating the eagle conservation plan guidance and the permit process.

And a focus on some of the biology and modeling issues related to those eagle conservation plan guidance. To start off, I want to—to kind of set the tone of why we are here talking about eagles. It started with the de-listing of the bald eagle in 2007 from the Endangered Species Act.

Both species continue to be protected under the BGEPA or Bald and Golden Eagle Protection Act. But neither of those—and the Migratory Bird Treaty Act. But neither of those statutes had take revisions.

So in 2009 the BGEPA Permit Rule was released, authorizing take or otherwise lawful activities, of golden eagles and bald eagles.

In 2011 the ECPG, the EC—the Eagle Conservation Plan guidance was released that provided some technical guidance on how to navigate and comply with the Eagle take permit rule.

And then more recently, a second version of the guidance was released that among other things, modified how risk of take was analyzed and quantified. In 2013 the rule was changed to allow for permits of 30-year tenure.

And now in 2014, the service has been doing public scoping, seeking public input prior to potential revisions of the rule, focusing on the standards, how to

make the process more efficient and getting input on things like compensatory mitigation.

While Annie's going to talk more about the regulatory piece, I'm going to focus on some of the technical aspects of the Eagle Conservation Plan guidance and talk about several models. I'm going to start—start a little bit—I'm going to start first talking about population trend models for golden eagles and bald eagles.

And I'll get into talking about a key component to the application of it—for a take permit as the fatality predictions. And I'll talk a little bit about both bald and golden eagles relative to that. And then I'll briefly talk about compensatory mitigation models.

Ian and the work that AWWI is doing on some of the compensatory models—he'll cover those in more detail. And it was saying that all models are wrong and hopefully some are useful. And I think that's where we're heading with these models. Now this is a map that shows the golden eagle range.

This is from a USGS gap analysis layer. Service currently will only authorize take permits for golden eagles west of the 100th meridian at this time, as there is not enough data on rates of golden eagle mortality east of that line. And the populations of golden eagles are much smaller and mostly wintering birds.

You can see that the range of golden eagles cover a good chunk of the US. Based on the Fish & Wildlife Service western wide golden eagle surveys that West conducts, the current golden eagle population size in the four BCRs that are mapped here, is estimated to be around 30,000 eagles based on the most recent 2013 survey.

And the current trend estimate based on these surveys, is not statistically different than zero. Currently suggesting a stable population overall. There is a slightly observed positive trend but it's not statistically significant than zero.

The original goal of the trend surveys or the western wide surveys was to be able to have enough statistical power to pick up a significant trend over the course of ten years. So we're not quite there at that ten year basis.

The overall take thresholds allowed for golden eagles from wind energy, is currently set to zero i.e., the no net loss standard.

However, golden eagle take permits may be issued for up to 5% of the estimated population size with compensatory mitigation—with compensatory mitigation to get to that net—no net loss standard. And also, the take thresholds account for other sources of anthropogenic mortality.

This particular map illustrates—it's a map of the BCRs. It illustrates the 5% of the population size in those BCRs, indicating sort of the maximum take thresholds in those BCRs.

In addition to the summer surveys which have been conducted now for over eight years, the service has funded and we've been conducting—conducted a winter survey this past winter, to provide information on the winter population sizes as well as the spatial density of eagles in those same BCRs.

Surveys were conducted in the Great Basin, Northern Rockies, Southern Rockies and Badlands BCRs. The overall estimate in the winter from this past—in the winter from this past winter, in those four BCRs, was around 34,400 eagles which is higher than any of the previous summer estimates.

And suggests some influx of birds from other areas like Canada and Alaska during the wintertime. You see more eagles in the winter than in the summer, estimated in the Great Basin and Badlands and prairies. And similar numbers, slightly lower in the Northern Rockies.

Again, this is one survey, one winter survey. But it just illustrates the results of this first survey. One of the key components that I mentioned earlier in—in developing an eagle conservation plan as well as applying for a take permit, is coming up with an estimate of take at your project, at a project.

It's an important step in the eagle conservation plan guidance. In fact, it's directly used to help characterize the risk level of your project as well as to define the amount and quantity of compensatory mitigation for your project. Eagle risk categorization—there are three levels of risk.

Category 1 is basically a site that the risks are too high, where the potential to avoid or mitigate impacts is very low and not achievable. Category 2—this is a site that is a candidate for a permit. It's high or moderate risk to eagles but there's opportunity to mitigate those impacts.

