HEARING
BY THE U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF OCEAN ENERGY MANAGEMENT
JANUARY 7, 2013 at 5:30 P.M.
Jennette's Pier
7223 South Virginia Dare Trail
Nags Head, North Carolina 27959

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North Carolina Offshore Wind Planning Effort
Public Call for Information
Presenters:
Maureen A. Bornholdt, Program Manager
Brian Krevor, Environmental Protection Specialist
William L. Waskes, Oceanographer
Jennifer Golladay, Energy Program Specialist
Bureau of Ocean Energy Management
381 Elden Street
HM-1328
Herndon, Virginia 20170

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Reported by:
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Mr. Waskes: All right, it looks like we have a small group. First off, I'm William Waskes. I am with the Department of Interior's Bureau of Ocean Energy Management. Also the acronym is BOEM. I would like to thank everyone for coming to this North Carolina Offshore Wind Planning Effort meeting.

We're really going to focus on two things today, one being a call for information and nominations for commercial and offshore North Carolina and the Associated Notice of Intent to Prepare an Environmental Assessment for Site Testing and Site Characterization Activities for Lease Issuance.

It's a small group, I'm glad to see that. Hopefully anyone in the back feel free to move up. You don't have to but it's always to keep everyone nice and concentrated. I will hand over now to Bob Leker from the State of North Carolina who is going to give some opening remarks. Bob?

Mr. Leker: Good evening, folks. I'm Bob Leker, Renewables Program Manager at the State Energy Office, North Carolina Department of Commerce. I'm pleased to be here. I'm especially pleased to be here because we are down the road in the process for vetting and understanding the offshore wind resource.

The BOEM staff has worked hard over the last

couple of years. We've had a number of task force meetings to review the process, look at various exclusions, work with various stakeholders who understand the situation, and I'm pleased to say that we are at a very important point here of issuing the call for information and nominations where we expect to get responses from contractors that want to name, number and tag out lease blocks that they're interested in.

So this is an important process and we're pleased that BOEM has taken the time and the staff has taken the time to work North Carolina into their schedule. We have moved forward and we're ready to begin the next phase of the process. With that, I'd like to go ahead and move on through the program tonight and encourage you to ask questions and we'll be here.

I guess Mo Bornholdt is going to give some opening remarks about the evening. I would just say that Jen Banks from the Solar Center and Brian O'Hara with Coastal Wind Coalition, Southeast Coastal Wind Coalition are going to assist me in a short background sort of an introductory portion. Then there's going to be another BOEM presentations that follow that. So we look forward to giving you some information and hearing your questions and comments. Thank you.

Ms. Bornholdt: Good evening and thank you

for spending the evening with us tonight. I guess there's a conflict there in scheduling, there's a football game so I appreciate the fact that you all came out here to spend the evening with us and talk a little bit about the Offshore Wind Program.

As Bob mentioned, we're at a critical juncture in our program. My name is Maureen Bornholdt and I'm the program manager for the Bureau of Ocean Energy Management's Offshore Renewable Energy Program. That important juncture is taking this first step in the planning and analysis stage for potential leasing off of the state of North Carolina.

As Bob had mentioned, Bob and Will and many others have worked rather diligently with stakeholders to try to figure out where can we focus our conversation. We're not going to be issuing leases tomorrow. This is a very important convergence of opportunity as Bob mentioned.

We want to seek input from the public with regard to the environmental and socioeconomic issues, as well as seek input from potential developers as to areas that they think would be desirable for developing because we know that the ocean, to be able to take a look at issues whether they're energy development or conservation, it's an expensive and timely undertaking so

we want to make sure that we're focused on those areas if there's one interest and that when we do focus on areas of interest, to understand what the issues are that are valid issues, multiple use issues, et cetera.

So thank you for joining us this evening. I'm looking forward to hearing your input, hearing your concerns and hopefully answering your questions. Let me turn it back over to Will who is going to run over the agenda.

Mr. Waskes: Okay. Just to give everyone a quick recap for tonight. First, the presentations you're going to hear tonight are going to be done by staff from the state of North Carolina. They are really going to go over a little bit of kind of 101 of wind off of North Carolina as well as talk about a lot of the state environmental efforts that they have done in support of offshore wind, and we'll also hear a little bit about kind of the economics, what that would mean for North Carolina.

We'll follow that up with some BOEM staff presentations. You'll hear about our leasing process and the various four stages of it, kind of a snapshot of what you'll be seeing step by step as we move forward. I'll give you the presentation kind of going over the call area that you always hear about, a little bit of

background on these development issues we're still working on associated with that. Then you will hear from Brian Krevor with our environmental branch talking about the environmental assessment and review process that will be associated with the process as we move forward.

After that, we will open the floor up for public comments from any of you all. We also have comment sheets as well so we can take any handwritten comments. We'll also take them via verbally. We have a court reporter here to capture those, and then we will open up the floor for questions and answers.

One of the primary things here really is to make sure we get all of your questions satisfactorily answered and make sure that everyone is kind of clear as we move forward. So with that I will hand it over to Jen Banks who is with the North Carolina Solar Center for the first presentation of the evening.

Ms. Banks: Thanks, Will. Hi, everyone. I'm Jen Banks with the North Carolina Solar Center and I'm just going to give you guys a quick overview of offshore wind before we move on. I guess I'll give you a quick overview of the Solar Center as well.

We are at the North Carolina State University and we're housed within the College of Engineering and we cover also types of renewable solar wind. We also had a

clean transportation program and do a number of activities for public outreach and education around renewables in the state.

Hold on just one second. I don't know if you guys can see that but the battery power isn't working on the computer. Well, I can't read my slide on my computer screen so I'm going to look up here for my quick hints of what I'm supposed to tell you guys.

The first offshore wind project in Europe was put in, in 1991. So this isn't something that's completely new. This is something that you have about 20 plus years of experience in Europe and since that time we've had over 3,800 megawatts of offshore wind installed in Europe. So here in the U.S. it's something that is new to us but we can definitely look to that knowledge over the last 20 years for what we're doing.

Also, the turbines are getting larger. Those first turbines at the venue project were basically onshore turbines that were put offshore. Now we have special turbines that were designed for the offshore environment and they're larger and more robust than the onshore turbines so that they're really made for that marine environment.

Here in the U.S. obviously we have no offshore wind installed yet, but there are a lot of projects in a

lot of states that are working towards it. The government is also working towards this goal. The Department of Energy has a goal for 54 gigawatts of offshore wind by 2030. So they have cost goals that they're looking for to make sure that we can get to this level of 54 gigawatts. One quick thing to note on the 54 gigawatts, North Carolina is projected to have about 10 gigawatts of that 54 gigawatts total.

I guess I skipped over the map there. On this map you can see where we have offshore wind resources in the U.S. and one of the important things for North Carolina is that we have a very long coastline. We have a shallow continental shelf that slopes very gradually so we can go further offshore and still have shallow water, which is important in terms of the commercially proven technology for monopile structures. If we continue to have technological advances which, I mean, in Europe it's ongoing then we may see a different type of turbine foundation here in North Carolina. I'll show some of those options a little bit later.

Some of the benefits of offshore wind in general are stable price generation. This is true for onshore and offshore wind. You lock in the price of the electricity for the life of the turbines and the projects get a power purchase agreement so that price is set. You

have no fuel price volatility over the life of that PA which is generally 20 to 25 years for a project.

For offshore wind you have the benefit of stronger and steadier winds and the ability to coincide with peak data loads. I have another slide with a little bit more detail on that in a minute. For offshore wind as I mentioned before, they are larger turbines and that's helpful because you're not constrained by offshore roads and bridges. You can take these large components, put them directly on barges and take them to the project site.

There's also an opportunity for states to meet their renewable energy targets. This is an opportunity for states to have their own renewable generation whereas on the east coast not many states have a huge onshore resource. North Carolina does have a good onshore resource of the coast. This is another opportunity to meet those standards.

Economic development in which you'll hear a little bit more about later on, there's a great opportunity for manufacturing from these components and we actually have a great deal of manufacturing for the onshore wind industry here in North Carolina already.

Here is a quick overview of the peak coincidence. Here is the curve for the wind output in

the mountains and you can see that during the main peak daily load in the afternoon the wind output is fairly low. This is true for most onshore wind projects. They have their raised output at night. Their load, their curve won't look exactly like this, but this is just an example for the mountains in Georgia.

Here you have the output for a project 40 miles offshore. You can see that the output increases during the daytime so there is that coincidence with the daily load because of the sea breeze effect.

Just really quickly, it looks like my slide is a bit jumbled there, I apologize. Here in the U.S. we have rules for offshore wind permitting in 2009. I'm not sure how much Maureen is going to talk about this, but the Bureau of Ocean Energy Management, then MMS, they put out a rule in 2009 which basically laid out the framework for how these projects would move forward. So we're kind of living that right now.

I won't talk much more about this because it's just sort of a quick overview of some of the activities, but one of the things that I want to mention is that in a number of other states they have gone through this process as well. So it's not something that's new for these guys here in North Carolina. It's something that a lot of other states along the east coast are going

through so it's really great for us to get to the point where we're able to have a call and to have these meetings.

Really quickly, just really quickly for how wind turbines work. For those of you who don't have that much experience with wind, you can see it's like a fan in reverse but much larger and slower. People think when they see these giant turbines that they're moving very fast. At the tips they can be moving fast but the RPMs are actually fairly low being you have a large offshore turbine.

Here's a quick layout of an offshore wind project or an example of what it might look like. Well, this is good because I can actually see my screen now.

So here's an example of what an offshore wind farm might look like offshore in terms of an array of turbines, cables that go from the turbines into the sea floor and then go to an offshore substation which has a single line that comes in under the beach and onto a substation onshore and connecting there. There's just a quick photo for you guys to see what that array looks like. It's subjective but I think they're awesome. They look really amazing and I would love to come to the beach here and see them offshore.

So here's a quick picture of the substation.

This is the substation that led to an offshore wind farm. Just a quick overview for a turbine. You have the blades which can be very long for offshore wind turbines, 60 to 80 meters long. You have the nacelle which is the big square bus-looking thing in the top of the tower. You have the tower and then you have the transition piece that goes from the tower sections to the foundation of the turbine.

Here is a quick slide on some other foundation types. So a lot of the turbines that are in place in Europe are monopile foundations and those are generally put in 20 to 30 meters of water maximum. You also have jacket foundations which can kind of be a transitional type of foundation that can go into deeper waters. You also have gravity base.

One of the options that isn't listed here is a floating foundation which would have maybe like a spar where there's a ballasts that goes down into the ocean and then there's tethers that connect it to the sea floor. That's the type of thing that they're really looking at in Maine and offshore for the west coast because they have much deeper waters. The shelf drops off much faster there.

As I mentioned before, the cables come ashore under the beach. They can do directional mooring to take

the cables from offshore into the sea bed or into the substraight - not saying the right words here, but into the sand and then under the beach and onto the shore. As it says here, it may run several thousand feet offshore so it's not as if it is directly offshore.

Here is one of the vessels that can be used for offshore wind installation. I think you'll hear a little bit more about this later, but a really quick plug. As I said with manufacturing, here in North Carolina we have the ability to kind of retool the manufacturing that we have for onshore wind and use that for offshore wind as well. But we also have a really great port in Morehead City that has the potential to service offshore wind projects. So there's a great potential for economic development for the state in offshore wind energy.

That was my presentation real quick. Up next you'll hear from Bob Leker again giving a presentation about some of the activities that have gone on in North Carolina to prepare for this. Thanks. Did you want to take questions as we go? If there are any questions, feel free to raise your hand.

Don Parker: We've got some turbines right out here and I'm sure you saw them before the sun went down. Compare that size to what we're looking at there.

Ms. Banks: Right. So I think these are

90-meter towers, or 90-foot towers, sorry. What you're looking at offshore would be maybe a 5-megawatt turbine which would be close to 500 feet tall.

Don Parker: Oh my.

Ms. Banks: To the tip of the blade.

Mr. Waskes: If I can remind everyone during the question and answer session that before you state your question, if you can state your name that way we can make sure the court reporter captures everyone correctly.

Ms. Banks: All right. Well, thank you guys. I'll turn it over to Bob now.

Mr. Leker: So we're officially at wedding party lighting now. This is wedding party lighting. Beautiful room.

So the state of North Carolina has been interested in wind for a while and the group, the marine sciences group at UNC Chapel Hill was involved for a while and is still involved. So we have done a number of studies and research efforts that have supported some of the background information that has given BOEM sort of a jump start and enabled us to get to this point to understand many of the exclusion areas offshore.

I'm just going to walk you through a couple of those kinds of efforts so you get a sense of where we've

been and sort of where we're going. This gives you a sense of the whole area offshore North Carolina. There's a lot of lease blocks. All of those little squares there, each one of these little squares is a three mile by three mile lease block. So there's lots of them. North Carolina has a long coastline which projects out into the Atlantic so we're out in the wind field. So obviously this is a huge technical potential but not all of the area is viable for commercial development.

