

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

BEFORE THE

FEDERAL ENERGY REGULATORY COMMISSION

- - - - - x

IN THE MATTER OF: :

ADMIRALTY INLET PILOT TIDAL PROJECT : Project No.

: 12690-003

- - - - - x

PUD Electric Building Headquarters  
2320 California Street  
Everett, Washington

Monday, April 12, 2010

The above-entitled matter came on for scoping  
meeting, pursuant to notice, at 8:30 a.m., David Turner,  
FERC, moderator.

## 1 P R O C E E D I N G S

2 MR. TURNER: Welcome to the technical conference  
3 for the Admiralty Inlet Tidal Project. My name is David  
4 Turner. I'm with the FERC. I'm team lead from the  
5 Commission. Also with me, and I'll let my colleagues go to  
6 my left here, introduce themselves, and then we also have  
7 some folks online that I'm going to let introduce at the end  
8 of this roll call, just kind of go through and invite  
9 everybody else to introduce themselves for the court  
10 reporter.

11 This conference is being recorded. I want to  
12 basically apologize. I don't mean to seem this formal. I  
13 want this thing to be informal and very give and take, but  
14 just for the technological interactions with the conference  
15 call, and being recorded this fit the arrangements best. So  
16 that apology up front, let's try to make this as informal as  
17 we can.

18 Again, I'm David Turner and I'll let Nick go  
19 next.

20 MR. JAYJACK: Hi, I'm Nick Jayjack from FERC.  
21 I'm a fishery biologist assigned to the project.

22 MS. HARPER: Hi, Jennifer Harper from FERC. I'm  
23 an engineer on the project.

24 MR. TURNER: And if we'll start on this far side  
25 here, we have a microphone that Jeff's going to go around

1 and we may need to use those, to some degree, for the court  
2 reporter to pick up your comments and questions, but let's  
3 start with you Craig.

4 MR. COLLAR: Craig Collar from Snohomish PUD.

5 MR. JEFF KALLSTROM: Jeff Kallstrom from  
6 Snohomish PUD.

7 MR. LOVE: Matt Love representing Snohomish PUD.

8 MR. BROWNE: I'm Peter Browne with HDR.

9 MS. COPPING: Andrea Copping, Pacific Northwest  
10 National Laboratory.

11 MS. VAN CLEVE: Brie Van Cleve, Pacific Northwest  
12 National Laboratory.

13 MR. HUNTER: Mark Hunter, Washington Department  
14 of Fish and Wildlife.

15 MR. POLOGYE: Brian Pologye, University of  
16 Washington, Northwest National Marine Renewable Energy  
17 Center.

18 MR. OSTROM: Tom Ostrom, Suquamish Tribe.

19 MR. SCLESINGER: Jeff Sclesinger, American  
20 Waterways Operators and also Western Towboat Company.

21 MS. SPAHR: Jessica Spahr, Snohomish PUD.

22 MS. ZIEMAN: Zelma Ziemann, the Governor's Office  
23 of Regulatory Assistance.

24 MS. KNAPP: Anne Knapp, the Governor's Office of  
25 Regulatory Assistance.

1 MS. PADGETT: Rebekah Padgett, Washington State  
2 Department of Ecology.

3 MR. MALKIN: Devin Malkin, HDR, consultants to  
4 Snohomish.

5 MR. TOLLIT: Dominic Tollit, Sea Mammal Research  
6 Unit.

7 MS. HANNUKSELA: Jane Hannuksela, NOAA General  
8 Counsel's Office.

9 MS. BISHOP: Alicia Bishop, NOAA Fisheries.

10 MS. AGNESS: Alison Agness, NOAA Fisheries.

11 MR. KIRKENDALL: Keith Kirkendall, NOAA  
12 Fisheries.

13 MR. MICHAELS: Jim Michaels, U.S. Fish and  
14 Wildlife Service.

15 MR. ROMANSKI: Tim Romanski, U.S. Fish and  
16 Wildlife Service.

17 MR. PEDERSON: Bob Pederson, Island County  
18 Planning.

19 MS. HAMPTON: Therese Hampton, Pacific Energy  
20 Ventures.

21 MR. KLURE: Justin Klure, Pacific Energy  
22 Ventures.

23 MR. McCLURE: Bob McClure, Bio Sonics.

24 MR. DAWSON: Jim Dawson, Bio Sonics.

25 MR. ZACKEY: Todd Zackey, Tulalip Tribes.

1 MR. WILLIAMS: Daryl Williams, Tulalip Tribes.

2 MR. WALSH: Stan Walsh, Skagit River System  
3 Cooperatives and Swinomish Sauk-Suiattle Tribes.

4 MR. TWIGG: Robert Twigg, Sound & Sea.

5 MR. McCALLISTER: Mike McCallister, Sound & Sea  
6 Technology.

7 MR. ARMBRUSTER: Larry Armbruster, Sound & Sea  
8 Technology.

9 MR. SCOTT: Brady Scott, Department of Natural  
10 Resources.

11 MR. TURNER: Okay. Good. And I think the court  
12 reporter is going to send a list around to have people sign  
13 up so that he has the correct spelling of your name.

14 On line I know we have some folks from FERC and  
15 some from NOAA Fisheries on line, so let's go with FERC  
16 introductions first. Patty, Mark are you there?

17 MS. LEPPART: Yes, my name is Patty Leppart and  
18 I'm assigned to the cultural resources projects.

19 MR. IVY: And I'm Mark Ivy with FERC, outdoor  
20 recreation planner.

21 MR. TURNER: And I think with NOAA there's a -- I  
22 don't know how many people are going to be on. Two from  
23 NOAA Fisheries.