And category three would be a site that's considered very minimal risk to eagles. As far as how this relates to the fatality prediction, a category 2 site has an estimated annual fatality estimate between .03 eagles per year and 5% of the estimated local area population.

So if your estimate is slightly less than one eagle over a 30-year period, .03 times 30-years and you do not have any important eagle use areas or migration concentrations, and you're with—you're less than the 5% estimated local area population, you'd be a candidate for a permit.

You know, category 3—again, that numbered one eagle—less than one eagle for 30-years based on your predicted take. The—and I think this is well known but the current risk model is conservative in most situations, meaning that it tends to overestimate mortality.

The (Basian) model that the services adopted does tend to overestimate take. It appears to. The service utilized the information that they had at the time of developing the collision risk portion of the model.

And most of the studies at the time, this was several years back, were older projects with smaller, older generation turbines.

In addition, those—those studies from those projects did not collect minute by minute data—eagle minute by minute data which is—is currently the protocol for projects that are utilizing the protocols.

And there are other factors that likely contribute to the model being conservative, including the use of the upper 80th credible interval.

And I think it's this balancing between trying to capture the actual take level and making sure you're asking for enough take in a permit to maybe being overly conservative and sort of eating up 5% of the threshold by being overly conservative.

As conceived in the guidance and through the (Basian)—kind of the (Basian) process, (Basian) statistical processes, as more and more data become available regarding eagle risk at wind projects, the various models will likely be updated.

There's currently work being done to get additional information published with more contemporary data that would allow the service to update the models. And that's an ongoing process right now. There is quite a larger sample of projects available to help update this—the service model.

And hopefully in the near future, that information will be available and published and peer reviewed, to allow for updates to the model.

And the initial results of some of those modeling exercises, suggest that the collision probability which is a key component to the fatality prediction, is quite a bit conservative and an overestimate for newer projects. What do we know about bald eagles?

The current model, as it's proposed, was developed from golden eagle use and golden eagle fatality information. Currently there is no separate model for bald eagles. And I think as more data is collected, as data is collected from higher use bald eagle sites, separate models should be developed.

And I think there are some behavior differences between balds and goldens that have suggested that the risk might be—risk of collision is lower for balds on an equal footing. But more information is necessary to try to get to that bald eagle model.

As you can see, the bald eagle range, it's found throughout the US. Some only during the wintertime, some year round. So there is some exposure at wind projects found throughout the US.

Another thing that is going on with bald eagle populations is they are increasing almost exponentially, in terms of populations and so you are seeing them in places that they used to not be, and in higher densities.

One of the key steps to developing an eagle conservation plan is implementing avoidance and minimization measures, both at the macro and micro siting level. Things like trying to avoid areas expected to be higher risk to eagles may be tied to pray concentrations or nests buffers.

I believe there's more research needed to understand the effectiveness of macro and micro siting levels. But—and I think there's work being done to try to fill in some of those gaps.

Another approach that has been used in certain situations is to the use of informed curtailment, which may be a biological monitor in cases of high risk. Curtailing turbines when eagles are in—at—potentially at risk.

Now once the avoidance measures and the remaining take is unavoidable, compensatory mitigation is required to get to this no net loss. Two primary categories of compensatory mitigation have been thought about and discussed. One is trying to reduce take from other sources.

Powerful retrofits, reducing electrocution risk to eagles. The only option that has an approved REA that can be applied across the country.

You know, but AWWI, and others are working on carcass removal models and let abatement models, to be additional sources of compensatory mitigation. And Ian will talk more about that.

One area that's getting quite a bit of attention and—but needs more work, is instead of focusing on how to reduce take from other sources, how can we preserve, create or improve eagle habitat through the use of conservation banks, being able to increase prey and hopefully affect the—ultimately the

reproduction of the birds, possibly improve territory occupancy to produce more birds.

Livestock raising management is a—one approach that's been considered for trying to improve habitat for eagle prey. I think there are opportunities maybe at a larger scale than what has been proposed in some areas of the country, including Wyoming.

This is an example of some work that was done in Wyoming, to improve habitat along drainage that ultimately should produce more prey for lots of species of raptors including eagles. Quick summary—the fatality predictions that I talked about, are key to the process.