As I mentioned, UNC Chapel Hill did this coastal wind study which was a seminal work that looked at the region offshore North Carolina as well as the coastal sounds and it covered waters less than 15 meters deep and within 50 nautical miles. It looked at a whole range of constraints that included wildlife, military use, transmission, cultural resources, endangered species area, sensitive habitat area, et cetera, et cetera. So there's a huge potential and from that potential we moved areas that are not appropriate for one reason or another.

This slide just gives you a sense of all the competing interests. You can still see some of the lease blocks that remain as part of the UNC Chapel Hill coastal wind study. There are military training routes here. There is a sensitive habitat area. It just sort of gives you a sense of all the layer exclusion areas and factors

that were evaluated. They did a pretty comprehensive job and as you can see by looking at the hatch areas, many of these hatch areas still remain today as a viable wind area so that enabled us to move forward and give BOEM a good idea of what areas have been vetted and, you know, what we were left with.

This map is a little cleaner representation of those. There are five areas. Here's Number 5 up here now known as Kitty Hawk, right. We have areas three and four here, three here, four there and then one and two down here. This is Wilmington east and Wilmington west now. They were numbered one - They were numbered one from the bottom, two, three, four, five. So it gives you a sense of what the area looks like and how it projects out.

Obviously or maybe not obviously, but you can see the capacity factors here in this area tend to be higher because it projects out into the wind field a little more. So those areas may have a little better winds that are a little stronger and would be utilized by a wind turbine more fully, but there are lots of areas that remain and this is a very large area, not a 20-lease block area like the one Virginia leased but there's many lease blocks in these areas.

Just to give you a sense, the task force, there

is a North Carolina task force. We don't determine anything. We're being consulted and involved in the process. BOEM will make the determination about lease blocks and we'll be involved. We've channeled information to BOEM staff and worked as a partner to try and provide the best information we know and to let them know the resources that we have here.

Recent efforts that have been seminal to this point have included analyzing NOAA information, National Oceanic and Atmospheric Administration information, the National Park Service had viewshed issues, U.S. Coast Guard has routing information. Those are some of the agencies that had some specific issues and there will be a complex visual simulation list completed and there will be information on that tomorrow.

That would leave a merge at this point with a call for information for the three areas, the top area Number 5 and the two lower areas. So we have those areas that are on the table and available for nomination. There's a public information request for two other areas. We're still gathering information on the central areas offshore, the National Park Service area. This sort of gives you a sense, this is pretty close to the map that we'll see on the wall there of the areas remaining to be considered.

So there's been additional work beyond Coastal Wind, the UNC Chapel Hill Coastal Winds study, that study in 2009. Some of those efforts revolved around more work to understand some of the environmental concerns done by the UNC Chapel Hill Institute of Marine Sciences. We did a study of ports Morehead City and Wilmington to understand what they have now that could make them, position them to be able to support either construction and/or operation of offshore wind farms.

We are continuing to do some wind resource analysis by the UNC Chapel Hill Marine Sciences Department and there's been some educational and stakeholder outreach that the Solar Center and Commerce and others have been involved to work with various stakeholders on the coast.

Just a quick overview of some of those efforts, the additional environmental work got focused specifically on area three, that central area but looked at a number of data studies to further define and get better resolution on fish habitat and wildlife habitat, some avian information, and some recommendations that were incorporated by BOEM were made to modify area three as a result of that work.

This just gives you a sense of some of the work that we see the red areas are the critical areas that

have the most conflicts with wind. You see they are centered on the capes. Those happen to be rich habitat areas and they sort of hug the coastline and the outer banks. You see they sort of track around. Those are the central areas. As you go farther out to sea however where the winds are better, it becomes far less of a critical issue in terms of habitat, avian and fish habitat. So those are the better areas and this is sort of the results of some of the work that, the ongoing environment work that we've seen to date indicate.

Just to give you a sense of the port study, there was a case study done for each port looking at various build out case studies and this particular one looked at 600 megawatts of wind turbines, a 5-megawatt wind turbine size was used and at Morehead port a laid out scheme was done to see how that would fit.

You can see on this slide here the green are the tower sections, that these are the tower sections, and the red are blades, and the blue are the nacelles laid out. So this is how it could happen at that particular port. The same thing was done for Wilmington and they looked at a whole range of different factors, the depth of the harbor areas, access to offshore areas, rail and concrete supports for the heavy loads that would be used and accessed by the rail and transport vehicle to

these ports to supply the needed supplies and parts. So that study also was done and paid for through recovery funds administered by the commerce department.

The wind resource efforts that continue deployed two buoys and also a wind profiler. We had hoped to get the wind profiler which is a sound-activated radar. We had hoped to get that on a platform but they couldn't quite swing that so it was put within a half mile of the outer banks near Buxton.

Buoys were deployed and unfortunately they had a little issue with probably a collision of some sort and we did get data off of those and those are being re-deployed. They were fully insured. This gives you a sense of what goes on offshore.

As a result of that work and ongoing work, we certainly have confirmed that there are significant winds for power production and that there are a number of complex low-level jet streams that do or will and have influenced the wind mapping that has been done in the past and leads us to believe that some areas are going to be higher than what's estimated and some a little bit lower.

So it just tells us the complex nature of the coastal areas will have some different kinds of measurements of the wind speeds at various heights. So

that will be important and that's why we would all just likely want to have meteorological towers with measurements at periodic locations, heights above the water to give them critical information about wind velocities.

Then we did a number of public information sessions and presentations and meetings with the various stakeholders that include cities and counties, coast associations, non-governmental organizations, fishery groups, the ports authority, wind developers. We've also gone to meetings, national and regional meetings and the Solar Center also has as part of this work completed a summary of the European Union of various countries in the European Union, their offshore policies that have stimulated a support of the offshore wind industry.

There's also in North Carolina a North Carolina transmission planning collaborative group that was created by the Utilities Commission and it is composed of the utilities in North Carolina. They look at modifications necessary to support a vibrant transmission grid for the state. As part of that effort for the last three years or from 2010, 2011 and 2012, there have been case studies looking at what if there was offshore wind generation, where would those transmission lines go in the state, how would they get to load centers, what lines

would be necessary to be built to accommodate those several thousands megawatts injected into the grid, and what alternatives there are at various megawatts of injection.

So that is a technical group that does evaluate these kinds of things just to give you a sense of some other groups and organizations that are looking at this effort.

Then finally we have a very large offshore wind resource which we're fortunate to have and strategically located ports that could support wind farm development and operation, not to mention the fact that North Carolina does have a manufacturing tax credit so that materials and equipment that are made in the state can take advantage of that manufacturing tax credit and a low-cost manufacturing.

That's my presentation. Does anyone have any questions or clarifications that they want to ask at this point? Yes, ma'am?

Pat Fleming: My name is Pat Fleming. How close to shore would be the furthest out, like is going to be three miles off, twenty miles off?

Mr. Leker: It would be at least six miles, yes, at the very least.

Mr. Waskes: We'll talk about that in

greater detail, but right now the closest to shore would be six miles off.

Pat Fleming: Okay. And I assume that when you did the assessment you looked at migration fly aways so that you're not putting turbines in the pathway?

Mr. Leker: That has been a major effort looking at avian fly aways and migratory pathways. That has been a very important part of all and certainly the 2009 study and subsequent studies have looked at fly aways and avian pathways. The farther out you go offshore the less birds there are and that has been supported by various transects that have been done by boat and plane going out into the ocean and doing counts of birds. That generally holds true and it was supported by those transect efforts. Yes, sir?

Jim Beamon: I'm just wondering, I guess some of those studies that you're talking about, the wind study results, the transmission line study, the visual simulation, are they available anywhere?

Mr. Leker: Yes, they are. Those studies are all public information. All the studies that we did with funding, public funds are all available and if you want them they can be emailed to you. Some of them like the UNC Chapel Hill studies are already on the web. You can do a very simple search and you'll see some of those

studies available.

Jim Beamon: (Inaudible)

Mr. Leker: Yes, I would definitely take a look at that. Yes, sir, in the back?

Richard Bunch: Richard Bunch of North Carolina's Northeast. Was there any consideration for the Virginia ports?

Mr. Waskes: Yes, I'll touch on that.

Mr. Leker: There's a maritime group that has been formed and there have been stakeholder meetings.

Richard Bunch: And the second part, there are a couple of smaller ports that under development in the northeast that Wanchese Seafood Park is in charge of. I don't know if you have taken any peaks at those or not, the one that's at Perquimmans and the one out near at Wanchese Seafood Park for capability of that layout?

Mr. Leker: I believe the port study may have looked at that port but they really focused on Wilmington and Morehead as the primary ports.

Richard Bunch: I got you. Thank you.

Mr. Leker: All right. Brian O'Hara, come on up.

Mr. O'Hara: My name is Brian O'Hara. I lead the Southeastern Coastal Wind Coalition which is a relatively new, less than a year old, coalition of

businesses, universities, North Carolina's Northeast is a member, utilities, et cetera, basically folks that are trying to figure out how do we do this in the southeast.

What I'm going to talk to you about is, you know, we've heard from Jen sort of Wind 101 and how does wind work and you got kind of a snapshot of what the activity is in other states along the east coast. The short answer on that is they are further along in this process in the mid-Atlantic and northeastern states, in several of them.

Then you heard from Bob sort of what North Carolina has done to get to where we are today. I think the short answer on that is a lot. There's been a lot of vetting going on even before BOEM got involved in the process frankly. So what I'm going to give you is to put into a context the southeast and in particular North Carolina in comparison to these other states and sort of say why is this an opportunity for the southeast and what sets the southeast and particularly North Carolina apart. What are the advantages, what are the unique advantages and unique challenges.

In our coalition we focus on five southeastern coastal states from Virginia through Florida so I'll be talking both about North Carolina specifically and about that southeastern region. Basically I'm going to be

making to you three points. So if you have something, you know, a phone call you need to make, as long as you take away these three point you can walk out for the next ten minutes.

The southeast and North Carolina within the southeast has a fantastic wind resource, a fantastic offshore wind resource. We have very large electricity markets and we have relatively low cost in this region. So first on the wind resource, we have a heck of a lot of wind off the coast in North Carolina and in the southeast. A lot of that is in shallow water.

So what this graph is showing is data and the colors aren't real great here so I apologize again. But this is data from a national renewable energy lab report estimating the theoretical potential of offshore wind energy. This is before you take into account any of the use constraints that Bob laid out, so it's a true apples to apples comparison of what each of the states has.

I've sorted it, the color of the bars represent water depth. The green bars are zero to 30 meters so that's typically what we consider shallow water. The blue water is 30 to 60 meters and the gray bar is greater than 60 meters of water. I've sorted this on the zero to 30-meter bar height and ranked these by states.

What you see here is that the four southeastern

states, North Carolina, South Carolina, Virginia and Georgia are one, two, three and four in the shallow water offshore wind resource. The other thing that you can pretty easily notice on here is that North Carolina is by a long shot has the largest offshore wind resource on the east coast.

The scale on this gigawatts and if you were like me a couple of years ago you would probably say what the heck is a gigawatt. So to put it into context if you were to say and I'm not advocating this, if you were to say we're going to get 100 percent of the electricity that North Carolina uses from offshore wind how high would that bar be.

Again, I'm not advocating this, it would be that much. So that would be 100 percent of the state's use. So if you ask the question do we have enough technical potential to get ten percent of the state's use, I think we do.

Now, if you look at this on a regional basis like I said and you highlight, you combine together the southeast and then compare that to the mid-Atlantic and the northeast, you can see that the southeast when you combine these, the shallow water resource has over 60 percent of the total shallow water resource on the east coast.

So you could also say well okay, we have long coastlines and everybody has shallow water, it's called the beach, but nobody wants to see - Oh that's the wrong picture here. It was to see if you're awake. Nobody wants to see a turbine 500 feet off the beach. As Jen said, they're big. That's 500 feet tall to the tips.

So if you say I want to know what the resource is in shallow water but get me far enough offshore so get me twelve miles offshore which is where - I picked that number because that's where they sort of made their data cut to look at it in that report.

So if you look at 30 meters of water or less, shallow water at more than twelve miles offshore, the southeast has over 80 percent of the east coast resource potential. So there's an enormous potential down here in shallow water offshore wind.

So my second point and you might wonder why this is important and I'll tell you in a second is that we here in the southeast, we use a lot of electricity. So if you haven't noticed by now I have an engineering background by training and I prefer to let data talk so I apologize for the overwhelming bar graphs, but this chart is showing the annual electricity consumption for each of the east coast states. Again, I've highlighted the southeastern states so you can see four of the five

largest electricity markets on the east coast are in the southeast, Florida being up here.