24 MS. DALY: Jaclyn Daly, NOAA Fisheries from  
25 Silver Spring, Maryland.

1 MS. BEN-DAVID: This is Debra Ben-David from  
2 General Counsel for Fisheries in Silver Spring, Maryland.

3 MR. TURNER: Great. Is there anybody else on  
4 line?

5 MR. MURPHY: Yes, Nick Murphy Open Hydro here.  
6 I'm project manager for Open Hydro, supporting SnoPUD.

7 MS. BARR: I'm Sue Barr. I'm the environment and  
8 external affairs manager from Open Hydro.

9 MR. TURNER: You guys calling in from overseas?

10 MR. MURPHY: Yes.

11 MR. TURNER: Oh my.

12 MR. MURPHY: Good morning.

13 MR. TURNER: Good morning.

14 [LAUGHTER]

15 MR. TURNER: Good evening there. I don't know.  
16 All right, great. Anybody else?

17 MS. CRAMER: Yes, this is Sharon Cramer from H.T.  
18 Harvey & Associate.

19 MR. WHITAKER: Brandon Whitaker, Port of Everett.

20 MR. TURNER: Anybody else?

21 [NO RESPONSE]

22 MR. TURNER: Okay. Great. Thanks everybody for  
23 coming. As I said, there's a sign-in sheet that's going  
24 around to make sure we get your right names. We'll do the  
25 best we can for the folks on line.

1           The meeting purpose today, everybody should have  
2 got an agenda that Craig sent out, I hope. I didn't bring  
3 any handouts, but, typically, what I wanted to cover briefly  
4 introductions, the meeting purpose, a little bit on the  
5 background of where we are and how we got here. Then I'm  
6 going to turn it over to Craig for a brief project overview  
7 and kind of where they are currently. I know there's been a  
8 couple of discussions taken place since the filing of the  
9 draft license application. Then we'll get into the issue  
10 discussions, and for the purposes of the folks back East, I  
11 kind of arranged these things in a sense to maybe cover some  
12 of the less controversial and technical issues and to deal  
13 with the time difference. So we're going to deal with  
14 cultural resources, recreation and land use first and then  
15 we get into some of the other more interesting topics, I  
16 think, in my view dealing with the turbines and some of the  
17 other issues killer whales, fisheries and the monitoring  
18 plans that have been filed.

19           This agenda is open. If you guys got something  
20 else you want to talk about, let me know. We'll factor this  
21 in wherever we can where it makes sense. I just don't want  
22 to just tie our hands to these issues. And kind of the last  
23 to wrap up is next steps and what we need to do, and I got  
24 some input from Keith, some things that he wanted to talk  
25 about in terms of Marine Mammal Protection Act, ESA

1 timelines and next things in terms of what Snohomish is  
2 facing in terms of the successive preliminary permit.

3 Is there anything right off the bat that somebody  
4 else wants to add to this agenda so I don't forget about it?

5 MS. PADGETT: I think it might be useful to have  
6 something further about the operations and maintenance. I  
7 guess that'll be under the operation. I'm sorry.

8 MR. TURNER: Identify yourself.

9 MS. PADGETT: Pardon, Rebekah Padgett.

10 COURT REPORTER: Thank you.

11 MS. PADGETT: Sorry. As well you might consider  
12 a small piece on installation.

13 MR. TURNER: Everybody on the phone hear that  
14 input. We're just checking the mikes.

15 MS. LEPPART: Yes. Thanks.

16 MS. BARR: It was a little quiet at this end.

17 MR. TURNER: Say that again, Susan.

18 MS. BARR: Sorry. It was a little quiet at this  
19 end in the U.K.

20 MR. TURNER: Okay. We'll try to speak up a  
21 little bit.

22 MS. BARR: That's great. Thank you very much.

23 MR. TURNER: We'll cover that on our turbine  
24 operation installation.

25 MR. ROMANSKI: Tim Romanski, U.S. Fish and

1 Wildlife Service. We should probably add seabirds to the  
2 discussion, either with fisheries or marine mammals.

3 MR. TURNER: Ok. Again, this is being recorded,  
4 so I apologize for that type of interaction here, but just  
5 try to remember to speak your name so we can appropriately  
6 identify you and your comments and concerns. But hopefully,  
7 I won't stifle an interaction here, so please feel free to  
8 interject your ideas and thoughts.

9 Background, Snohomish began this process about  
10 three years -- over three years ago now, I guess. The draft  
11 application was filed with us on December 28, 2009. They  
12 were pursuing a pilot license, given our process, we're  
13 looking at whether or not this fits a pilot procedure --  
14 fits the pilot procedures and the pilot license would be  
15 appropriate in this case, and this is part of that effort.

16 We're here today, basically, to ask some  
17 clarifying questions on our part in terms of making sure we  
18 understand how this is working. We've reviewed the comments  
19 that have been filed and we have some clarifying questions  
20 there, too. I sent to the email list some of the list of  
21 questions we had ourselves are going to cover today where  
22 we're giving you a feel for some of the things that we  
23 wanted to talk about.

24 The ultimate way of about -- under the titling  
25 licenses procedures, we'll have about -- make a decision on

1       whether or not we should grant the procedures or whether we  
2       need additional information to figure out whether a pilot  
3       procedure would be appropriate in this case by April 29th.  
4       So something will come out of here, out of this technical  
5       discussion and the draft application in the very near  
6       future.

7                   We've been over the pilot procedures, I think, a  
8       number of times in our earlier conferences. Does anybody  
9       have any questions in that regard?

10                   MS. HANNUKSELA: Jane Hannuksela with NOAA. My  
11       question is you may have two track timelines here. You've  
12       got the timeline you talked about with the pilot license  
13       project, and then if you grant a second preliminary permit  
14       to the PUD, how would that affect the timeline for the  
15       licensing?

16                   MR. TURNER: I don't see that it would. They've  
17       already filed a draft application. We're making a decision.  
18       We're near to the end of procedures. The pilot is kind of  
19       parallel. All it will do is preserve their site, so the  
20       only hang up would be if we did not issue one for that site,  
21       and then is there a viable application before us.