I think siting both at the macro and micro scales, are some of the best options for avoidance and minimization.

Ian will talk about what advanced conservation practices are but there are several studies and projects working on experimental and advanced conservation practices to help minimize and reduce risk.

I do believe there needs to be some additional approaches for compensatory mitigation beyond power pole retrofits. And hopefully we can get there. Thank you. And I'll turn it over to Annie Mudge, if she joined us?

Patrick Gilman: I'm not sure if Annie Mudge has joined us yet. I think at this point we're going to go and skip to Ian's presentation and hopefully Annie will be able to join us for the last bit. Ian joined AWWI as a research associate in March 2013.

His background includes both scientific research and environmental policy. His field experience includes research and conservation efforts in

(unintelligible), endangered shore birds, plant ecology and wolves in various locations around the country.

Ian has a BA in conservation biology from Middlebury College. Ian?

Ian Evans: Thank you Patrick. Can you hear me?

Patrick Gilman: Yep.

Ian Evans: Okay, great. Just so you guys know, I'm—I think I let Tessa know I'm having some connection issues with the webinar system. So I might get cut off and I'll have to ask you guys to drive a little bit. But I'll give you a heads up.

So yeah, like I said, thank you Patrick and Tessa and all of DOE for having me on the webinar today. Wally covered the potential conflicts that are out there between wind facilities and eagles.

And Annie, I think as she gets on, is going to speak to some of the legal process and the hurdles that come with applying for these permits to facilitate eagle take at wind facilities.

So what I'm going to focus on here, in my time, is the types of research that go along with acquiring these permits for eagle take. Did that switch for anybody? I'm just making sure, because it just hiccupped at me again.

Patrick Gilman: It did.

Tessa Dardani: Yep.

Ian Evans: Okay, great. So as Wally mentioned, the Eagle Conservation Plan guidance was released last year and within that is described three major steps that need to be met to receive a permit for eagle take.

In recognition that these steps were going to require a very large amount of research at very many wind facilities, AWWI worked to develop a national eagle research framework, which is intended to be a structure for coordinating efforts across projects and maintaining consistency so that the results of all of these different types of research could be comparable to each other and build a stronger statistical case for whatever they were investigating.

So I'm going to go into each of these three in a little bit more detail. But so the three major steps are first that you as a developer, must provide an assessment of the number of eagles that will be taken at your facility.

And Wally covered this broadly so I'm not going to focus on it too much, other than to say that it is an important step in siting a project to begin with. If the sight you're considering has a high take estimate it might be one you want to try to avoid all together. Hello?

Patrick Gilman: Oh. You're still okay.

Ian Evans: Okay, great. I though I heard someone talking. Second step is you have to implement what are known as advanced conservation practices or ACPs, at your facility, that minimize the level of estimated take from Step 1.

ACPs could include changes to turbine operations at the facility or installing devices to actively deter eagles from entering the area. And there is going to be more on that in a minute.

And finally, number three, all predicted eagle take at a facility that is not going to be covered by your—minimized by your ACPs must be numerically offset using what's known as compensatory mitigation.

In other words, if you're going to take an eagle at your facility you have to (spay) the eagle or "create" an eagle somewhere else. And again, we'll come back to this in a few slides. So just a couple of quick things about what the framework that AWWI developed does not cover.

But these are still very important for eagle research and conservation overall. Determining population status of bald and golden eagles; evaluating the trends in eagle numbers relevant to these take thresholds, so whether populations are going up and down; and estimating the total number of eagles killed at all wind energy facilities.

These are definitely important for establishing baselines for these permitting programs. But they're not what I'm going to be covering today. So going to Step 1, again this is the one that Wally covered quite a bit.

And it centers around improving knowledge of risk, including understanding populations and different risk factors for eagles at wind energy facilities. And in turn, using these to produce the most accurate models for risk prediction and take prediction possible.

And like I said, Wally did a pretty good job covering that in the beginning so I'm just going to keep moving right past it. So Step 2—once you have your—once you have your estimated level of take you have to utilize advanced conservation practices or ACPs to minimize this take as much as possible.

And so some theoretical options for these types of practices are like Wally mentioned, turbine micro siting and curtailment. So whether you put a turbine on a ridge or right next to a ridge top, could influence how much—many eagles might be taken at that turbine.

Curtailment—if there's a time of day that eagles are likely to be flying around in the area, you can shut down the turbines during that area—during that time to reduce the likelihood that they'll be crashing into them.