This is interesting too, that number two, this is New York. You can see Georgia and North Carolina are right next to it, use about the same amount of electricity as the state of New York. We have half the population of the state of New York so we use a lot of electricity down here. The reason for that is we're in the southern climate so we use air conditioners a lot more. We have more rural properties so we have less natural gas usage and more electricity for heat, and the price of electricity is low so we tend to use it more for even industrial purposes than some other places.

But again, if you look at this, if you combine this on a regional basis you can see that the southeast as a region is a really big electricity market that's over half of the east coast electricity demand. We also have, you know, we have high per capita usage and we have five of the six fastest growing populations on the east coast. So to the extent that there's going to be electricity demand growth, if it happens anywhere it's going to happen in the southeast or we'll have less demand.

The reason this is important is, you know, the challenge with any new generation technology and frankly

whether it's wind, it's solar, it's even new fossil fuel, if we build something new it has an impact on rate payers. So the reason this is important is that if you build something new here, if you build 1,000 megawatts of offshore wind in this market, and you build 1,000 megawatts of offshore wind in this market, the impact her rate payer on a bill is going to be a heck of a lot less here than it is here, all other things being equal. And all other things are not equal and I'll get to that in a second, but that's the effect that this has.

So the third point that I wanted to make is around cost. Cost is always what comes up when you start talking about offshore wind and we have a real advantage here in the southeast because we do things cheaper here in the southeast.

Before I get into the southeast specifically this is just a chart showing the cost targets for offshore wind, the U.S. Department of Energy's cost targets for offshore wind. So they're targeting by 2020 getting cost to about ten cents a kilowatt hour and by 2030 getting to about seven cents a kilowatt hour.

The things on the left here are a series of credible estimates or contract prices from existing projects up and down the east coast. So you can see the cost projections are coming down. Ten cents is about the

retail rate that we pay here in North Carolina now just to put that in perspective.

Now, here is why I want people when they think about something like renewables and they think about the southeast they say well it's going to be really hard in the southeast because your electricity prices are lower and, you know, if you're trying to get over a hurdle with costs you've got a bigger hurdle here. That's true, that is our biggest challenge, but this also provides us with a pretty big opportunity because this is one of the factors that leads to us having a very low-cost manufacturing and construction labor markets environment.

So I want to step back just for a second and just kind of talk about how the price of energy for a new generation facility is determined. There's basically five factors and these pretty much hold true whether you're talking about wind or coal or gas or nuclear or solar or whatever. Fundamentally it breaks down into these five factors and I'll use wind as the example since we're talking about wind today.

You've got what does it cost you to build a facility, construction costs. So you've got that construction costs that you then have to amortize over the life of the project. You've got what is it going to cost you to operate and maintain that facility. What's

it going to cost you to borrow to pay back your debt and your equity holders? So what are your finance costs?

What does it cost you to provide fuel so in a wind facility that number is zero because wind is your fuel. When you're talking about coal or gas obviously the coal or the gas is your fuel. So what's that price and then this thing called a capacity factor which essentially says how much are you utilizing that facility.

So let's say you build a natural gas plant and you only ran it ten percent of the time. Well, you're going to have amortize all those fixed costs over - the electricity is generated just running at ten percent of the time. So that's going to make the price per unit of electricity higher whereas if you run something 100 percent of the time then you're amortizing less - you're spreading fixed cost over more electricity production.

So in wind you're not turning these things on and off, the wind is doing that for you and so the higher capacity factor the stronger your winds, the steadier your winds, the more you're running close to capacity, the lower the cost is going to be because you're generating more electricity for essentially the same fixed cost and you don't have a variable fuel cost. So the more you generate the stronger the wind, the lower

the cost is going to be and we have very strong winds down here.

There's a sixth cost that I would be ashamed if I didn't talk about that we actually as a society don't talk a whole lot about but we need to just keep in mind is there are external costs to our electricity generation choices. Those come in the form of environmental costs, public health costs so, you know, emissions is a good proxy for this if you've got emissions that's putting a cost on society that doesn't necessarily show up on a our electricity bill but it is a cost for something we're doing. We pay for it in other ways. So this is another almost, at least as far as emissions goes, almost a zero category for wind.

So why this is important is, as I said, we have very attractive labor markets here in the southeast and two of these, so we can strike fuel from the equation, the wind, then two of these that remain are basically very heavily dependent on labor rates. So lower labor rates means you can have lower construction costs and lower operations maintenance cost.

So the cost of a project here in the southeast is going to be less than the cost of a project in the mid-Atlantic northeast. That means your energy costs coming out of the back end is also going to be less. So

that helps to mitigate the fact that we have lower electricity prices here to begin with.

This isn't just me saying this, the Energy Information Administration agrees with this. In fact, I'm agreeing with them. They're not agreeing with me. They have a report that they put out periodically that says here's what we think it will cost to build "X", all of those different technologies. Then for each region here's a adjustment up or down. It's either going to cost more in this region than that baseline or it's going to cost less than that baseline based on a number of factors, labor rates being one of them, a big one of them.

What this chart is showing is the representation of that data for offshore wind construction costs. So this is the Energy Information Administration's estimates for offshore wind. Again, the colors aren't good here, but the four lowest cost states on the east coast are in the southeast and North Carolina actually has the lowest estimated construction costs in the nation, not just on the east coast but in the nation.

So this is a real advantage and it's an advantage that we've seen actually crop up in the land-based wind industry because we have an attractive environment for manufacturers. We here in the southeast

have somewhere between five and ten thousand jobs in the wind industry and there's not a single megawatt of utility scale wind installed in this region yet.

So even though wind is being installed in the mid-west and the mid-Atlantic and the northeast and west, there are still a lot of jobs here and it's because we have a very attractive environment.

So when you take kind of all of those three points that I made, great resource, big markets, low cost, and you say what are the impacts, you know, if the political challenge or sort of the stomach challenge on this is, you know, anything new we build is going to affect our pocketbooks, but how much is it going to affect our pocketbooks. And if you compare that in the southeast to other regions, the effect that each of those three points has, you know, the lower electricity rates in this region, that makes it more challenging because we're starting from a lower point.

But the fact that we have a very big market so we can spread these costs over a much wider market and we have lower construction costs which means the energy costs from offshore wind in the southeast will be less helps to mitigate that. So in effect, you know, you could be looking at a very similar impact to rate payers in this region as you might see in places like the mid-

Atlantic.

So I'll just leave you with sort of a vision for the future. If you think about the east coast as a region, not the southeast, the mid-Atlantic and northeast and you say let's fast forward twenty years and say the offshore wind industry is going and this isn't a position condoned probably by anyone at this table, but you know there's a vision where - Am I losing battery? Yep.

Anyway, if you can build it for less in the southeast and you can sell it for more in the northeast, is there a vision where the southeast becomes a net energy exporter over time and is this a big economic opportunity for us. That's something to think about.

So that's the end of me and I'll look forward to questions. Yes, sir?

Jeff Hamilton: I'm just wondering, you know, I've heard people say who are opponents to the wind energy thing or whatever that if the government subsidized all these things every time, even when they're all subsidized by taxpayers and so they wouldn't make - they only make what is being proposed to allow these government subsidies. What do you say to that?

Mr. O'Hara: My personal view is that for energy we should strip away all the subsidies for everything and we should build in all those external

costs that I talked about. So build in the cost of pollution and then let the market decide. If we did that I think we would see a heck of a lot more renewables and a lot fewer fossil fuels.

That's sort of the Utopian let's get there anyway we can vision, but in the near term my response to that is energy markets are one of the most subsidized markets across the board. You name the technology and I'll name three subsidies for it. So I think it's appropriate and it's historically appropriate for us to be supporting a relatively new industry, and offshore wind is a brand new industry in the U.S.

So I think it's historically appropriate for us to be supporting it and we're supporting oil, we're supporting coal and we're supporting nuclear. So we're far from a subsidy-free energy market right now. Yes, ma'am?

Pat Fleming: Is someone going to be speaking on what kind of infrastructure will be onshore to make this actually useful, like do we have a big - will there be like big power stations or something like that?

Mr. O'Hara: Do you guys have anything you're saying about that? Bob Leker mentioned the transmission, the North Carolina Transmission Planning

Collaborative. Essentially how these will work is, as Jen showed in her diagram, a cable would come under the beach, connect to a substation at shore and then be connected to the grid onshore. The Transmission Planning Collaborative that Bob mentioned has looked at, you know, if you do this the first project you're probably connecting into the existing infrastructure.

If you think about an industry going forward and developing several thousand megawatts then you're probably going to need transmission infrastructure upgrades to get that power into the more robust part of the transmission in the state. Here in North Carolina we don't have the level of coastal population density that other states do so the infrastructure isn't quite as strong.

So if you come in the middle of the state we're going to eventually need to make, you know, do some transmission line upgrades to get into the bigger part of the backbone, but for these areas that are here in the borders there's actually some pretty strong transmission infrastructure available both in Virginia and South Carolina. So it may make more sense just to connect into Virginia and South Carolina. Okay, thank you.

Ms. Bornholdt: So you've gotten kind of a context of where we are partners with the state. The

state initiatives have begun with regard to studies, kind of the who, what, where, why and when that Brian walked through as to why North Carolina. Jen kind of gave you a basic Wind 101. So we're going to now attach that to where we are in the federal process because we're a federal agency.

We have the authority to lease these lands three miles out to 200 hundred miles for offshore wind, oil, gas, minerals, sand and gravel. So let me just kind of give you a little background on that and then we can kind of lay out what the process is and then we'll talk about how we're linking some of the state data and the initiatives here with the initiative that we have to take a look at the called area, if it's Kitty Hawk as well as Wilmington west and east.

The other thing too I want to mention is several folks refer to the other ongoing opportunities on the east coast, we have a map in the back that kind of shows the other wind energy areas. Ask any one of the folks from BOEM whether it's Jennifer, Brian or Will about those other areas so we can bring you up to speed if you want.

So what we're going to do now is kind of talk about the federal process. You've gotten a sense of where we are in the landscape of North Carolina. Now

we're going to talk about the process and perhaps answer some of the questions that you all have about how does this work now.

So as I mentioned earlier today, we're the Bureau of Ocean Energy Management. Jen reminded me, Jen Banks reminded me we used to be called the Minerals Management Services. Some of you are maybe familiar to that. We are a bureau within the Department of the Interior and we are responsible for ocean energy and the energy and non-energy mineral resource management. So with regard to everything we're going to talk about now, it's really offshore renewables and in particular offshore wind.

Our process for offshore wind is divided into four stages. So even though we're talking about the Kitty Hawk call area, Wilmington east and Wilmington west, that doesn't mean we're going to jump into leasing and have construction next week. The federal government, we love our processes and particular for renewables where this is brand new, we have emerging technology. We're trying to get to know the landscape down here and luckily we have good state partners to understand what the issues are and the economic drivers, energy drivers.

We want to make sure that we reach out and talk to the public and we begin having a very good

understanding of the local landscape. Hence, we divided our program into four phases and we work with what we call our intra-governmental task force to reach out on the landscape to talk to the key local, federal, Indian tribal governments and state agencies so we understand what's ongoing in this state and the area that we want to move forward in.

So we're divided into four phases and I'll quickly go through them because I know you're kind of tired of hearing us talk and we want to make sure you get an opportunity to provide us input.

So the first phase we call planning analysis and we're still in that phase. This is where we establish the intra-governmental task force and in North Carolina we established that in 2011. We published calls for information nominations and notice of intent to prepare an EA and that's where we are presently here off of North Carolina.

The next step is announcing an area identification and Brian is going to be getting a little bit into this a little more as well as Will, but what we do there is we upload the information we get from you as the public, from our intra-governmental task force members, from developers and we say okay, this is where there's some interest here and there's environmental

sensitivities, there's some military uses here and we come up with this what we call our area identification or wind energy area.

Then we do our environmental analysis to understand what are the implications of leasing to the marine, human, and coastal environments. So we're right at the beginnings of this planning and analysis stage.

So as I mentioned with the North Carolina intra-governmental task force, we were established in January of 2011. We've met four times and had really, really key dialogue. As Bob mentioned in his presentation, we've uploaded data from the other federal agencies that are located here, park service, military DOD, National Oceanic and Atmospheric Administration as well as took all that information and the studies that North Carolina had and as Bob mentioned, he's right, they started this before we even had our authority to issue leases for offshore wind and uploaded that into the mix to come up with these two polygons off the coast of North Carolina to begin this investigation of can we lease here, what are the implications.

So what is a call for information and nomination? A call for information and nomination is basically an opportunity for developers and the public to give us information with regard to areas of commercial

interests within a specific polygon in the ocean. We have this first map up here shows the three areas that we put out the call on.

We want to understand if a developer is interested, what kind of general outline would they take or schedule to the types of machines they would use to develop that area for offshore wind as well as we want to know the other kind of issues. We ask about environmental issues in our call for information nomination. So basically it gives us a sense of is there some place in these polygons that there is viable commercial interest and what are the issues and how could that possibly be developed.

In North Carolina right now we have a 45-day comment period and that comment period closes on January 28. So that's kind of the commercial side. Here is the map that we have on the wall.