22                   MS. HANNUKSELA: You wouldn't consider  
23       potentially suspending your decision now, pending more  
24       information that would potentially be collected during the  
25       second preliminary permit?

1                   MR. TURNER: I don't think so. I think we're  
2 going to play this out in terms of what do we need to  
3 process this thing. I think the successive preliminary  
4 permit won't have -- it doesn't have an effect on whether or  
5 not we think the pilot procedures are appropriate. If we  
6 grant a successful permit, it may give us initial time to  
7 finish playing this pilot project out in terms of that  
8 timeline.

9                   MS. HANNUKSELA: I see what you're saying, but  
10 for example, you might not have all the information you  
11 would need to make a determination now on the sensitive  
12 nature of the area and the affects in terms of your criteria  
13 for use of the pilot project license and maybe you would get  
14 that information in another 6 to 12 months if you issued a  
15 second preliminary permit and if the PUD continued  
16 collecting that information. So to me, that would be a  
17 reason why you might consider delaying your decision for a  
18 little while, pending that information.

19                   MR. TURNER: If we need additional information to  
20 make that decision, and we ask, we'll give that timeframe.  
21 It's independent of the decision on the preliminary permit.  
22 If you look at Cook Inlet, for instance, where we've already  
23 held one technical conference, we asked for additional  
24 information we needed to make our decision and we gave them  
25 a timeframe to get it done. And that timeframe extended

1 past the end of the preliminary permit, so they had to  
2 subsequently file for another preliminary permit, but the  
3 process and our decisions on the pilot are moving  
4 independently of the preliminary permit.

5 MS. HANNUKSELA: Thank you.

6 MR. TURNER: Anything else?

7 [NO RESPONSE]

8 MR. TURNER: Okay. Why don't we turn to the  
9 issues real quickly. The first one we've got online is  
10 cultural resources. So I'm going to turn it over to Patty.  
11 Do you want to ask a question, Patty? Or do you want me to?

12 MR. COLLAR: David?

13 MR. TURNER: Hang on a second.

14 MR. COLLAR: Do you want me to give the project  
15 overview and background before jumping in?

16 MR. TURNER: I did jump over that. I'm sorry.  
17 Hang on, Patty.

18 MS. LEPPART: I will.

19 MR. TURNER: Yes, Craig. Thanks.

20 MR. COLLAR: Sure. Volume okay?

21 MR. TURNER: Yes.

22 MS. LEPPART: Yes, thank you.

23 MR. COLLAR: Okay, this is Craig Collar. Folks  
24 on the phone, can you hear me okay?

25 MS. LEPPART: Yes, thank you, loud and clear.

1                   MR. COLLAR: On the phone, can you see the  
2 PowerPoint.

3                   MALE VOICE: Yes.

4                   MR. COLLAR: Good. Well, we're doing better than  
5 last time then. That's a positive.

6                   All right, so the intention of this is to just  
7 provide some background on the project and make sure that  
8 we're all on the same page in terms of the project. A few  
9 of the key project elements for the rest of today's  
10 discussion. And I'm not going to dwell on the purpose for  
11 the project, but I do want to spend at least one slide  
12 talking about why we're doing this in the first place.

13                   Here at Snohomish there are really two main  
14 challenges that we're facing that lead us to investigate  
15 tidal energy, and the first is just meeting load growth.  
16 Going forward, the recent recession notwithstanding, we  
17 expect to be growing in the range of 15 to 20 average  
18 megawatts a year, moving out into the future. We've got to  
19 meet that load growth somewhere. And also as folks are  
20 aware, in Washington State, we do have a renewable portfolio  
21 standard, requires large utilities like us to get ultimately  
22 15 percent of our energy from new or renewable resources by  
23 2020.

24                   We're a predominately traditional hydro utility.  
25 Over 80 percent of our energy comes from traditional hydro

1 and none of that counts towards our state's renewable  
2 portfolio standard. So if you look at our load growth and  
3 the requirements of Initiative 937, that means by 2020 we  
4 need to bring onboard about 140 average megawatts, average  
5 megawatts of new or renewable energy to meet that need. And  
6 again, traditional hydro doesn't count. We expect to  
7 certainly pick up a lot of that with wind, but realistically  
8 not all of it, perhaps in the range of half of it because of  
9 the integration constraints due to the intermittency of wind  
10 it really isn't viable for us to bring in wind without  
11 building fissile fuel resources, which we choose not to do,  
12 if we can get away with it.

13 So that's really our driving purpose to look for  
14 renewables that are either baseload like geothermal or  
15 predictable like tidal, so that's what brings us here to  
16 this effort. So as folks are aware what we really propose  
17 to do with this project is to develop and evaluate a small-  
18 scale, temporary, grid-connect pilot plant at Admiralty  
19 Inlet. Really, the object is pretty simple. It's really to  
20 gather data. It's to gather information to better inform  
21 and evaluate the feasibility of tidal energy as well as the  
22 potential associated risks and benefits.

23 I think we'd all agree that that's one of the  
24 major impediments to moving tidal energy forward is we  
25 really just don't have a lot of data, and that's a global

1 concern. And that really we're not going to get it in any  
2 meaningful way if we're unable to get pilot projects into  
3 the water. So that's our objective.

4 As far as Admiralty Inlet, a few of the  
5 characteristics that caused us to choose Admiralty Inlet for  
6 this pilot site, one, it does have a very good tidal current  
7 regime. We've done a tremendous amount of acoustic Doppler  
8 current profiling and analysis, largely with University of  
9 Washington. It is a commercial waterway. Folks aren't  
10 aware all the commercial traffic in and out of Puget Sound,  
11 the ports of Everett, Seattle, Olympia, Tacoma, all the  
12 various naval bases, all of that marine traffic goes right  
13 through Admiralty Inlet.