A couple of other options are deterrent technologies which, for example, might be some kind of loud, acoustic or light technology that's going to disturb eagles when they try to approach turbines or facilities and keep them away from the area.

Or you could even manage perches and nests nearby, to discourage eagles from hanging out—sitting on perches to look—to forage or building nests.

So the biggest challenge here and one of the biggest opportunities for research kind of in this whole permitting program, is that no ACPs are officially recognized by the service yet, which would seem like a problem for a permit where you have to have an ACP to minimize your take.

But under the eagle conservation plan guidance, they're allowing facilities to use ACPs on an experimental basis. So facilities propose ACPs in their permit applications and if accepted, they monitor the results and the progress of these ACPs and closely report them back to the service.

These results are going to have to be pooled across facilities and conditions in order to account for the rarity of take and build statistical case that these ACPs

actually work. So the gold standard for this type of research would be a group of facilities coordinating to simultaneously test the same ACP.

In theory, once these ACPs have been tested in the experimental phase and approved by the service, they can be proposed in a non-experimental fashion in permits yet to come. But like I said, as far as I'm aware, I don't believe there's been any officially approved ACPs.

So moving onto Step 3, and this is again something Wally mentioned a little bit. But once all practicable efforts to avoid and minimize take of eagles have been implemented, there's—there may be a level of unavoidable predicted take that remains.

And so this is the take that has to be permitted to avoid violating BGEPA. Under the services policy of no net loss for golden eagle take, this take has to be completely offset in compensatory mitigation.

For bald eagles take has to be offset to the thresholds determined to be sustainable for different regional populations. And this is accomplished in one of two ways—by either creating an eagle or saving an eagle from another source of take.

Creating an eagle usually works on the idea of managing landscapes to increase (carrying) capacity of eagles. And this could include increasing prey availability, reducing disturbances, generally improving the habitat as all of these allow more eagles to reproduce.

This type of strategy is generally difficult to quantify and it's pretty cost prohibitive. So most of the other efforts that have gone on for compensatory

mitigation, have focused on this second option which is saving eagles or reducing eagle mortality from other sources.

This is one that AWWI has been looking into. And currently, the only approved mitigation strategy is to retrofit power poles to prevent eagle electrocution. And that's the one that Wally was describing.

And AWWI definitely agrees that there are only so many power poles in the world that you can retrofit. And so if there's going to be more wind energy facilities you have to be able to have more options than just retrofitting power poles.

So because mitigation measures have to be quantifiable, AWWI has been working to develop further options based on the results of statistical modeling. So don't get lost in this very big, busy, ugly slide. This is just here as a visual. Details aren't really important right now.

So what you see is the basic structure for a model centered on lead abatement. Eagles die every year from poisoning due to the fact that they scavenge carcasses full of lead shot that are left there during hunting season.

So by removing these carcasses from the landscape or swapping out lead for copper ammunition, which is represented in those—in the red box down in the bottom left hand corner, you can reduce the number of eagles that die from lead poisoning each year, which is calculated out in the end, on the right in the yellow box.

So this model demonstrates the way to quantify the number of eagles that can be saved based on known environmental parameters. Some expert estimates

where data is unavailable and a carefully constructed (center) of influences. You can save X eagles by reducing lead in the environment Y percent.

And by paying for these reductions via bullet swap programs or carcass retrieval rewards for hunters, wind companies can be credited with saving eagles and reducing their unavoidable take.

So like I said, this is just the first model that AWWI—AWWI developed in conjunction with a number of eagle experts. And this one is currently in review for publication.

And once it's been published we're going to work on verifying it and getting some wind developers to implement it at their facilities and also as part of their take permits.

We're working on a similar model to quantify and minimize eagle vehicle collision deaths from when eagles are feeding on road kill carcasses.

And we are planning to, in the future, delve into the question of, you know, conservation banking or habitat management to tackle the—create an eagle side of the mitigation question. I think I lost connection. Tessa, can you move to my penultimate slide?

Patrick Gilman: You're on your summary slide now Ian.

Ian Evans: Yes, thank you. So it's a pretty simple summary thankfully. So in summary there, it's three real big research related hurdles for wind facilities and that's to avoid take which you accomplish by improving understanding of risk and improving predictions of take.