What is area identification? As I mentioned, what we do is we upload the dialogue that we've had with key stakeholders, with their intra-governmental task forces, with the state agencies, federal agencies, et cetera, and we take all that information and we just layer it and see okay, we know this is a key area in the United States for military operations and training, let's set those aside.

We understand that there's particularly critical habitats, sea floor habitats that support fishing and fish as well as some other critical biological resources. Let's say okay, we're going to set that aside. So what we do is we basically create a puzzle based on information we gather through the various announcements and we use that and say this is what we're going to analyze then to move forward with regard to these and we will do that through our National Environmental Policy Act as well as program analysis.

So just to kind of give you an example of where has this worked before, as everyone has mentioned this is not - we're just not embarking on a program first in North Carolina. North Carolina is benefitting from some of the experiences, some of the successes and some of the missteps that we've taken in some of the other states. So we're not going to repeat missteps as we've done in the northeast, but we're going to learn from the successes.

One of the great success stories in the northeast is the Rhode Island/Massachusetts area of mutual interest in wind energy. You can go to the back of the room and see the map there. We know that there's an incredible commercial fishing industry up in the northeast and so what we did is we worked through our

state task force, through the Rhode Island governor's office and they had working groups comprised of commercial fishing, commercial fisherman. And they actually gave us a composite map to say these are really key areas for us with regard to use.

So we were able to gather that information and in the area identification remove that from consideration for leasing because those were really key areas that they needed to be able to sustain the commercial fishing. Is it the be all end all? No, it was the first step to removing key areas of interest for them.

So this kind of gives you - It's a shame that the color is so bad but you kind of see this tan area. That's the area that we started with and you see this kind of like a gray smiley face, that was the area called Cox's Ledge that we took out because that was considered a significant venue for the different gear types that are used up in that area. So we removed that. There will not be offshore wind turbines put into that area. So we've gone on with our environmental analysis.

We've also done the same thing in Massachusetts. So again, we're learning what works with regard to stakeholder dialogue and consideration so we can avoid some nasty conflicts that we don't need by making the right decisions up front. So in Massachusetts

what we did was we continued that Cox's Ledge because Massachusetts and Rhode Island are adjacent as well as took a look at a considerable biological resource to CEDA and removed areas there.

You can kind of see this area here. Again, the map is bad but you can go back and look at it at the back of the room. What we did is we took this chunk out of here on this kind of an eastern portion because that was key CEDA area habitat. So the area ID works that way. So what we're analyzing in Massachusetts and what we analyzed in Rhode Island was the remaining area.

We started out with a huge area. Having the dialogue with stakeholders, other federal agencies in this stage is to focus on what the areas are that have the least amount of conflicts instead of analyzing it. Because as I mentioned earlier today when we opened the meeting, when you start looking at ocean energy issues and start doing analysis, it's very expensive so we want to make sure that we take a look at areas that perhaps have commercial viability and the least amount of conflicts.

We know a key issue in North Carolina is vessel traffic. So what we have done and Bob mentioned this a and we'll talk a little bit more about this is we've created some maritime working groups to get out there on

the landscape and talk to the port authorities and other pilots and vessel operators to get a better understanding. We're also working with the U.S. Coast Guard on a risk assessment model and working with them as they develop their Atlantic coast port access broad study.

Viewshed is also another issue. We know the coast of North Carolina is valued as a recreation destination and so we've done, working with the park service, we have gotten together and done a visualization study and we're going to have a workshop on that tomorrow because this is key. Again, we want to be able to take advantage of some of the resources that Bob and Brian and Jen pointed out, but we want to make sure we do it in a smart way and we don't want it to adversely affect current existing uses. But we know that everything comes with a consequence so we want to understand what those are so we can make robust judgments.

So the second phase is leasing. So we've done our analysis, we have our dialogue with our stakeholders, we've done our environmental analysis and now we're ready to say okay, this area is what we want to lease. So up in the northeast in Rhode Island we're ready for the proposed sale notice. In Virginia and the mid-Atlantic we're moving forward that way. So we're not there yet in

North Carolina, but this is the next stage for North Carolina.

What we will do is we will complete our EA under the planning and analysis stage in North Carolina and we'll take a look at coming up with a proposed sale notice where we describe what the leasing process will be, what the physical terms are, what the auction format is, what the auction rules are and we'll seek public input on that. Then after we publish a proposed sale notice we'll go to a final sale notice and actually hold the auction.

In between what we're going to do is we'll have a public seminar on the auction as well as the mock auction. So there's still a lot of process before we get here, but even when we enter the leasing stage we're not going to stop this dialogue with you. We'll have information sessions so the public as well as the developers and our task force members are informed as we move forward in this process because it's new to all of us.

The third stage is site characterization assessment. So I have a lease now, I have won a lease in a lease auction and now I'm getting ready to gather information associated with it so I can figure out how to build on it. So gathering that information is what we

call our site characterization assessment. The lessees will conduct lease-based studies to get a better understanding of what biological resources are there, what archeological resources, what the wind environment is so they can then design and build out.

They can choose to either build a meteorological tower to gather that data. They can deploy meteorological buoys to gather data, et cetera, so that's kind of there, an environmental study that's focused on the lease block. The federal government just like North Carolina has done some broad-based baseline studies, but this really focuses in on their leasehold to give us information as to what's out there so we can evaluate their site assessment plan if they're proposing to construct a MET tower. So basically phase three is this gathering information that is project-specific, still no building yet.

So stage four is actually the commercial development. So with all the information that they gather, they give to us as well as their plan for how they're going to construct and generate. We have to approve that plan. We have to conduct environmental analysis under our National Environmental Policy Act to be able to understand what the implications are to the coastal marine and human environment.

So again, we just don't say here's a lease, go build out. We have this process where we expect to have a plan and that plan is going to describe the kinds of machines they're going to use, what their schedule is, what their infrastructure will be so we can then conduct the appropriate analysis, the consultation with the state under the Coastal Zone Management Act and then approve, disapprove or approve the modifications of their plan. Then they can go ahead and begin construction and generation and just move forward.

But no matter what stage we're in, we're going to engage in information sharing at meetings like this, either with public notices with comment periods and for the proposed sale notice, evaluation of plans and environmental scoping. For example, when we receive a construction operation plan, that stage four plan, we'll hold for pubic hearings because we'll be doing an environmental impact.

So we're going to continue this dialogue regardless of which stage we're in because I know some people are concerned that once we leave planning and analysis we set aside our task force and stop the consultation, but that's not the case. Because this is a new technology. This is a new energy sector. We've learned from the past that it's better to have this

engagement so we get a better understanding of what the landscape issues are so we can work with our state to be best informed.

So what are our goals for today's meeting after we get done with all the talking heads? What we want to do is provide you with this very, very light overview of what our process is. Will's going to drill a little bit deeper into what we've done with North Carolina, what all this means as far as the call for information and nomination.

Brian Krevor is going to talk about the notice of intent to prepare an EA and what we're looking forward from you with regard to comments about that, how to help us with developing a scenario and alternatives. I want to take your comment and that way we can go back and we can design the right scenarios to analyze what the implications could be of leasing this area or a subset of these areas for offshore wind.

So if there are no questions, I'm going to turn it over to Will. Any questions?

Kelly Martin: Yes, my name is Kelly Martin. I wondering what you estimate as the time frame to get through these stages.

Ms. Bornholdt: That's a really great question. Each stage has taken - it's kind of

customized. We don't have a set amount of time so for example the comment period closes on the call for information and nomination and the NOI on January 28.

It usually takes anywhere between 30 days to upload all the comments and then move to the area identification stage and then receive approval from our secretary to direct us that this is the area. Conducting the EA can go anywhere - I guess, Brian, it could be 18 months, 12 months?

Mr. Krevor: The EA could be, it could be as low as six or probably more like twelve months.

Ms. Bornholdt: Right. And then we also have consultations with the resource agencies like the National Marine Fisheries Service, Fish and Wildlife Service so there's endangered species and we need to go through and do a biological assessment and get a biological opinion, they're given by law 135 days to render that opinion so there's more time there.

We also have Coastal Zone Management Act compliance. We'll end up having to provide to the state a consistency determination and there's a set time for that. That's anywhere between - That's up to 90 days. So you can see this is starting to add up. So by the time we get to a lease sale, it may be anywhere between 18 months from now just depending on how the

environmental analysis concludes because the key thing and Brian is going to get into this and I don't want to steal his thunder.

When we prepare an environmental assessment, if we take a look at the resources that could be affected by leasing activities and we find that there's significant impact we don't just stop there and issue what's called a finding of notice of impact. We then move to an EIS, and Environmental Impact Stage and that can take anywhere between like 18 to 24 months.

So it's very hard to predict, but I guess the thing that I would like to convey is it's not going to happen tomorrow, that we're still going to have this dialogue. We'll put the EA out for public comment. So you're taking a look at perhaps about twelve months.

Kelly Martin: For the purposes of providing us with a little bit more context, what do you anticipate - I know you all have been moving through this process along the eastern seaboard and states north of us, so what do you anticipate for when the east coast of the U.S. will start to see offshore wind turbines in the water?

Ms. Bornholdt: The two states that are moving towards actually holding lease sales are Virginia and Rhode Island. Virginia it's conceivable that we

could have a lease sale this year, perhaps early fall and then it just depends on whoever wins that lease if they are going to build a MET tower or if they're just going to deploy meteorological buoys, or they're going to go straight to providing us with a construction operation plan.

So let's say they go provide us a construction operation plan after they received their lease, then you're talking that it could be anywhere between 24 and 36 months to get you to construction. That would be quite accelerated because what I skipped through in this presentation so we can get to Will is that once when a lessee wins a lease they have up to five years to gather the site-specific data in order to follow that construction operation plan.

We're embarking with some cooperative efforts with some of the states to help make that time be a little shorter. So it really depends on the kind of environmental site-specific information they have if they move straight to a construction operation plan. But again, it's not going to happen next week.

Any other questions?

Bob Parker: Just real quick, I've been covering for some land base land projects here not to far away, Camden County and Pasquotank County and then there

was some efforts there from the Pamlico Sound as well and neither one of those land bases have been able to find anybody to buy their power, it's too expensive. So they haven't been able to get that done and then in the Pamlico Sound area I talked to some people about that and it was too expensive. So what's the - How are they doing in these states that are ahead of us? Are they able to find developers ready to take this on?

Ms. Bornholdt: Well, some of the states have embarked on different types of processes to try to lure companies. The state of Rhode Island has a contract agreement with a developer to agree that they're going to buy so much of the power. We have in Massachusetts with the Cape Wind project the company has sold about three-quarters of its estimate generation.

We have in New Jersey the state is thinking about an offshore renewable energy credit to again help and Will can talk to you more about that if you want because he's our New Jersey point of contact, but to be able to enter into those long-term agreements. Maryland now is taking a look at maybe they want to do something like that because as Brian pointed out, you're just jump starting a new industry, this is uncertain with the technology. That's a big question and unless you have an off take it's going to be a challenge to perhaps

actualize a project.

With that said, what we can do is provide that access. We have diligence requirements and we have the requirements of the developers to make sure that they're not banking sites but they're moving forward with collecting some of this project-specific data which has to be done anyway. So those off take agreements can be worked on, you know, once they get their lease.

Any other questions? Okay, I'm going to turn this over to Will.

Mr. Waskes: Okay. I am really going to focus on the meat of what is in this federal registry notice that Mo talked about, which is the call for information area so these are the three areas that we're talking about. So you'll probably hear a lot of people sometimes, at least within the state, refer to these as areas one, two and five. That was during some of our planning for it, but formally this area here is Wilmington West, this is Wilmington East and this considered the call area of Kitty Hawk.

So I'm just going to walk a little bit through how we kind of came up with these areas. I won't be able to get through everything but at least you'll be able to see the bigger picture of most things. So really, the source of it has really been a whole host of federal

studies, state studies. You heard Bob talk about the 2009 North Carolina wind power study. There's numerous studies that have been done by other state entities as well as NGOs looking at siting of offshore wind facilities whether it's off North Carolina.

Some have looked at Georgia, South Carolina and North Carolina together. NOAA has quite a bit of studies in terms of fisheries, habitat, so on and so forth. So try to pull all of those together. We've also tried to take lessons learned from working off of other states. In this case you'll see a prime example of a big lesson we learned from New Jersey.

Dialogue with the task force, obviously studies don't have everything in them so there's a lot of stakeholder analogy as well that you want to be able to pull into there. Studies that exist that are hard to find people can pull together and then sometimes you just don't have any already collated studies together so you have to kind of do your own analysis of the raw data. We've done a little bit of that.

Really it's been just I think the task force working completely together whether it's at the task force level or the state agency to federal agency, federal agency to federal agency, federal agency to stakeholder group, so on and so forth.

So just to get a little primer basis, what you're seeing here on the left is kind of a map of the state of North Carolina. This is going to be important I think as we kind of move forward to give you kind of baseline at least for our NC system.