14 We have consulted with the Puget Sound Harbor  
15 Safety Committee, which is chaired by the Coast Guard and  
16 includes representatives of pretty much all of those groups  
17 I just mentioned really, everybody who makes their living  
18 plying the waters of Admiralty Inlet and they have not, so  
19 far, had any objections to the project nor to the specific  
20 location that we've chosen.

21 Admiralty Inlet does have the suitable depth and  
22 bathymetry for tidal energy devices of the type that we've  
23 selected, and it also has adequate grid interconnection  
24 options. It's a very large site. At the narrowest  
25 constriction Admiralty Inlet is about 3 and 1/2 miles

1 across, so this is not a small area. And over the past  
2 three years -- over three years, actually, as David  
3 mentioned, we haven't identified any showstoppers associated  
4 with this site. For instance, the Navy has not come forward  
5 and say, no, you cannot pursue a tidal energy project at  
6 this site because.

7 And over that time we've had well over a hundred  
8 meetings and presentations with over 50 different  
9 stakeholder groups throughout the course of the project so  
10 far. So that's Admiralty Inlet.

11 As far as technology, folks should be aware at  
12 this point that we've chosen Open Hydro as our technology  
13 provider for the project, and this was after evaluating  
14 probably well over 40 different tidal energy technologies  
15 that are out there. There were a number of reasons that we  
16 chose Open Hydro, but a few of them were they were one of  
17 the only really utility-scale tidal energy developers in the  
18 world to actually have deployed successfully utility-scaled  
19 devices and had some data in terms of monitoring their  
20 performance and effects on fish and marine mammals.

21 In fact, Sue and Nick can speak to this later on,  
22 but they have hundreds of hours of turbine operation  
23 monitored and videotaped from the test platform that you see  
24 in the upper right-hand corner. We also liked the  
25 simplicity and the benignness of the Open Hydro device. You

1 can see it's a shrouded turbine. It doesn't utilize blades,  
2 rather it utilizes these vanes that don't have any exposed  
3 blade tips, unlike some other technologies. It runs at low  
4 speed without cavitations and we'll look at exactly what  
5 speed we project the turbine to run at and for what periods  
6 of time in a few minutes.

7 It also doesn't require any oil or grease  
8 lubrication. It's just lubricated by the seawater flowing  
9 through the bearing. Also importantly, at least to us, it  
10 doesn't require any piling, pinning, drilling or any other  
11 preparation of the seabed and that both the device and its  
12 foundation are, in fact, designed from the very start to be  
13 completely removable. So when the device needs to be  
14 removed, whether that be permanently to relocate it for  
15 maintenance that is designed in from the onset.

16 So you see what the device would look like on the  
17 seabed and then our conception in the lower left-hand  
18 corner, and in the lower right-hand corner you see  
19 essentially what the device will look like in terms of  
20 navigational clearance and the depth of water that we're  
21 looking at, at the current site. And as I said earlier, of  
22 course, we've consulted with the Coast Guard to make sure  
23 that this will be adequate.

24 This actually won't be the first device of this  
25 size and type installed. This device, which is also a 10-

1 meter, Open Hydro turbine, and as I mentioned, we propose to  
2 install two of these in Admiralty Inlet. And the one that  
3 you see in this picture was installed up in the Bay of Fundi  
4 back in October, and has been running since then.

5 So as we progress through the discussion today,  
6 Nick Murphy on the phone and Sue Barr can discuss more about  
7 that installation. This is very similar to what we would  
8 expect our turbine to look like.

9 As far as the scale of the turbine at Admiralty  
10 Inlet, this is pretty close to what the cross-section of  
11 Admiralty Inlet would look like at our deployment site. So  
12 you can see with being 3 and 1/2 miles across it actually  
13 looks quite shallow from this perspective, but it's not.  
14 You see the tidal turbine there about a kilometer offshore.  
15 The black dot there is probably a little bigger actually  
16 than what the entire turbine in its frame would be. The  
17 rotor itself would probably be about a third the size of  
18 that black dot, just to give you a sense of the scale of  
19 these turbines in Admiralty Inlet.

20 Together, both turbines would take up less than  
21 500 hundreds of a single percent of the cross-section of  
22 Admiralty Inlet. As far as the specific site, you can see  
23 with the laser pointer here this little red triangle, it's  
24 within that triangle that we'll do the final siting and  
25 where we'll deploy the two turbines. What you see here are

1 vessel tracks. This is collected from AIS data that  
2 University of Washington has put a AIS receiver on the  
3 lighthouse on Admiralty Head, which would be right up here  
4 in this area.

5 And this shows the collection of vessel traffic  
6 through that area for just one week back in December. So  
7 the white tracks are all that commercial traffic that I  
8 mentioned earlier in and out of Puget Sound. And the blue  
9 tracks are the ferry. There's a ferry that runs back and  
10 forth between Keystone Harbor there on the right and Point  
11 Wilson or Port Townsend over on the left. So you can see  
12 from the blue tracks and the white tracks it's a pretty busy  
13 place, and we're tucked in just kind of up here to the north  
14 of the intersection of those lines.

15 As I mentioned, that red triangle is actually a  
16 vast area. That's not a small place. There's probably  
17 enough room there for actually well over a dozen turbines,  
18 but it's within that area that we're going to do the final  
19 siting. As far as the actual size of the turbines to scale  
20 in a place like this, these two little black dots that you  
21 can see right here, those are the actual scale of the  
22 turbines in Admiralty Inlet. So that's how big they are  
23 relative to this waterway. If you zoomed in, you would see  
24 these are actually the turbines and their foundations  
25 sitting on the bottom. So now if you can visualize those

1 two dots in the red triangle, that would give you a good  
2 sense of the physical footprint of the turbines themselves.