Minimize that take by testing and using experimental, in this case, ACPs. And in the future those ACPs will be—should be moved out of the experimental phases. And then you have to compensate for unavoidable take as you have mitigation options, which still need to be developed and tested.

And I think that's all I have. I'll turn it back to you Patrick.

Patrick Gilman: All right. Ian, thank you very much. So we seem to be having sort of a star crossed day here. In addition to Ian's IT trouble we seem to be missing one of our presenters. If Annie happens to show up in the next few minutes we will give her back her time to present.

But in the meantime, I think we'll move onto questions and answers for Wally and Ian. So we have a couple of questions so far and the first is a pretty basic check here. And I think Ian or Wally, either one of you could take this one I think.

It would be helpful for the audience, for some of the more—the laypeople in the audience to understand, what does take mean and what is a take permit? Wally, do you want to take that?

Wally Erickson: Well I—this is Wally. I guess I will take that. Basically, under BGEPA, the service can issue permits to take, possess, transport bald and golden eagles for scientific, educational and also Indian religious purposes, depredation and falconry.

And what we're talking about here today and based on the 2009 rule, is permits are now available to take eagles in the course of conducting other lawful activities such as wind energy as well as to be able to take eagle nests when necessary, to protect human safety or the eagles.

Patrick Gilman: And Wally just one more clarifier on that. When you say take are we referring to just mortality or what else does that include?

Wally Erickson: I believe it can be a disturbance but I would prefer that that's a service person that talks towards that. So...

Patrick Gilman: That's—that's fine. Thank you. And another question for you Wally, what's the status of winter and summer golden eagle surveys for California where most of the wind mitigation is needed?

Wally Erickson: Okay. Just give me a second here. You know, there has been—the western wide surveys have not generally been conducted in California. Originally it was I think a cost—a cost—part of a cost issue. They focused outside California. There has been one survey down in California.

However, the trends in eagle populations in California, as well as population size, I believe, has been developed from models that look at the breeding bird survey data that's collected in the spring or early summer and the relationship of that data and the western wide surveys.

And there is a publication out on that with (Brian Milsap) and others, that have basically shown a pretty consistent relationship between what you use in breeding bird surveys with a correction factor for—to get up to population size.

Patrick Gilman: Thanks Wally. Let's see. We have several questions here that might be better directed to the service. But we'll try one.

Ian, do you have a sense of what it'll take to gain approval from the Fish & Wildlife Service for habitat conservation for bald and golden eagles and what research may be needed to support that?

Ian Evans: Patrick, your—your primary instinct on that one was pretty spot on. I'm a little hesitant to say—to speak for the service and say what it—what's it going to take for them to accept anything.

But I know that for many of these cases, when they're looking at this, the kind of gold standard that we've heard is if you want something to even be considered you're going to have to have it go through a peer reviewed scientific literature process.

And so promoting studies that have publicly available data that the service can use and have a transparent—have a full transparent process that's vetted by experts is going to be really the key to moving anything like that forward.

Patrick Gilman: Thanks Ian. One question that I can answer—will there be—will there be a recording of this webinar available online? Tessa, can you speak to—I'm not sure when exactly that will happen—hopefully in the next week or two. But we will certainly make a recording of this webinar available.

And I will further promise that if we can get Annie's presentation in that we will do our best to do so.

Tessa Dardani: Yeah, and this is Tessa and you should—we will get the webinar recording up in about a week. And Annie is able to join and she's joining in about five minutes. If folks are able to hang on to the webinar you can hear her presentation at that time. And apologies for the mix up.

Patrick Gilman: That's great. Thank you Tessa. All right. Wally, can you speak to if gut piles from large game are the only source of lead assumed in the—or I guess this is for Ian—are gut piles from large game the only source of lead assumed in the golden eagle model?

I know in some regions the western US ranchers control ground squirrel and prairie dog populations often with lead ammunition.

Ian Evans: So in the—in this model that we developed, AWWI developed this with a set of eagle experts as well as lead toxicology experts, to develop some of these unknown parameters. And in this case, we—this is just talking about gut piles and carcasses left on the landscape by hunting during the hunting season.

We considered doing—or adding in plinking I think it's called, when people are shooting at prairie dogs out on the open range. But it was just—for this iteration of the model it was simpler to proceed like this. And that's certainly something that can be included and we've talked about it.

But that's not where this is yet.