So within here are these dash lines or what we call protractions. Each protraction has an name as you can see in this case, these are the names and there's a number associated with them. Within each of those protractions are OCS blocks. In this case this is four OCS blocks and those are to be broken down into 16 equal parts that we refer to as aliquots.

Each OCS block, so in this case there's four, is 4,800 meters by 4,800 meters, roughly three miles by three miles. Each aliquot is about 1,200 meters or is exactly 1,200 meters by 1,200 meters. So it's really all set up on the metric system. Total-wise this case, again following the metric system, is roughly a little over 3,000 hectares which comes out to, from the English system, roughly 5,500 acres. You can see the breakdown for the aliquots.

Just on a map line-wise so you can see there's the coast, with this line closest to shore is what we call the Submerged Lands Act boundary. It basically separates federal from state waters, and the second line

you're seeing is really there to help you in terms of measurement. We refer to it, because of the Outer Continental Shelf Lands Act, the AG line which really plays into whether there's revenue sharing with the state or not of any profits that would come from offshore energy. So that's kind of the baseline as we start to kind of walk through how this area was developed.

So the first portion we're looking at here really comes down to what we call kind of high marine like areas. So this is looking at fisheries, hard bottoms, marine mammals, sea turtles, so on and so forth and you see these hatched areas here are areas that were deemed to be - definitely have to be avoided. It doesn't mean that there aren't other areas of concern, but these were the ones that had the highest sensitivity, if you will. As Bob noted, you see most of these line up with the Capes and are fairly close to shore as well as you see in that pocket as well.

So we start to overlay this. What we're looking at here now is avian densities and you're kind of starting to see the scene trend for a lot of reasons, really coming down obviously in the food source for avian species. Each of these capes, in this case you're not allowed to work in the Gulf Stream which you get a big area of up dwelling as you start to see here. Most

people call it the point. You end up with high avian concentrations that tend to end up being a lot further offshore than other areas.

Moved on and looked at obviously if we're going to put offshore structures they have to go into the sea floor. So we start to see some similar but a little bit different and this is really looking at foundation suitability. So again, on the capes you're seeing these are areas of very high mobile sediments. You get a lot of parse topography, limestone, outcrops there that come off. You start following here on this outer portion as being closer to the shelf edge with the slopes and becoming algae beds that tend to end up being here. Again, you're starting to see a lot of these are just different configurations of a lot of the capes you see in North Carolina.

Not only do we have to look at environmental, we have to also look at multiple uses. In this case, you start to keep overlaying. We went to the task force to the Department of Defense as DOD has a heavy place here in North Carolina. So in this case these were areas that they all felt there was definite incompatibility. A lot of this was due to whether it's test firing, clear areas of visibility you can't be having firing exercises with structures there.

So in this case you're seeing some portions north but it was primarily a lot of Onslow Bay where most of those activities happened. All were areas that end up being removed. So we carry this along a little bit further. Here you're starting to see them kind of tapped out by OCS block instead of those polygons.

But here is a case of kind of three different other issues. We learned from other issues off states, for example New Jersey, and this gets back to the question we had I believe about avian resources and the fly away. Most studies are finding as we move forward with this that pretty much you're seeing that fly away and birds really don't drop off for the coastal birds until you get to about six miles offshore.

So it's probably hard to see on this map, but you're starting to see that X-ed' out always to six miles. You do start to see a pick up of that pelagic species once you start getting closer to 30 miles offshore. It's just a different species of bird that spends most of its time on the water.

We also have traffic separations so in this case this is the port of Wilmington and these are routing measures that the Coast Guard, you've seen them on nauticals charts, recommend for mariners to come in and out of the port. So obviously we have to remove anything

that's in front of them. We can't blockade that. It would be like blockading the onramp to a major road. As well as in this case, this is a danger zone for explosives so there's always a hazard there.

So you also have a little bit of buffers when you deal with special cases like that. Here's another example of where we put a buffer around the TSS so some of that buffer intersects some of those aliquots we talked about. So those are areas that still could be leased but we would have a no-build stipulation to them in terms of having these structures, certain structures there. So really meaning we could put cables there but you really couldn't put a turbine.

So these are just a few more of the things that we consider which really broke out to the group saying okay, we've seen this and these are three areas that we're going to decide to move out with at this time. Like I said this where he breaks out the names, the Wilmington East, the Wilmington West, Kitty Hawk and this is all the area combined and these are just some general statistics.

You'll see that the Wilmington East is roughly 370 nautical or square nautical miles. If you're looking at hectares it's about 112,000. So if you're looking at it in terms of blocks, OCS blocks and partial OCS blocks,

partial OCS blocks in this case means anything less than a full block. So it doesn't necessarily mean that it's one aliquot. It could be 15 aliquots 14, 13, or 2. It just means that it's less than the full 16 from one OCS block. So this is just a breakdown of looking at those.

You can clearly see the call area of Kitty Hawk is by far the largest and the other two get a little bit closer in terms of size to each other but still considerably far apart. Then you see distance to shore. This is a big critical one that we'll talk about in a second. The closest point to Wilmington East is seven, Wilmington West is 13, and Kitty Hawk is six. This is from land to that point.

So these areas are still not without issues. Even though we've done this work there's still numerous issues associated with them and one of the reasons why we're going out for this call for information.

So in this case what you're seeing to your left, on the left is U.S. Coast Guard's red-yellow-green assessment. That's kind of how when we go to them with an area we're thinking about they color code it red, yellow and green. Red meaning they feel that it should not be included in the call at this time, yellow meaning that it could be in the call, but they think there needs to be additional information and studies collected.

I should say the red means as well they would like to continue to have analysis of those areas as well and green meaning it's okay. So in this case you'll actually see a little bit of green whereas primarily you still have yellow, yellow, only a small portion of yellow close to the line off the offshore and the rest red.

Now this is based primarily on what existing traffic has done. So this is very hard to see. We have a map of it in the back, but this is some of that independent data analysis that we've done using automated identification system or analysis.

That's essentially in a nutshell each boat, certain tonnage and size is required to have a GPS traffic device sonar. So we're able to historically go back through that information and see where those boats are going, how many, how often. So in this case you're seeing a plot of that AIS information by aliquot. So roughly it's a density plot by square kilometer, almost 1,200 meters by 1,200 meters.

So in this case we're looking at all vessels so this is what they based it upon and you can clearly see that there's traffic that does run through 5 and starts to come down. This doesn't given you necessarily the concluding picture because you always have to pay attention to scales. So you can make things necessarily

so that everything looks like very high or it could look like we don't see these center portions. They are different when you look at different vessel types and we'll talk about that in just a second.

But this is what the red-yellow-green was based upon, just the existing traffic running through which clearly runs down. In most places it covers a swath of roughly 30 miles wide and some of the highest aliquots you see offer roughly about - once you get outside of the Virginia port of Norfolk area here, most of these running in here are pretty much within 100 to 300 counts or vessels per year, meaning anywhere from one per day to as little as one every three days on that average of the highest (inaudible).

So when you focus on that you can see a little bit more of the concern. This is the port of Norfolk. You can see the high density, it runs out and it starts to spread. You see this separation here, that's primarily because there are four DOD offshore structures out there that are no longer used but the vessels end up splitting.

Again, if you can see the scales the densities are really not that - you're looking at vessels about one every three days running through here. So it's primarily just cargo ships for the most part at least in

this out portion. There is a mix of a little bit of tugs and towing, not very many tankers. It's almost all cargo ships so it's a concern by the Coast Guard as you can see and we'll talk about how we're trying to address those.

Then down here in the Wilmington areas, this is traffic that continues down and most of it just continues on down the coast, but some does need to get into the Port of Wilmington. In this case you're looking at numbers in that case of one to about ten so that's per aliquot per year. So you're really on a low count for the year, but there is a concern about how would you move through there.

So we are working to try to address those. We have a maritime working group and really pointed out as we were trying to combine quantitative analysis, the stuff we're doing with the AIS information, breaking it out by vessels moving in different direction, different types, see what they're really doing during weather conditions, how often are vessels within proximity to one another.

Then we're trying to then pull in the actual maritime users so the captains, the port authorities. In this case for every five of the Virginia Maritime Association. We have the Coast Guard there, the DOD, because of those structures. A lot of the I guess what

we call non-government so American Waterways Organization, basically all the people that use that area because they have that realtime use that we can't pull out in the process.

So we've already held our first meeting. We held it in December. And really need to focus on two different portions because that's what we're seeing in the data, deep water vessels primarily as cargo vessels and tug and towing. It looks like we're making some pretty good headway on tug and towing.

Just go back, the predominant use there, you can start to see a little bit in all vessels that's much closer to shore. So they do not like to mix with these much bigger high moving vessel or high-speed vessels. So there's probably going to have to be some sort of carve out here that meets their needs in order to deal with bad weather as well as give them a route for them.

So deep vessels is a little bit more of a problem. I guess we can go back there and talk about what we're discussing. We're trying to get some more of the actual deep water users out there to kind of get their thoughts on again, we have this natural separation. This second here, like it's over 30 miles wide. Is there a possibility for tightening that up to have some sort of area in the middle? Is this area on the outside more

suitable?

We'll continue to work with that group on all these various options and try to get recommendations from them on what they think would be the best way for us to move forward, particularly with that area identification stage Mo was talking about.

Another big issue as I can imagine a lot of the local residents in Kitty Hawk can comment is visual impacts. It's been a big issue for a long time. It's something we're working on and those are really driven by a whole host of things. Obviously you have, you know, homeowners. In this case your six miles from shore of the area. The house symbols that you're looking at here are basically places that are on the National Historic Register and some of those are on there for various reasons, but some of them are on there for viewshed concerns.

So they are a historical landmark or historic place because of their viewshed. So it's a concern of impacting one of the important factors that made them historic places. Then you also have quite a large section of national parks. You have both Cape Lookout, Cape Hatteras National Seashores. The park service initially has recommended a 20-nautical mile buffer. They were preferred at the time of the discussions that

they were looking at.

So we tried to address these and really driven a lot as you can see. That's quite a bit from a park service as we've started the visualization study and I'll talk about that in a little bit more detail. But we've been doing it in partnership with the National Park Service and I'll try to cover some more of the details.

Really we're going to have an open house on this tomorrow to go through all the visuals. It will be at the First Flight High School starting at 6:30. So definitely anyone who is worried about visual impacts and wants to see simulations to definitely come out to that tomorrow.

Essentially a little bit more for the study is we were really looking at what you're seeing here is all the different arrays and sites that we did. So we did 18 sites along the coast ranging from Park Service lands to up here whether it's in Duck, Kitty Hawk, down to Sunset Beach, Baldhead Island.

So we had 18 sites that we did three different distances. We did 10 nautical miles, 15 nautical miles and 20 nautical miles and that's what these lines represent. That's from the point. And we get rate configurations using two different turbine models, so in this case you could see - in this case this is Duck.

This is the viewpoint of what you would see. This is the array configuration. So those are turbines, essentially all those red blocks are turbines. For every scenario we use 200 turbines spaced 1,000 meters apart.

In this case it's probably hard to see in here but we even add a substation in there. On the visuals this is a panoramic of the view, but this is the actual shot from the camera. We use two different turbine types. We use the Siemens 3.6 megawatt, which is widely already in use. It sits between 400 and 450 feet in terms of from the base of the water all the way to the tip of the blade at the most northern point.

And we did a Vestas 7 megawatt which actually it's capable of producing up to 8 megawatts. It's nowhere in the world. It hasn't been prototyped yet. It has a blade length of 164 meters so it would be a little bit over 600 feet tall from the base all the way to the tippy top. It should go in the prototype and I think Vestas is looking to start actual construction of the prototype in 2014.

So we'll have visuals from those and I'll just give you a quick look at some of those. This will be very rough to see on here because of the colors, as well as, as we've learned through the visuals, all these visuals have to be looked at in a particular way, at a

certain - offset to view from a certain distance under the correct equipment. Sometimes if it's not, you're not getting a true perception. So I definitely would not take these as what it looks like and that's why I would encourage everyone to come to the open house tomorrow where we will have panoramics that occur for people to sit in front of.

We'll have nighttime visuals. Obviously there will be lighting associated with these so we'll have some nighttime video for that. We'll have animations that run at different times of the day, and we'll also have 11 x 17s of all 18 ones and definitely the people that actually did the study will be there to talk to you about the limitations and nuances when you're viewing them. I definitely think it would be worthwhile if you have the time.

So in this case you're seeing the beach at Duck. This is a late afternoon shot of a Siemens, you can see them on the horizon here. This is ten nautical miles from shore. Again, this is 200 turbines. So this is using the exact same configuration, so same placement, same turbines, same late afternoon conditions but it's 20 miles from shore. I don't think you can see them on the screen but if you were to see them on a panoramic you would still be able to see them faintly in the distance.