3 The other aspect of the footprint that's been  
4 pointed out, of course, is the acoustic affect of the  
5 turbines. There's more to be learned, certainly, about the  
6 acoustics of the turbines. We have some data in terms of  
7 how loud these turbines are. We're in the course of getting  
8 more data from the open hydro development up in the Bay of  
9 Fundi, but our initial data would suggest that even at peak  
10 production, that is when the turbines are running at their  
11 maximum speed, their noise would still be lower, notably so,  
12 than the noise produced by the ferries. We'll talk more  
13 about that later. Dr. Brian Polagye can speak to the noise  
14 studies that we've done on the site so far, but so far  
15 that's what the data would suggest.

16 I'm going to go back and note that the sub-sea  
17 cable, I'll have to look with the laser point here.  
18 Basically, it's going to run from the red triangle a little  
19 bit to the north and to the east and connect to Admiralty  
20 Head, right in this area just north of Fort Casey.  
21 Actually, on Camp Casey, which is owned by Seattle Pacific  
22 University, and that's what we'll zoom in on, on this next  
23 slide.

24 So the cable will run from the turbines, for the  
25 most part be laid directly on the seabed, but then will be

1 directionally drilled, via horizontal directional drilling  
2 underneath the shore. It's been pointed out and folks are  
3 aware that extending, if I remember right, about 400 yards  
4 offshore is a marine preserve that extends down to about the  
5 12 meter mark. We would horizontally directionally drill  
6 out so that we actually came out of the seabed at about the  
7 20-meter mark, so well below and well beyond the marine  
8 preserve. So in fact, the sub-sea cable would actually be  
9 run underground beneath the marine preserve. It would not  
10 emerge until it would come up what's currently a picnic  
11 area. So this is a gravel pad with picnic benches on it.  
12 We'd have a small, standard utility vault there. That's  
13 where the cable would emerge. It would connected to the  
14 terrestrial cable, which then would be trenched underground  
15 across this roadway to what is currently the site of Seattle  
16 Pacific University Sea Lab.

17 This small building that you see here is their  
18 sea lab that they use to conduct studies and curriculum for  
19 students for sea life in Puget Sound. Our plan is to work  
20 with Seattle Pacific University to actually demolish this  
21 existing sea lab and build one new building that would  
22 incorporate both their sea lab, a meeting facility and room  
23 for our power conditioning infrastructure for the project,  
24 so it would all be contained within roughly this kind of a  
25 footprint.

1                   From there the cable would again be trenched  
2 underground right along this existing roadway and it would  
3 connect with Puget Sound Energy's existing overhead  
4 transmission line right here where the line turns red. So  
5 that's what the terrestrial component would look like.

6                   We're still working with Puget Sound Energy  
7 regarding any upgrading of their infrastructure from here on  
8 out, so they've not given us guidance yet, whether or not  
9 that will be required. That will be part of our  
10 consultation work with Puget Sound Energy going forward.

11                   This gives you a good depiction of how often the  
12 turbines would actually be rotating. This has been a common  
13 question and one that's had some misconceptions associated  
14 with it, I believe. Depending on what assumptions you make  
15 about the resource that's there and how you interpret the  
16 data, these turbines will rotate somewhere in the range of  
17 60 to 70 percent of the time. This particular depiction was  
18 prepared by the University of Washington. It suggests the  
19 60 percent of the time operation. So what you see there in  
20 the green bands over this two-week period shows you how  
21 often the turbine would actually be rotating.

22                   The red suggests or shows when the rotor would  
23 actually be stopped. So you see the velocity of the tidal  
24 currents in the blue there in meters per second. This  
25 assumes a cut in and cut out velocity of about a meter per

1 second or a couple knots, so this gives you a pretty good  
2 interpretation on a daily basis over a couple weeks how  
3 often the turbine would be running and how often it would be  
4 stationary. Again, this suggests about 60 percent of the  
5 time the turbine would be running.

6 If we look at it over an annual basis, and this  
7 was prepared by Open Hydro, just to give you a different  
8 sense this suggest that the turbine would be running closer  
9 to 70 percent of the time, but this shows you how often the  
10 turbine would be stopped and how often it would be running  
11 and at what speeds for how many hours during an entire year.  
12 So the first thing you notice is that would be at zero rpm  
13 or stopped for about again 30 percent of the time, that's  
14 the bar on the left. And then during the remainder of the  
15 year, you can see how many hours the turbine would be  
16 operating from 4 to roughly 15 revolutions per minute. So  
17 most of the time the turbine would be rotating somewhere  
18 from, say, 4 to 10 revolutions per minute.

19 At the very highest currents, you would get up  
20 for very short periods of time, but it could get there, up  
21 to 15 rpm. But this gives you a sense of how fast the  
22 turbine would be operating over the course of the year for  
23 what periods of time. And we can come back to any of these  
24 during the course of the dialogue as we move on.

25 I just wanted to quickly mention this isn't the

1 first tidal turbine actually to be installed in our neck of  
2 the woods. Over on the right, you see Admiralty Inlet where  
3 we'll be and then the arrow on the left points to the  
4 southern tip of Vancouver Island where the turbine that you  
5 see in the picture from Clean Current coming out of  
6 Vancouver was deployed a few years ago. In fact, that  
7 turbine is a relatively similar design to the Open Hydro  
8 turbine. There are some similarities. It's been in and out  
9 of the water a few times, but its running was installed at  
10 an ecological preserve that Pearson College runs at Great  
11 Race Rock and in fact, is deployed right next to this  
12 smaller rock that you see the sea life on there.

13           Unfortunately, the federal fisheries in Canada --  
14 unfortunately for us, at least, did not require any  
15 monitoring for fish or marine mammal interactions with the  
16 turbine, so there's no hard data or reports. We only have  
17 anecdotal feedback from the students and others at Pearson  
18 College regarding those interactions.