Patrick Gilman: Great. Thanks Ian. Wally, do you have a sense of—of the timeframe on which people are thinking the Fish & Wildlife Service might have a bald eagle collision risk model to go along with the golden eagle model that's currently been promulgated?

Wally Erickson: You know, I don't have a timeframe for when the service might accept a bald eagle model. I think the key is getting that information out and in the—in the peer reviewed literature or finding a way to, you know, in gathering more information on the issue.

Right now, you know, it's sort of a weight of evidence approach to suggest that the bald eagle is less risky based on behavior, based on other things.

But I think it's going to take some publication as well as maybe some more information at sites that are near bald eagles or have higher use for bald eagles and have some mortality information for that to happen. But again, you know, that's a question for the service as well.

Patrick Gilman: Thanks Wally. And, you know, another question for you, you know, in your experience with permitting projects, how has been the interaction between the eagle permitting and the other work that people need to do to demonstrate adherence to the guidelines under the Migratory Bird Treaty Act?

Wally Erickson: Well I wish the lawyer was on. But...

((Crosstalk))

Annie Mudge: I am here.

Wally Erickson: All right. Well why don't you answer that question Annie?

Annie Mudge: So first, my apologies for being late. I need to pay more attention to Mountain Time apparently. But the question is about how are the—how is the service approaching compliance with the Migratory Bird Treaty Act?

Patrick Gilman: Yeah. And how does that play into the eagle permitting process as well?

Annie Mudge: Well, recently the service has been requesting people pay more attention to the Migratory Bird Treaty Act in terms of—in their BCSs and post construction monitoring.

I think the service is mainly concerned with their find that your project is not having population level effects. I mean obviously there's no permitting process through the MBTA.

And—and so many birds are protected under the MBTA that it's really impossible to—to insure complete compliance with the act.

And therefore, I think the service is taking a position that if you are doing what you can to minimize impacts and are not having population effect, in terms of just permitting there's not a heck of a lot more they can do.

Patrick Gilman: Great. Thank you Annie. And I think that's actually a great segue for us to lead into your presentation if you're ready.

Annie Mudge: I am.

Patrick Gilman: All right. So Annie Mudge is one of California's leading siting and permitting lawyers for land use development in utility scale energy. She has more than 25 years' experience in (SIQUA), NEPA, zoning planning and laws related to wetland and endangered species and other environmental issues.

From 2003 to 2009 she served as a planning commissioner for the city of Oakland, supporting then Mayor Jerry Brown's efforts to revitalize Oakland's downtown, waterfront and neighborhood shopping areas. Annie, the floor is yours.

Annie Mudge: Very good. So I'm going to cover three topics. I'm just going to give a little background on BGEPA and then talk about the programmatic eagle take

permit. And then talk about the first eagle take permit that has been issued for the (Shilo 4) project.

So as I manipulate the slides are they coming through for everybody?

Man: Yes.

Patrick Gilman: Yep.

Annie Mudge: So—okay. So—good. All right. So—so everyone's on slide 3? So BGEPA's been around for a while. It was enacted in 1940 and I think that was sort of a very patriotic time when the bald eagle in particular has always been a very iconic species.

And it was a desire to protect it even further than under the—it was later listed under the Endangered Species Act. As folks know, it's now no longer listed. But it is a—it is prohibited to take a bald and golden eagle under BGEPA.

And take is broadly defined as more than lethal take but it includes to—to disturb their activities. There are both criminal and civil penalties associated with take under BGEPA. Those are—the criminal penalties are very infrequently pursued.

But the—the civil penalties are more frequently pursued and were pursued in the Duke settlement which I don't know if folks have discussed that already. In 2009 the service introduced new rules allowing take permits to be issued where the take is associated with—but not the purpose of the activity.

There are two types of take permits under—under the 2009 rules, individual take permits and programmatic take permits. And I think for—for purposes of

wind energy development it's really the programmatic permits that we're talking about.

And that's for ongoing activities that could result in more than one time take. I think that there is anticipation that take permits are going to be issued not just for lethal take but also for activities that merely cause disturbance.

That has—has not yet occurred but I foresee that coming—coming to a theater near you. Originally, permits were limited to simply five years renewable. As folks know, in 2013 the service did issue a new rule extending the term to a maximum of 30-years.