These are the same ones using the Vestas. Even here with this poor resolution you can clearly see these white objects are definitely more prominent than the Siemens 3.6. Again, this is the exact same configuration for all of these so the only thing you're really changing out is the turbine type for this example here. So this is at 20 nautical miles from shore. Again, this is kind of the view from where you're looking. You're out there looking at it and this is what you would see.

So again, if you can, come to the open house tomorrow. We'll also be having a meeting like this in Wilmington on Wednesday and another open house down there on Thursday. So just refreshing back to why really a portion was public review, Brian will talk to you about that notice of intent with the call, you know, what it is just to recap that and why is it really important. So it's in the federal registry notice, everyone can read it.

Again, it's seeking nominations so they're trying to see where commercial developers are interested, seriously interested. We're also looking for other information and that really kicks into me really here on this bulleted portion. So as you can see there's lots of other issues with this area. We have viewshed issues, we've got vessel navigation issues, and we can only work

with the information and input that we have.

So the next step as Mo talked about, this would be area identification. So it's important that we really get feedback from the public whether it's comments, whether it's -- I love data so if anyone has any data sources I would love to have those, studies we are not aware of. All that would feed into us taking a look at when we kind of go to this next step of area identification in order to do the next kind of shrinking down of the area, what do we leave in, what do we take out.

So it's really early in the process so it's important that we do that now before we get too far down the line. So it's a 45-day comment period. We came on December 13 which means this closes on midnight on January 28. So again, I just can't emphasize enough it's really important to get your comments or your issues or your concerns or any information you have to help us with that process.

So with that, how do we do that commenting? The call's on the website. You can go to regulations.gov and in the search box and you just type BOEM 2012008 which actually pull you to that notice and also pull you to where you can comment electronically. You can also send any comments you have or hand-deliver them as well

to our office, which the address is here.

If you have comments you want to make tonight we can record those via court reporter. If there's any handwritten ones we have forms in the back and we'll take them at this meeting as well or if you want to mail those we can take it that way. So with that, I will take any questions.

Barry Anderson: My name is Barry Anderson. You're with - Do you do this same procedure when they're talking about putting oil platforms offshore?

Mr. Waskes: I will let Mo answer the process with regards to the oil and the gas. I came with the agency and I started in the minerals program and then it's renewables. So she probably is, at this table, has the most experience with the oil and gas side.

Ms. Bornholdt: We do not have this kind of level of dialogue with states, with stakeholders. What we do is we set out what we call a five-year program. Will mentioned the OCS Lands Act. Section 18 of the Lands Act outlines that, the secretary of the interior shall draw a five-year plan in which they would have basically a calendar of events where you would have these sales.

Once that five-year plan is approved by the secretary and congress, then we move to having lease,

individual lease sales. They're all competitive. It's high bid wins and then we would block these. As the oil and gas program works on lease sale, we do the National Environmental Policy Act since any consultations and all that remains the same because the oil and gas program doesn't adhere to the same laws that the renewable energy department does.

What we don't have is this kind of in-depth dialogue. So you basically have federal register notices, EIS opportunity and then there's the post-sale notice and then the resale. So it's similar but different because we take a look at renewables as being new technology in areas that we don't have a great understanding of energy drivers and landscape issues.

That's why we do a task force and sit down and have partnerships with Jen and with Bob and with Brian to get an understanding of that. So it's similar but different. It's not as extensive or intensive when it comes to the dialogue with the agencies and states.

Barry Anderson: I appreciate all the screening there and focusing on it as a new technology, but I just don't understand how oil platforms can go in where they know the blowout preventers don't work and there is a danger but the public is not brought in and I just don't understand. I don't understand why they don't

have more screening and how they can have a rubber-stamped environmental plan that talks about wildlife in the arctic and you end up with (inaudible) and that's what I don't understand.

I'm hearing our governor in North Carolina talk about rushing the process of offshore drilling in North Carolina, and the state of Virginia sounds like they're already down the track. I hope you all, whoever is in charge of focusing scrutiny on those people to at least do the same and at least comment as much to the rest of the public on hearings and meetings like this.

Ms. Bornholdt: That's a good point. One thing I will say, because the area off of Virginia and the area off of North Carolina is not in the present five-year program (inaudible). So unless it's in the five-year program you'll have (inaudible) so we won't see that presently in the North Carolina and Virginia. Any lease we issue for wind can only be used for wind unless he does not get any rights to subsurface minerals at all. So in other words, it's not you - you're using it only for offshore renewable energy but not for oil, gas or sand.

Barry Anderson: (Inaudible)

Ms. Bornholdt: Yes, they can not.

Barry Anderson: Thank you.

David Carr: My name is David Carr. Can you clarify further what the status of areas 3 and 4 are off the National Seashore? I guess also whether you're taking comment on that in this notice?

Mr. Waskes: I'll let Mo add onto this, but all I can say is in the plan areas known as 3 and 4 are something that they will continue to look at with the task force. But the fate of them I am not aware other than that they're going to continue to let them through the task force. I'm sorry, what was your other question?

David Carr: Are you taking comment on areas 3 and 4 in this notice? That was earlier reference to it?

Mr. Waskes: Yes. I mean, officially the call commentary or the call is referencing, you know, Wilmington east, west and north. But a lot of those same visual issues with 5 will relate to 3 and 4. I guess as simply as I can say it if comments came in for those I don't think they're something we would ignore. So it's something we would still take into account whether it's for the actual call portion but definitely as we move forward and if we move forward with areas 3 and 4 with the task force.

Do you want to add to that, Mo?

Ms. Bornholdt: Yes, that's fine. If you

have comment with regard to those other areas you can write us anytime, you know, so it's not dictated by as Will mentioned. The call for information and nomination is specifically focused on those three areas on the map. But if you have comments or perspective on the other areas, you can always write to that address, that snail mail address and that will go to Will and I. So, you know, we're not discouraging that kind of communication, but for the call for information and nominations specifically focused on the three calls.

Mr. Waskes: Any other questions?

(The gentleman did not care to give his last name.)

Charles: I have a question about the restrictions with the leases as far as vessel movement. Is there a typical distance that's required?

Mr. Waskes: I mean, if you're referencing for what you saw there is we have a two-nautical mile buffer around that currently established routing measure. In terms of limitations of being like in an avoidance zone that would be if you can't come within a certain distance of a turbine is something right now you do have for oil and gas platforms. I wouldn't quote me for this but I think it's 500 feet for oil and gas.

The Coast Guard hasn't said anything about, you know, kind of a no-go zone in terms of wind but it's

something we would defer most likely to the Coast Guard's expertise in regards to the safety zone or setback and turn from vessel movement that they would say hey, we don't want vessels moving this close to it. It may be either of a certain size they don't want to do that, but they're fine with other sizes is something we would defer to the Coast Guard on.

Ms. Bornholdt: Well, unless he acquired a series a continuous blocks they can not put a fence around it and say we can not traverse that area. We will not do that. The Coast Guard has also said they won't do that. So what Will says is we'll take a look at using the Coast Guard's expertise if there's a safety issue associated with proximity to one of these facilities, but will not allow us to prohibit, you know, regular commerce with those.

Mr. Waskes: Yes, and location so if there's a whole facility, in that case it's a 200-turbine, so there's nothing we do to say no one can go in between them if they want to. Some developers have looked at to purposefully address that, let's put in very, very large fencing between them. It's something that the Coast Guard would do a navigational hazard risk assessment on and make their determinations that way from their own perspective.

Charles: So a developer can request that a certain - The developer can request that a certain distance be suggested and then the Coast Guard has to review that and then potentially regulate it?

Mr. Waskes: We would most likely - I don't want to speak for the Coast Guard but I don't know if -

Ms. Bornholdt: Well in New England for example because we know that there's an issue associated with access to some of these areas, that's why they are still on the table, that we may actually require there be a particular excessive spacing to allow for other uses. So we have that ability when a lessee files a construction operation plan to take a look at their spacing to see if it's conducive to multiple use.

As Will mentioned, when the lessee files his construction operation plan we have a memorandum, an agreement with the Coast Guard to help us take a look at navigational safety issues as well as the lessee will be required to do the risk assessment associated with safety factors and that's one facet of it.

So there's kind of a combination of approaches so we found out down here that is very important to keep, you know, good long spacing because of recreational or commerce. We could require that in terms of an operation

plan acknowledge that and the spacing in the proposal to construction. So there's not one size fit all, it's really dependent on the uses in the area, the geology of the area, what is conducive to the types of facilities. Jen showed the three different types of foundations so that's something that is not one size fit all. We really work with the lessee with regard to that in consideration of uses and existing and multiple uses.

Mr. O'Hara: Just to clarify, Mo is using the word spacing and she's talking about the spacing between the turbines -

Ms. Bornholdt: Right.

Mr. O'Hara: - so spreading the turbines out allows for more activity in between them and I think what I'm hearing from you is about the spacing around a single turbine, is that what you're asking?

Charles: Yes, essentially, yes.

Mr. Waskes: From that safety perspective in terms of how close you're worried about impact. That's something I think we would - obviously we can regulate that (inaudible). Other questions?

(The next speaker did not announce his name and left the meeting early.)

Unknown: So Will, in looking at your topics there, is six miles the minimum or is ten miles

and on your visualization simulation you had 10, 15 and 20 and I know you talked about six miles offshore is what could be started? And then the second question, looking at area 5 it's obviously going to have an impact or a possible impact on the economics of the outer banks with tourism and visitation with that visualization simulation that you'll be look at.

So in talking about all of the different blocks that were withdrawn for various reasons, you know, military, hard surface, shipping, everything else and looking at the map that Mo had with the MPSs, visual sight map I think you were calling it, has that been contemplated going all the way up from Duck to Rodanthe to talk about what is the possible impact for the revenue loss of tourism because they want this - as Jen said, she would love to see them, like others may say they may not want to see those especially at six or ten looking at your simulation.

So is there a model or something that's been created that shows what the possible economic decline of the economy for the whole banks area would be?

Mr. Waskes: I guess a little bit on that issue, primarily we did this simulation it wasn't to make a, and it's kind of in the slide, it was to assist in assessing in that because the park service own study was

really, as we go forward, you see the same machines from the same distances at different visuals looking very differently. So we really wanted to work together in order to get to that step of assessment, and you kind of both have to say what's our realistic, accurate representation of what these would look like.

So it's really the focus of the study it to say okay, let's in partnership work together, come with an agreed upon methodology to try to make sure that we both at the end of the day say we both think he's accurately represented what this would look like under these lighting conditions. Because the next step which is the hard part comes to the impact assessment. I think that will fold forward - we be several steps going forward. I think one is outside of economics.

It's just as, you know, just clearly from a, you know, how close is too close, from an aesthetics perspective I think we have one hurdle, and then you'll probably start to see depending upon where that goes because everyone is always asking what does that mean economic impacts to tourism, so it will probably be the next one. So I think that something that will be addressed in more detail. It's just going through those hurdles to get there.

Mr. Krevor: We actually are addressing

that. We have an agreement with the University of Delaware for a tourism to recreation survey study. A lot of their experts, including Dr. (inaudible) have done a lot of this work before with surveys and have released numerous amounts of different studies about how people would react to turbines offshore and specifically with tourism and recreation and so a lot of those - Most of those studies have been done on a state by state level.

We've seen it in Massachusetts or Cape Wind, we've seen it in Delaware. We just had one, actually a very good one done in South Carolina but we really haven't seen the regional one with the state methodology so we went about trying to correct that and really come up with a project that would have the same questions asked from Massachusetts down to south of North Carolina. So that is in the works right now.

What I can tell you is that people go to the beach for different reasons and that's one thing we're going to examine. Somebody who goes to Atlantic City, New Jersey is probably not going for the same reason as someone going to Cape Hatteras National Seashore and that's extremely important to recognize. So that's something that we're going to look at.

The initial results of studies in Europe and studies here have shown that it's about equal the number

of people who would avoid a beach because of turbines as the number of people who would specifically go to a beach to see the turbines. So that could net out zero and it really depends, also people might go to a beach and there might be a turbine, a wind farm to the left but on the right there wouldn't be a facility so would that be an issue if they could see it if they look that way but they look this way and it's not there.

You know, with all of our simulations we show just turbines completely stretched out, but the reality might be different. Turbines may seem as increasing as machines get larger. Lessons learned from Europe are showing that some turbines are stealing wind from other ones so you really do need larger spacing as we talked about with mixed uses, vessels in between.

So we're really trying to look at all of these issues. We don't have all the answers right now, but we are trying to get there and that's something that we're very concerned about and all of this information will feed into our environmental studies when we actually do models of what kind of economic impact this could have.

But that would be further down in our environmental review when we actually see the construction and operations plan way down the line when we could actually analyze this and consider it a project

and how it might impact the region. But it's on our radar and we're working on it.