19           As far as our pre-installation study plans, I  
20 think we'll go through these in greater detail throughout  
21 the dialogue today, but just to briefly go through what they  
22 are and where we're at, the marine mammal study plan we did  
23 a historical review and analysis of the Orca master database  
24 as well as the supplemental sightings databases. That was  
25 completed.

1                   We engaged in passive acoustic monitoring back  
2 beginning in May and they'll continue through parts of next  
3 year, and also active observations, using boat-based  
4 follows, vertical depth detection rays and other  
5 observations that will also -- started in October and will  
6 continue through the end of this month. Geophysical and  
7 bathymetric study plan conducted a high resolution, multi-  
8 being bathymetric surveys, sub-bottom profiling sites and  
9 sonar bottom grabs and megatometer surveys of the deployment  
10 site and the potential cable runs. That's been completed.  
11 Also, they have partially completed ROV characterization of  
12 the seabed and areas of the deployment site, but plan to do  
13 a more exhaustive ROV survey within our triangle of interest  
14 as well as survey of the cable route this year.

15                   Acoustic species study plan has involved both  
16 mobile and fixed hydro acoustic sampling. Four of those  
17 surveys were completed really to characterize fish density  
18 and spatial distribution during different tidal and diurnal  
19 conditions. That was completed in February. And we also do  
20 have a National Marine Fishery Service receiver for tagged  
21 fish on the sea spider that's deployed by the University of  
22 Washington.

23                   The University of Washington is also conducting  
24 with us an underwater noise study plan, using stationary  
25 hydrophones deployed at the site. It started back in May

1 and will continue well into next year. There's quite a bit  
2 more to say about noise in those study plans. Dr. Pologye  
3 can discuss that later today as we have dialogue on those  
4 issues.

5 Just in the interest of time, water quality study  
6 plan, hydrodynamic modeling study going way back even before  
7 filing our draft license application, also conducted by the  
8 University of Washington. And again, that Northwest  
9 National Marine Renewable Energy Center acoustic affects  
10 study that Brian can speak more to later.

11 And this doesn't even begin to touch on the vast  
12 ray of existing information that we gathered in preparation  
13 for both the pre-application document and the draft license  
14 application. I won't go through all of this, but it's  
15 examples of some of the information that we drew from, which  
16 is substantial because Admiralty Inlet is a pretty well  
17 studied body of water.

18 This is my last slide. Of course, this is the  
19 FERC pilot project licensing process, which I'm not going to  
20 speak to, but we'll just mention what we see being the key  
21 next steps in the process. Those being to complete and  
22 document the studies that we have planned right now, to  
23 continue monitoring plan and adaptive management process  
24 development in collaboration, both with all our stakeholders  
25 as well as the Pacific Northwest National Monitoring Plan

1 Development effort that Dr. Andrea Copping can speak to  
2 today.

3 And also, we intend on having a series of  
4 facilitated meetings and/or workshops really to examine  
5 these remaining questions and points of discussion regarding  
6 study and data needs, and we'll seek to resolve those  
7 remaining issues via that process.

8 So that's a brief overview of our project, where  
9 we are, what we've been doing, how we got here and what we  
10 see as being the next steps. And for me, David, that's it  
11 for now. Questions?

12 MR. TURNER: One from me, what's the timeline  
13 were you envisioning for getting to the ends for some of  
14 those steps that you talk about in the very last line?

15 MR. COLLAR: The big one is probably the  
16 monitoring plan development effort, and there's probably  
17 some dialogue that goes along with that that we'll ask Dr.  
18 Andrea Copping to take us through what we envision that  
19 process looking like, so we can jump into that now or we can  
20 cover it when we get to the monitoring plan, but I think  
21 it'll take a few minutes to talk through that.

22 MR. TURNER: Okay. We'll get to it. I think the  
23 ultimate goal of the pilot or a lot of the emphasis on the  
24 pilot was towards monitoring, so why don't we hold it until  
25 we get to the monitoring plan discussion? Any questions

1 from anybody else?

2 [NO RESPONSE]

3 MR. TURNER: Okay. Why don't we jump into some  
4 of the other issues? Cultural resource questions that we  
5 had, Patty, do you want to take a stab at it?

6 MS. LEPPART: Thank you, David. One comment that  
7 I have is that I noticed in the distribution list within  
8 your draft application that you did not include the  
9 Washington State Historic Preservation officer on your list,  
10 so I don't know whether or not the Washington SHPO has  
11 received a copy of your draft application. Would someone  
12 like to answer that?

13 MR. MALKIN: Yes, this is Devin Malkin. I'm with  
14 HDR. I don't believe the SHPO has been directly involved  
15 thus far. As you said, I don't think they're on the  
16 distribution list. It's our intention to do a formal  
17 request for concurrence with the SHPO in the next month or  
18 so. In the development of our PAD sometime back, we did a  
19 full SHPO record search and informally discussed with the  
20 SHPO what an appropriate APE should look like for this site.  
21 That was well before the project boundary was defined.  
22 Since that time we more formally defined what the project  
23 boundary should be, in our view, and submitted that with our  
24 draft license application.

25 Now that that's been defined, we have a proposed

1 APE of a quarter mile. And since that has been put  
2 together, the draft application is in, we're going to  
3 request concurrence with that APE and submit a copy of the  
4 DLA to the SHPO, as I said, within the next month or so.

5 MS. LEPPART: And when you submit that to the  
6 Washington SHPO, are you then going to request concurrence  
7 with the proposed project's area potential effect?

8 MR. MALKIN: That's our intention. Yes.

9 MR. TURNER: Anything else, Patty?

10 MS. LEPPART: Not at this time. Thank you.

11 MR. TURNER: Great. Anybody else got any  
12 questions in that regard? In the back?

13 MR. OSTROM: Tom Ostrom with the Suquamish Tribe.  
14 Will you be requesting concurrence with the TIPOs as well as  
15 the SHPO at that time?