So there's—there is—look there are five bullet points there. And I think four main conditions. So there are five main conditions under—under which take permits can be issued. The permit has to be connected with some sort of legitimate activity.

The operation of a wind project clearly falls into that category. It can't be issued unless the—its terms are consistent with the goal of stable or increasing breeding populations. That has been interpreted to mean no net loss to breeding populations.

You also have to demonstrate that you've done everything you can to minimize and prevent take before a take permit will be issued. And finally, you need to demonstrate that you are going to be providing compensatory mitigation.

One of the things that became clear and I think still is clear with the (Shilo 4) project and other projects that are now operational, is that a—a BGEPA take

permit is not required to conduct any activity. It is in fact optional. You don't need to have a take permit in place before you go into commercial operation.

But you do need a take permit if your activities end up causing take. And therefore it's kind of like fire insurance. You don't have to buy it but if you have a fire you wish you had it.

So moving on then to the (Shilo 4) project which is the first issue take permit—it's a 100 megawatt project in the Montezuma Hills of Solano County California. I think somewhat importantly, (Shilo 4) was a—a repower project and an in fill project.

So taking out a whole bunch of the smaller legacy turbines and replacing them with much—many fewer, taller state of the art turbines. And also surrounded by—by other wind turbines. So I think the—the service was actually looking for sort of a test case to work with.

And the (Shilo 4) project met lots of criteria for it. It was approved on an EIR, certified by Solano County in support of the conditional use permit and the project went operational in December of 2012. So this is sort of a regional map so you can see, you know, where—where this is.

It's northeast of San Francisco. It's just southeast of the City of Fairfield. It's in the Montezuma Hills wind resource area. You can see the boundaries of the wind resource area a little bit better in the next slide.

It's sort of this bag shaped wind resource area bounded to the north by Highway 12 and to the south by the Sacramento River. And you can see in the brown area, the (Shilo 4) project area is sort of nestled there on the western side but more or less surrounded by—by other wind developments.

So it was issued in July of 2014 so it's very new. It's—it's got a five year term which is of course renewable.

The service in—in coming up with the five eagles over five years, applied the (Basian) model which we think was a very conservative estimate of projected mortality in that actual mortality in the Montezuma Hills had been maybe half an eagle a year wind resource area wide.

And therefore, you know, so, you know, an eagle just about every other year. And so applying one eagle per year to a single project we thought was very conservative. And I think that the service agreed but nonetheless wanted to be conservative.

And we were able to negotiate that the mitigation credits that—and the pole retrofits that were required as part of the compensatory mitigation, that those could be banked so that in what we believe to be the very likely scenario that the project would take fewer than five eagles within the five year term, that the—that the pole retrofits could be rolled over and be used for mitigation in renewal.

And we were, after, you know, years of discussing this, we finally got the service to put that in writing in the permit itself. One of the hallmarks of these eagle take permits are advanced conservation practices.

So that if the—the take does exceed the projected limits adapted management kicks in. And this is known as the stepwise table. So that if you take, you know, two eagles in a one year period, you trigger certain additional activity that is intended to minimize your potential take.

And all of these measures that are in the (shadow) for ECP, are considered experimental. And they include the possibility of visual deterrence, intensified monitoring, radar detection and curtailment.

I mentioned that one of the criteria for issuance of the permit is the payment of compensatory mitigation. The current means to do that that's currently available and recognized, is to retrofit power poles.

The service ultimately selected 133 power poles which was more than—than the operator EDF, had originally proposed in the ECP. The 133 pole retrofit came out of the NEPA process and was determined by the service, to better reflect the anticipated take and to be feasible.

And therefore it was selected. The pole retrofits must occur within one year of this past July, so July 2015. Just a couple of comments on the—on the NEPA process. Obviously this is a federal action which triggered NEPA.

It—it—there was some discussion early on with the service about whether an EIR should be—excuse me, an EIS should be prepared, because of the potential high profile nature of the first eagle take permit.

I think though, we were able to feel confident that we could go forward with an EA (unintelligible) because it was a repower, because it was an (initial) project and because there was some evidence that the project itself, would result in a reduction in eagle mortality.

Now with some dislocation early on in the preparation of the EA about what was the federal action? I mean was the federal action some sort of approval for the activity itself?

And that—that caused some delay in the drafting of the EA because I think everybody did eventually agree that the federal action was the issuance of the take permit and not any authorization to do with the activity itself.