Kelly Martin: Thanks. I was wondering, so I understand that the work you all are doing and the leasing - the electricity generation for our available sources out in the ocean is in federal jurisdiction and federal waters. Thank you, I think you guys have done a really tremendous job in involving the public here tonight and the website and stuff. So I really appreciate the kind of collaborative spirit that you're bringing to this, and I do think it's a very smart start.

So I'm wondering it becomes, I think it becomes important for the North Carolina Utilities Commission to be involved in these discussions and in these issues both in the transmission aspect and to that end I know that they've established the transmission collaborative that one of you was talking about. But I wonder, it seems that it would also be important for the North Carolina Utilities Commission to be engaged as it involves the resource planning with the utilities in that if this is going to be a viable and real electricity generation then perhaps it offsets the need for additional, you know, additional other new sources of electricity generation.

So I'm wondering how involved has the Utilities Commission been in North Carolina and what is the

engagement with the NCUC and what kind of collaboration do you all see either now or in the coming months with them?

Mr. Waskes: I think from - We do have some - From a task force prospective we have certain limitations, you know, there have to be state representatives, locally elected officials, tribal group. It's up to a state to represent who they want on their behalf to represent so I do believe in a case in North Carolina we do have utilities on the task force. That's not the same case for every other state.

Kelly Martin: The utilities are a different thing than the Utilities Commission?

Mr. Waskes: Then you're getting into something that's a little bit out of my range of expertise.

Ms. Bornholdt: But I think the comments, I think that's one of the things that we can do whether it's, you know, taking advantage of a member around the table at our governmental task force in North Carolina, or have engagement with the utilities, you know, separate and apart. You're right, it's another piece of that puzzle because unless you have that off take or that vehicle to transmit, you know, what's the point of (inaudible).

Kelly Martin: (Inaudible) North Carolina might be a little bit different than some of the other states you're operating in. I don't really know where the regulated markets are where versus the deregulated markets, but it seems important.

Ms. Bornholdt: (Inaudible)

Mr. Leker: I think this will become a lot more real and tangible to the Utilities Commission after the call because developers will announce their interests in lease blocks and that will, I think, begin the discussion about well if there's power there's somebody that will develop the power so I think we will see more interest. The Utilities Commission is sort of on the sidelines observing. They're aware of this process and there are some staff, not commissioners themselves, but some of the public staff that will get involved from time to time.

The North Carolina task force is a voluntary task force and some people come to one meeting that don't come to another meeting, but all the information is maintained and recorded at the BOEM state site for North Carolina. But I believe as the reality becomes more apparent and developers announce, that we will see more discussions.

Robert Perry: Thank you, Robert Perry. My

question has to do with the life span of the actual turbines once they're up. What is the general life span for one of the turbines once they're constructed?

Mr. Waskes: If memory serves, I mean, you can get various warranty agreements from the manufacturer that are paid for but primarily most are looking when you kind of look at what they deem as a life span, you're looking at a range of somewhere between 20 and 35 years.

Ms. Bornholdt: The lease has a life of the 5 years that you assign assessment for and then 25 years to generate. At the end of the lease they ought to have to remove or they relinquish and have to remove it.

Robert Perry: Okay, good. The reason I asked the question is because I'm looking and thinking about some of the longer term risks associated with putting these objects out in the ocean mainly having to do with the climate change issues, increasing water depth as it may occur over the next 25, 30, 50 years, but also the increasing possibility of more traumatic weather events occurring off our shores.

But have these been taken into account in thinking about the sighting of the turbines? If those aren't recent lists I guess we could add considerably to the construction and maintenance costs of the turbines themselves. I just wondered what kind of thought you put

into all of that.

Ms. Bornholdt: Well, we have what we call our construction operation plan, which is the general outline for the proposal as to how do I construct. Then we have what we call our facility design report which actually gets down into the engineering details of what particular machine they're going to use and we have certified verification agents, engineers, to be able to verify that this is the best and brightest, the best engineering piece.

So let's say they build it, then what? We'll have inspections, annual inspections as well as announced and unannounced inspections to be able to make sure that things are going appropriately. So if there's a weather event like we do with oil and gas, then we cease and we halt and we go through and inspect the facility just to make sure that everything is tight. I will also say that if the developer is going to invest that kind of money, they want to also make sure that they keep their facility, you know, operating in the most safe and economical way.

But we will have inspections. We also require bonding for financial assurance in case when the company goes belly up or in case there is a horrific event like a hurricane come through and they loose some of their

machines, then it's not going to be people of the United States paying to pick up the mess but we'll call that bond and the developer (inaudible) and call the bond to be able to correct the issue. But we'll have announced an unannounced inspections and we will require that the best engineering be used.

Mr. Waskes: Are there any other questions? Okay, next up is Brian Krevor who is going to talk about the environmental review process. So after that we'll take comments from the floor and continue with any questions and answers or questions.

Mr. Krevor: Thank you, Will. My name is Brian Krevor. I'm an environmental protection specialist with the Bureau of Ocean Energy Management and I'm the NEPA coordinator for North Carolina. I'm going to talk about the notice of intent to prepare an environmental assessment and the overall BOEM environmental review process which really focus on what we're currently doing now for North Carolina and not really getting into too much of what could happen in the future.

All right, so what is a notice of intent? It's a federal notice and it's published in the federal registry. What it's meant to do is first notify the public that we are actually doing an environmental assessment. Also we're trying to solicit input on what

resources and issues we should cover in the environment assessment. Nobody knows better than the local stakeholders what resources and issues are out here so we want you guys to let us know what we should be looking at in case we're missing something.

Also, we want you guys to identify alternatives that could be considered in the environmental assessment. I'll go through some more alternatives later but NEPA requires that you have at least your proposed action and a no-action alternative. We tend to do additional alternatives as well. The North Carolina notice of intent was published in the federal register on December 13, 2012.

So what is an environmental assessment? Well, it's a document that's meant to determine if an action has significant impacts. So it's just basically an assessment of a federal action of an area and determining if that particular federal action is going to have significant impacts on the environment. It's meant to inform the decision makers of the environmental consequences of a federal action, and it's required by the National Environmental Policy Act. So it really is just mean to inform decision makers and for decision makers to make a decision.

Why it's called the National Environmental

Policy Act and not the National Environmental Protection Act is that you can - if NEPA has significant environmental impacts and negative environmental consequences it still has an action to go through. But for North Carolina at this point we're not - we don't anticipate being at the stage where there would be significant impacts for any of the actions we're considering now.

So the preparation of the environmental assessment, as Mo and Will have talked about previously, we still need to go through the area identification process to identify the wind energy area. Once we identify that wind energy area that will from the basis of our proposed action. So what we're going to actually analyze is the environmental assessment.

The proposed action will include lease issuance so basically the paperwork exercise of handing somebody a lease. We will also look at the associated site characterization. So that will be all the surveys that will happen on the actual lease. Then there will be the subsequent site assessment activities so the construction and operation of meteorological towers as you saw an example of one earlier, basically like a cell tower in the ocean just a lot more complex, and it looks at basically wind speed and other weather data and then a

buoy with a device attached to it that can come up with that weather data.

So we've prepared similar environmental assessments for kind of exactly what we're doing for North Carolina. We've done this in the mid-Atlantic. We did a regional EA, a mid-Atlantic EA for New Jersey, Delaware, Maryland and Virginia. We also have done one for the Rhode Island/Massachusetts area of mutual interest and we've done it for Massachusetts and I was actually the NEPA coordinator on that one as well.

We're going to take a similar approach to the EA offshore North Carolina and we're fortunate enough to have three very good EAs that have been done beforehand so we can kind of look at that data and incorporate it and reference it if we need to. The previous EA, the link is not on there but it can be found on the BOEM website under this renewable energy and smart from the start. All of our environmental assessments are up there.

So the EA scenario, we're going to develop a scenario of routine and non-routine activities that we'll consider in the environmental assessment, so basically the anticipated activities that will occur when the lease is approved. So that will be site characterization surveys which will include shallow hazard surveys,

geological, geophysical, geotechnical, archaeological, biological, so a lot of -ogicals, but we're looking for what kind of species are out there, are there any shipwrecks or maybe even prehistoric archaeological sites and seeing if the ground is suitable for a wind turbine and if there's any hard bottom down there, that kind of thing. Then site assessment activities as I mentioned earlier, MET towers and MET buoys.

We're also going to look at non-routine activities and as Jen mentioned before, this area is highly susceptible to hurricanes so we look at severe storms and what that could possibly do to the proposed action. Because we're not going to yet get turbines at this point, we wouldn't look at a hurricane going through a wind facility and what that would do. But we would look at if a hurricane were to go through an area with a MET tower and the MET tower collapsed and what kind of oil spills would there be, what would be the environmental consequence of that. So we look at that.

Also, the possibility of vessel collision and ollisions and as I mentioned earlier, spills of oil or other pollutants. So things that we don't anticipate to happen but if they were to happen they're not routine but what would be their consequences.

So BOEM is not considering commercial wind

development at this point. In the end, we're only considering the impacts of approving a lease and the site characterization and site assessment. The full environmental impacts of a commercial wind facility will be analyzed if a lessee submits a construction operation plan. This will almost certainly take the form of an environmental impact statement.

The reason we don't do a full-blown EIS at this point is we really don't have the information to conduct a comprehensive environmental impact statement like we would like. If we were to do one right now we don't even know if developers have interest off the coast of North Carolina. So we would be looking at a theoretical design for a facility without any data of what's underneath the sea and what kind of turbines they would use. Five years ago nobody was talking about 7 megawatt machines and very few people were even talking about 5 megawatt machines. Five megawatts are going to become the standard and beyond that it could be these 8 megawatt machines we're talking about that hasn't even been prototyped. Those could be what is off the coast of North Carolina when this actually gets developed.

So we're trying to take a step by step approach and have the best available information used for an environmental impact statement when we actually go about

doing it.

So here's some of the resources we're going to consider. As you can see there's physical, biological and socioeconomic. Different areas have different resources which are more prevalent in that area such as in the northeast we're dealing a lot with marine mammals and sea turtles are the big issues up there. Also, we deal a lot with commercial and recreational fisheries. Visual impacts will probably be more of an issue down here as so far these have been a little closer to shore than some of the other ones. Obviously with the Parks Service land that's a very big concern.

Some of the alternatives we would look at, we could always look at geographical alternatives, not building in a certain area or building in another area, time and seasonal alternatives. What we've done in the northeast for white whales is had restrictions on some activities such as pile driving when white whales would be more frequent in that area, just to try to protect that species. Also there's always going to be in any NEPA document an no-action alternative. So if you're not going to do the project what are the impacts of that.

Analysis for the cumulative impacts. So we always look at the past present and reasonably foreseeable future actions. This includes both onshore

development, existing ports and waterway usage and what additional usage could result from this project, maritime traffic and other renewable enjoy projects. So for North Carolina we would be looking up north to Virginia and the activities in the Virginia wind energy area. Since a lease sale will probably happen in a little bit for there, we'd probably be looking at just the surveying activity similar to what's going on down here, but if Virginia was way ahead and they had a construction operation plan we might actually be looking at what would the impacts of winter about to be up there in connection with the surveys that would be going on down here.

We have a lot of consultation we're going to do. They're not part of the NEPA action, but they are intertwined and we use NEPA often as the vehicle to comply with a lot of these other federal laws and executive orders. So the National Historic Preservation Act, the Endangered Species Act, the Fisheries Conversation Management Act, EFH and Coastal Zone Management Act as well as covering through government, tribal consultations. All of this we will be doing as part of the environmental process.

EA findings, so if the EA happens to find that there's a significant impact from this particular action, we'll undertake the preparation of an environmental

impact statement. However, this has not happened in our brief - We've only had one that has been final and had a finding of significant impact, but we haven't - in the initial EAs that we've done we haven't found that there has been any significant impacts so far. However, resources are different down here and there's always the possibility so we go through this process with open eyes and merely looking to see if there is a significant impact. If we find that there's none a FONSI will be issued and BOEM may issue commercial leases.

Also, NEPA requires that we use the best available information. We could just go and say okay, this is what we have, this is what we're going to do. But BOEM is not just a leasing agency. We're the environmental stewards of the OCS so it is our responsibility to make sure that what we are doing is not in an irresponsible way. So we try to actually fill these data gaps that we know of right off the bat. As I was saying earlier, we know that there is not sufficient information about the actual impacts to tourism and recreation from offshore wind. So we're undertaking an study to try to address that.

We also know that there isn't enough information on hard bottom habitats off of Wilmington East and NOAA, the National Oceanic Atmospheric

Association is very concerned about that. So what we've done is we have partnered with UNC Chapel Hill. We're very lucky in this state to have some incredible universities to partner with and we've partnered with them as well as NOAA to do two studies. One is the identification of fishing grounds and access routes in all of the call areas. Then other is the identification of hard bottom habitats, artificial reefs and archaeological sites off the call area of Wilmington East.

This also has the potential to speed up some of the time lines as we're doing a lot of the surveys that would be later required by a developer so that could speed up the leasing of and development equipment to lease if a lot of those surveys are done ahead of time.