16 MR. MALKIN: That's our intention. Yes.

17 MR. OSTROM: I could see them being separate  
18 requests of that. Yes.

19 MR. TURNER: I didn't realize you guys had a  
20 TIPO. Good enough.

21 MS. LEPPART: Then one other further comment on  
22 that. Would you file that with the Commission?

23 MR. MALKIN: Yes.

24 MS. LEPPART: And then, again, would you just in  
25 any filings with regard to your final application, if you

1 will, could you please then add the Washington SHPO to your  
2 distribution list?

3 MR. MALKIN: I believe it's already been added.

4 MS. LEPPART: Okay, thank you.

5 MR. MALKIN: Absolutely.

6 MS. LEPPART: Thank you.

7 MR. MALKIN: Thank you.

8 MR. TURNER: Yes?

9 MR. PEDERSON: With respect to cultural  
10 resources --

11 MR. TURNER: Your name?

12 MR. PEDERSON: Bob Pederson. Island County  
13 Planning. Your landing site within the PUD's preserve,  
14 National Historic Preserve and so it'll be coordinating with  
15 Island County Planning on that because there are  
16 requirements pertaining to any demolition within the  
17 preserve and the design of any structure.

18 MR. COLLAR: Yes, this is Craig Collar. We're  
19 certainly very well aware of that. We've been consulting  
20 with EB Landing Trust Board, so their leadership is well  
21 informed as to what we're doing. We're also not planning to  
22 do anything that's outside of, in terms of building  
23 construction, Camp Casey's master plan. Camp Casey, in  
24 fact, or Seattle Pacific University has asked us to hold off  
25 on direct engagement with Island County Planning until they

1 have had the chance to get their leadership aligned around  
2 the project. We're continuing to negotiate with Seattle  
3 Pacific around the details of our relationship with them in  
4 the project, but that's where we are so I certainly  
5 understand your concerns and that's what we've done so far.

6 MR. PEDERSON: Great. Great.

7 MR. COLLAR: Understood. Absolutely.

8 MR. PEDERSON: Thank you.

9 MR. TURNER: Is there a timeline on there that  
10 you have in mind?

11 MR. COLLAR: Seattle Pacific has been referring  
12 to that in terms of weeks when they would be ready to move  
13 forward. That's also what we're waiting on to really launch  
14 our JARPA process as well, although the application is  
15 largely complete.

16 MR. TURNER: Okay. Good. So no real objections  
17 included from those. You don't see, necessarily, running  
18 into any problems for rights to use the lands or anything?

19 MR. COLLAR: No. And in fact, that's one of the  
20 reasons we were very interested in partnering with Seattle  
21 Pacific University was because of their interest in the  
22 project, kind of their shared value for this and also the  
23 fact that they do have a master plan already in place that  
24 would provide for building something very similar to what we  
25 propose.

1                   MR. TURNER: Could you guys file that with us so  
2 we can look at that compared to your -- I mean, obviously,  
3 their buy-in to that would be great, but we can look at it  
4 too from our environmental perspective.

5                   MR. COLLAR: The master plan?

6                   MR. TURNER: Yes.

7                   MR. COLLAR: Certainly.

8                   MR. TURNER: In the back?

9                   MS. ROSEBROOK: Susan Rosebrook, National Park  
10 Service. Just on that question of the EB plan, as one of  
11 the questions that David had in the agency was on EB Landing  
12 Trust. So we did check with the Reserve manager, Mike  
13 Price, and he recommended that at this stage that there is a  
14 meeting between Snohomish PUD and the whole Trust Board and  
15 the National Park Service as well. It's not anything about  
16 the site at this point, but just recommended that at this  
17 stage in the process the whole Trust Board be involved.

18                   MALE VOICE: David, we couldn't hear Susan's  
19 question.

20                   MR. TURNER: I'm sorry. Could you just repeat  
21 that, Susan?

22                   MS. ROSEBROOK: I'm Susan Rosebrook with the  
23 National Park Service, and one of the questions that David  
24 Turner had in the agenda was about the EB Landing Trust  
25 Reserve, and in response to that last week I checked with

1 Mark Price the reserve manager and he did recommend that a  
2 meeting occur between FERC and Snohomish PUD and the whole  
3 Trust Board at this stage, and the National Park Service.  
4 We have provided some comments with the Reserve manager. I  
5 know that there has been some consultation, but just at this  
6 stage in the process he thought in having the whole Trust  
7 Board be involved would be a good next step.

8 MR. COLLAR: Okay, from our perspective that's  
9 great. Mark is the gentleman we've consulted with so far,  
10 so if they're ready to engage at that level that works for  
11 us and we'll set that up then.

12 MR. TURNER: Well, I think we've kind of jumped  
13 into the recreational and land use issues. Was there  
14 anything else on the cultural stuff, so we can scratch that  
15 off the agenda?

16 MS. LEPPART: That's fine, David. Thank you.

17 MR. TURNER: And we did kind of jumped in. Mark,  
18 do you want to take on the recreation? You had some  
19 questions there?

20 MR. HUNTER: Yes, David. Thank you. And thanks  
21 for answering the third question already. The first one we  
22 had on the list was trying to help me understand the marine  
23 exclusion zone that you'll be setting up for this project.  
24 I really couldn't understand the actual size based on the  
25 drawings that we saw that you had expected, so could you

1 define what the dimensions of the zone will be, and also  
2 which activities beyond commercial fishing and crabbing  
3 would be banned from that zone? And then, finally, if the  
4 zone is not going to be marked with any buoys, how will  
5 recreational fishermen and other participants know that the  
6 exclusion zone exists?