And so the NEPA analysis focused on, you know, what would be the environmental impact of issuing a take permit versus not issuing a take permit. And what sort of take permit? What condition?

So the NEPA alternatives all focus on different alternative measures that could be imposed through the eagle take process, not on the number of turbines or where they're to be sited or how long they are to be operated.

Another hallmark of this EA was its discussion of cumulative impact. And there has—there is a goal that the services articulated that they don't want to issue take permits for more than 5% of the local area population. And that local area population is encompassed by a 140 mile radius around the project.

And in this instance, that includes the Altamont Pass. And because of the relatively higher number of eagle deaths in the Altamont, if you included those with the lower number of mortalities in the Montezuma Pass, you would actually exceed the 5% of the local area population.

And that would—if you—if you were going to use that as a—as a criterion for whether or not the permit could be issued, you've pretty much shut your permitting program down. And so the EA acknowledges that that's a goal.

But nonetheless, acknowledges that with the (Shilo 4) project, the mortality in the local area population could be around 12%. I think that the rationale is that because of the compensatory mitigation and the reduction in mortalities elsewhere, you're actually going to have a net benefit to eagle populations.

And therefore there was a recognition that they were not going to insist on a cap of 5%. So why did it take so long, especially because I think the project was a bit of a poster child for a take permit, given that it was a repower and (unintelligible) given a low eagle mortality in the Montezuma wind resource area?

And because it was, you know, the un-Altamont. It wasn't the Altamont. Nonetheless, it—we took almost—just about three years to get through the process. And I think that—that a couple of factors came into play. You know, most obviously it was the first permit.

And—and both EDF and the service wanted to get it right. Another aspect that I think took time, was that because of the wealth of actual mortality data, the service and their statisticians were interested to see if they could validate the (Basian) model.

And I'm not sure that they—that they felt that they really succeeded in doing that. But they—they—they certainly tried and took quite a bit of time doing it. I think another reason was there was a bit of a go around on what exactly was the project and what was the federal action which we've talked about.

And finally it took—it took quite a bit of time to negotiate what the steps should be in the stepwise table. The next slide is just the ta-da moment. This—this—this is the permit or excerpts from the permit.

So subsection F, you are authorized under BGEPA, to incidentally take a total of five golden eagles during operations and maintenance activities as described in the ECP, for five years. So this is the language directly from the permit.

I think one of the things that has—has been spawned from the eagle take program is a desire by the service now, to reach back to obtain compensation for legacy take at existing wind projects.

I think there's an acknowledgment that there is only an ability to reach back five years because that's—there's a five year limitation period under BGEPA for any sort of enforcement.

But there—there are ongoing discussions that I'm aware of, between the service and various wind operators, about obtaining take authorization going forward and a payment of compensation for past take.

Folks are aware that there is this rule out about a 30-year permit. As folks probably are also well aware, the American Bird Conservancy filed suit in June of 2014 in Federal District Court in California, to set aside the 30-year rule.

The claims they are making is that there are violations of the BGEPA, NEPA and the Administrative Procedures Act. The service is taking a closer look at the 30-year rule. There's a public comment period open and that comment period ends on September 22.

So to conclude, I think that eagle take permits are going to be a fairly permanent feature of the landscape. I also think the service can get these permits done and issued much more quickly than they did with (Shilo 4). It was a learning experience. It was a learning curve.

It is—I think—my prediction is, is that particularly in—in areas where there's a local population area where there's high bird mortality such as the Altamont,

the service will not be able to apply the 5% rule. But it may come out in higher mitigation.

And then my personal prediction is that the—the 30-year permit is going to settle itself out and that after a few years, it's—it's going to be looking like a better bet. And folks will thereafter be seeking 30-year permits rather than five year permits. And that—that's it for my presentation. Thank you.

Patrick Gilman: Annie, thank you so much. You know, now that we're a few minutes after the hour, I'm afraid we're not going to have any time for further Q&A while we're on the webinar. But the webinar is still open.

And if you have questions that you want to write in for Annie, for Ian or for Wally, as well as anything else about the webinar series, please feel free to send them in and we will make sure that—that those questions get to the speaker so that—so that they can follow up.

And with that, apologies again for the issues with the mix-up in time and with some of the IT problems. But we hope this was informative and we look forward to seeing you on another WINDExchange webinar next month and going on. So thanks all and have a good day.

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