So any comments or response to the NOI, we really need your comments and that's why we're down here. Issues and alternatives to be considered in the EA are very important to us. Potential mitigation ledgers and also a source of information relevant to the analysis. There's always new studies happening. We have subject matter experts that are constantly reviewing these but it really helps is you guys point out ones that we might have missed. So any source of relevant information that we can include since we do want the best available

information is very important to us that you guys send it to us immediately if you know of any.

As we said earlier, comments are due by January 28. You can go on our website and check out the notice of intent, and then you can go in regulations.gov and enter in the key word BOEM 20120090 to comment on the NOI. You can also send regular mail, or if you happen to be in Herdon for some reason you can come into the office and say hello to us and drop off the letter yourself.

Now I'll open up the floor any questions. I would like to keep them to this actual presentation because we're about to have our open floor for comments and then we'll have a full question and answer session on anything right after that.

If you have any questions?

Charles: What is an ollision?

Mr. Krevor: Is when a ship hits a structure. The other is when a ship hits a ship. He would know what they are.

Mr. Waskes: Yes, essentially an ollision is when you're hitting a stationary object. So a collision is when two moving people are hitting each other.

Charles: A collision is two.

Mr. Waskes: Yes.

Charles: And the other is when?

Mr. Waskes: It's when one is stationary. So for example, two boats that are going to hit each other would be a collision. A ship running into a turbine would be an ollision.

Unknown: (Inaudible)

Charles: Once a lease is awarded, is the lessee responsible for the environmental impact statement for their area?

Mr. Krevor: No, the National Environmental Policy Act is always a federal responsibility. The lessee will most likely be required to pay for it so they'll give money to us to do it, but this will often be contracted out through a third party. That will not be the lessee. It's very important that we do our own analysis and we review our own analysis to make sure we're all on a level playing field and they're not trying to - the developer is not trying to tilt it in their favor. Since we're neutral in this we can - we're the resource agency and it's our responsibility.

David Carr: I just wanted to check and see what you've learned so far about white whale presence and migration in the call areas identified so far.

Mr. Krevor: We are still - We haven't even completed the first phase part of the environmental

assessment so I can't really speak to anything about the existing environment and what that is. I know that there is work being done to identify and look at that. I don't know if Will might know a little bit more than that. We look at all up and down the east coast particularly for white whales.

Mr. Waskes: Yes, I mean, it's a migratory corridor of North Carolina obviously just to the south off of Georgia and northern Florida, so then migrated up to the north to the breeding grounds up in the northeast. So it's pretty much establishes a migratory corridor. In terms though of having large studies that have a good handle on, you know, defining that in abundance in distribution with that, there's not a lot information on that but there are currently, I wish I could recall. There's a couple of studies right now that are currently out there trying to do some of those studies looking at not only the white whale but other whales and sea turtles, doing transect survey through there for some of those questions. They are being done by NOAA and a couple of other agencies and a cooperative for an emergency agreement.

David Carr: Does that include North Carolina?

Mr. Waskes: Not all of North Carolina but

I believe the northern portion of North Carolina.

Mr. Krevor: One of the things that's difficult with white whales is they are indeed migratory and they don't always use the same migratory paths. So some of the best measures we can do is some of our mitigation and avoidance measures when dealing with white whales. Some of the standard operating conditions we've done in previous environmental assessments for Rhode Island and Massachusetts and for Massachusetts have been seasonal restrictions on pile driving, vessel speed restrictions, exclusion zones, four axle activity when we have observers that notice that there is a white whale in the area, you have to halt activity within a certain range.

So those kind of measures are being implemented to reduce any likelihood of any harm being done to a white whale or any other marine mammal or sea turtle. Any other questions on this presentation? All right, thank you very much.

Mr. Waskes: Since there are no other questions at least for this segment we would like to at least open the floor for public comment. For anyone wishing to comment if you could clearly state your name so the court reporter can note it for the record and we will get these entered into the official record.

When it's a small group I don't mind handing the microphone off, so is there anybody - I'd like to open the floor. Is there anybody that would like to make any comments? Going once. Going twice.

David Carr: I really have a question. It's David Carr. That is why you started with these wind energy areas or call areas starting at six miles offshore as opposed to ten miles offshore which most of the areas to the north have been at least ten miles?

Mr. Waskes: In this case like most areas, at least that I can speak of, we've been driven by whatever data or issues have come up at the time. So for example, New Jersey for example has areas that are up to almost the six miles. They're about seven miles offshore. Those again were driving largely due to having the amount of avian data that they have for that area so that's one reason.

In that case visuals wasn't really brought up to push viewsheds out in that case, but it's obviously a different story here in North Carolina and particularly has been raised as an issue with the Park Service. So since there wasn't really a strong push for that and people have seen that we're doing this assimilation study to try and get accurate representation, I think you'll see one, some results where it becomes an offset from

that will drive any further changes to that.

In addition also what is driven for other states has been all of those things. Some things were substation location, shoals that have been predominantly used was a driver here as well. There's another one that I think will affect North Carolina will be vessel traffic because, like I said, there is two predominant vessel types. You have your deep draft and your shallow draft and the shallow draft will need to come up and down the coast.

So there will be an escalating, if you will, overlapping number of issues as they start to come in to display to our decision makers to decide what they want to do. I think one of those will be visual impacts particularly now that the simulation study is done as well. That issue will be another driver that kind of feeds on top of that so the accumulative affect.

Ultimately what will happen with those I am not the decision maker but we can rest assure you that those two issues will be presented, too.

Ms. Bornholdt: It's just a starting point. I think that's the key thing and that's why I want comment in the call for information and nomination as well as in notice of intent to prepare an EA about what the issues are, your data associated with the viewshed.

I think as Will mentioned this visualization study in the Park Service is really going to drive perhaps some of the scenarios that we evaluate in the EA. You may see this change moving further offshore. It really depends on the comments and Will said it, what are the drivers in this area.

In Massachusetts we went to the (inaudible) and some of the rituals of the first people. And what they do is they watch the sunrise so we wanted to make sure we moved away without interfering with that. So there's different drivers in different areas and this is the opportunity for us to get an understanding of that so we can now develop scenarios to set aside those areas like we showed in Massachusetts and Rhode Island. Well you say that case was commercial fishing but we'll use this information to be able to say (inaudible). So I'll just say the six nautical miles is a starting point.

Don Parker: May I ask you a question and I've forgotten your name?

Ms. Bornholdt: Yes.

Don Parker: My name is Don Parker and I'm just a concerned citizen. You made a comment earlier and I didn't understand it with the acoustics in this room are terrible. Did you say with the program you're working on with the wind turbines that we don't have to

be concerned about drilling?

Ms. Bornholdt: Yes.

Don Parker: Okay.

Ms. Bornholdt: Because what we're talking about today is the renewable energy program and anything we're talking about today has nothing to do with oil, gas, sand, gravel or any of the other responsibilities of the agency. This is just for wind. If a lessee, if a company wins a lease as a result of this process that we're engaged in, they can only use it for putting up wind turbines.

Don Parker: Okay. I understand what you're saying but I did want to make sure I totally understand it. We're in an area that wind could in fact be used. We don't have to worry about an offshore oil well?

Mr. Leker: It's just no -

Ms. Bornholdt: It's a separate process.

Don Parker: But we still need to worry about it?

Ms. Bornholdt: Presently the current five-year program is already set and there's no areas identified off a North Carolina so you don't have to worry about it for this five-year period. When the secretary of the interior begins the process again and I

believe that's in about four years, they will put out a call for information to request for interest and they open up and take a look at all the areas of the coast of the United States. They'll go ahead and do a wheedling down process.

Don Parker: So we still need to be concerned about that?

Ms. Bornholdt: But not in the immediate.

Don Parker: Now I want to make sure that this group understands that tourism is our lifeblood. We live and die on tourism here. The reason you guys could drive into town today and not hit the traffic is because nobody comes the first part of January.

Ms. Bornholdt: I've been here in August.

Don Parker: Maybe next week with Martin Luther King's birthday we'll have some people travel in. The second thing I want to ask Bob is with the change in our administration in Raleigh, what impact do you see all of these kinds of programs having?

Mr. Leker: I'd have to say I really don't know. I don't think it's clear to anyone exactly what the impact of offshore wind or other offshore energy resource exploitation might be. I don't know at this point. Personally I have a new Secretary of Commerce and she will be starting soon, Sharon Becker, and I know all

the other departments have new secretaries as well. So it's sort of a new game. I would recommend that you stay engaged with your legislative leaders.

Don Parker: It hasn't helped. Our guy left about two years ago.

Mr. Waskes: Okay. We've gotten directly into questions since no one had any more comments. One more round for the going third time. Any comments? Okay. Then we'll go back to questions, any more questions? Going once.

David Carr: I was just wondered, are most of the BOEM people going to be at the simulation meeting tomorrow?

Mr. Waskes: Yes, yes. The same BOEM people here will be at the simulation or at the open house tomorrow.

Kelly Martin: Can you tell us more about that, when or what time? You said at 6:30.

Mr. Waskes: It's 6:30 at First Flight High School. There will be a handful of stations associated with it. You were about to say something, Brian?

Mr. Krevor: Yes, it's actually from 6 to 9. The back of your agenda has all of the information and other additional information, and it's got the

location with actual street address, times and everything.

Mr. Waskes: Like I said, there you will see, you'll be able to see the nighttime videos with the Coast Guard and FAA lighting, daytime animations and then the stills, both the panoramic as well as one more of reduced size for - We'll have all 18 stations available that we did.

Mr. Krevor: An important point about tourism related to that is our court reporter will also be there tomorrow at the actual open house so once you are done viewing all of the simulations you can go to the court reporter and tell them what you think of the simulations, if you thought they were displayed well, or what distances you prefer, what you did or didn't like. So whatever you thought about them, you're free to talk to the court reporter and that will go on the record and will help form our decisions.

Mr. Waskes: And we'll have like what's in the call where we specifically ask in the call for information questions in there about mitigations for visual, how far the setback should be put in from shore. The visuals is one of the big areas we want to get a lot of information from the public, even if it's just solely perception based.

Robert Perry: A stupid question about why so many European nations are so far ahead of us in this regard already having in some cases thousands of turbines off their coast, Ireland, England, France? Why is the United States so far behind in this regard?

Ms. Bornholdt: We didn't have authority to lease the federal lands for renewable energy until 2005, and as Jen Banks' presentation showed, we didn't have regulations to do so until 2009. I would also suggest that perhaps because there's not a cohesive energy policy in the United States. A lot of the European nations have made it that's what we're going to do. We're not going to do nuclear, we're not going to oil. This is what we are going to do. So I think first of all there's just a different sense and purpose as well as we're just starting out with our agency. In 2009 we started regulations.

Robert Perry: Thank you.

Mr. Krevor: Also a lot of times they are less strict in environmental reviews. They do have their environmental laws but sometimes some of the government responsibilities are less and they have more flexibility in what they can do without doing all of this that we're doing today. So we have a good foundation of a lot of laws that we take extremely seriously and we have to have

this public process that's a big part of this nation.

Mr. O'Hara: A similar thing happened in the land-based wind industry where the technology was developed here in the U.S. and then it was European countries that really got going and building and then when the U.S. got around to starting development, we were importing most of the equipment from Europe because that's where the supply chain was. Now that the U.S. has sort of really come around in land-based wind development, now it's on the order of 70 percent of the supply chain is located here in the U.S. So we've seen this trend happen before and hopefully we can get through it quicker offshore.

Mr. Waskes: Any more questions? Going one, going twice. Okay, I will hand it over to Maureen Bornholdt for closing remarks.

Ms. Bornholdt: I really appreciate you all hanging in with us on this evening. I can not emphasize how important it is to provide your comment. This is good for me to hear some of your questions because it makes me think things that we have to do when we're taking a look at are we going to move forward in any of these areas to leasing. But it's so important, please participate. Either submit comments to both the call via the internet or drop us a mail or as Brian said, if you

happen to be in Herndon please stop by. It's important because unless we have that dialogue we'll go ahead and make decisions that may not be as well informed as they could be. You all live here, you know what the landscape is, you know what the energy drivers are and that can help us back in Herndon, Virginia to make the right decisions with a full partnership with the state as well as with you. So thank you so much.

* * * Ended at 8:30 * * *

STATE OF NORTH CAROLINA COUNTY OF BEAUFORT

C E R T I F I C A T E

I, Pamela S. Barker, a Notary Public in and for the State of North Carolina, duly commissioned and authorized to administer oaths and to take and certify depositions, do hereby certify that the foregoing pages are, to the best of my ability, an accurate transcript, which was taken by me.

I further certify that I am not financially interested in the outcome of this action, a relative, employee, attorney or counsel of any of the parties, nor am I a relative or employee of such attorney or counsel.

Pamela S. Barker

Pamela S. Barker
Notary Public
Certificate No.: 19940770005
Expires: February 9, 2015