7 MR. COLLAR: Sure. This is Craig Collar. We are  
8 currently continuing to negotiate with the Coast Guard or to  
9 consult with them as to marine exclusion zone or  
10 navigational zone that they would suggest for the project.  
11 So we see that largely as being something where we will  
12 adhere to their recommendations and requirements.

13 She mentioned that Mike McCallister from the Navy  
14 and Sound & Sea Technology is here. He can certainly speak  
15 to what he has seen and planned for similar exclusion zones.  
16 Our belief and intention is that only would be the immediate  
17 area of the turbines, so quite a small zone. The Puget  
18 Sound Harbor Safety Committee recommended that it not be  
19 marked with buoys, only marked on charts.

20 As far as outreach, you can imagine that when the  
21 day comes, if it comes, when we deploy these turbines, there  
22 will be a very thorough and exhaustive communication plan.  
23 There are many, many entities, committees, organizations  
24 around Puget Sound by which we can reach out to recreational  
25 users of the area, includes marine resources committees, the

1 Puget Sound Anglers, Salmon University. I mean the list  
2 goes on and on and on, and we'd certainly work with all of  
3 those folks to make sure that they were aware of the project  
4 and what the ramifications were. And the list of mariners,  
5 obviously, would be another consideration. But Mike, maybe  
6 you want to say a word or two about exclusion zones, the  
7 difference even between our side and the Navy's and why the  
8 Puget Sound Harbor Safety Committee has recommended against  
9 the use of buoys to mark the site.

10 MR. McCALLISTER: Sure Craig. First of all, it  
11 isn't technically --

12 MR. TURNER: Your name first.

13 MR. McCALLISTER: I'm sorry, Mike McAllister,  
14 Sound & Sea Technology. And I've been working with Craig on  
15 the Snohomish PUD Project and also on the Navy Project with  
16 safety and navigation issues. The Coast Guard has, I think,  
17 determined that the technical term for the zone that they're  
18 looking for is not actually an exclusion zone. It's a  
19 navigational restriction zone and they are a navigational  
20 restricted area and there are slight differences.

21 An exclusion zone is all traffic through the area  
22 is required to avoid the area entirely, and a navigational  
23 restricted area ship traffic is not restricted, only fishing  
24 and bottom activity is restricted. So there's a little bit  
25 of a differential there. In an exclusion zone, anybody

1 wishing to transit through actually has to get permission  
2 from the Coast Guard captain of the port. In a restricted  
3 area that's not the case, but the Coast Guard is still  
4 looking at the possibility of a restricted area and how they  
5 would go about doing that. But as Craig says, it would most  
6 like be through the mechanism of the broadcast, the Coast  
7 Guard's Notice to Mariners broadcast.

8 And on the Navy site because we're in much  
9 shallower water, about 75 feet with an expected top depth  
10 for the turbine of about 34 feet, we will be looking at an  
11 exclusion area and that area will be buoyed by patons,  
12 private aids to navigation. And the distance between the  
13 aids to navigation are still under negotiation by the Safety  
14 Committee and with the Coast Guard.

15 MR. TURNER: Any follow up, Mark?

16 MR. HUNTER: Yes. Just to be clear, at this  
17 point we don't know exactly how big of an area and we don't  
18 know specifically which uses would be banned from that site?

19 MR. COLLAR: Yes, I think that's fair to say.

20 MR. McCALLISTER: Like I said, we're still  
21 working with the Coast Guard. In fact, dialogued with them  
22 as early as just the end of last week, so that continues.  
23 And I think that their timeline for resolving this, again,  
24 is on the order of weeks, not months.

25 MR. TURNER: And they only use markers in the

1 sense of the exclusion and not in the restricted area, and  
2 that's just because it's only limited -- just because it's  
3 so limited they don't feel that it's necessary to have those  
4 kinds of things marked?

5 MR. McCALLISTER: It's because of the water  
6 depth. For this Snohomish PUD Project, they're not  
7 concerned about traffic in the area, so that's correct.  
8 Essentially, there will be no requirement for private aids  
9 to navigation at this point.

10 MR. TURNER: All right, any other questions on  
11 that one?

12 MR. SCOTT: I'm Brady Scott, Washington  
13 Department of National Resources. Who was it that  
14 recommended no buoys and the sole reason I think you just  
15 mentioned was the depth of the water, and I just wanted to  
16 confirm that's the sole reason for no marker aids and then  
17 again who recommended that?

18 MR. COLLAR: The recommendation came from the  
19 Puget Sound Harbor Safety Committee.

20 MR. McCALLISTER: And the Coast Guard as well, I  
21 believe.

22 MR. COLLAR: Yes, which is chaired by the Coast  
23 Guard.

24 MR. McCALLISTER: And as you indicated, Brady,  
25 the water depth is the primary issue.

1 MR. SCOTT: Thank you.

2 MR. TURNER: Anything else? Yes, a couple of  
3 people I think I've heard chime in as we've had this  
4 discussion. Maybe we ought to back up just a few minutes  
5 and see who else is on line. Maybe we should go through  
6 another roll call There -- I know have Mark and Patty and  
7 the two NOAA Fisheries folks. Was there anybody else -- and  
8 the folks from overseas, but anybody else that came on  
9 shortly, a few minutes ago, 20 minutes ago -- on the phone,  
10 that is? I'm sorry.

11 MR. MURPHY: Nick Murphy, HDR DTA.

12 MR. TURNER: Anybody else? Okay. Mark, do you  
13 have another question?

14 MR. HUNTER: Yes, the next one is regarding the  
15 occupancy of either Fort Casey or Admiralty Head is whether  
16 or not the project would actually be built on land. It's  
17 within either of those parks.

18 MR. COLLAR: This is Craig Collar. No occupancy  
19 of Fort Casey State Park as far as the Marine Preserve goes,  
20 that's the area extending 400 yards offshore that we would  
21 be directionally drilling underneath.

22 MR. HUNTER: Okay. And at what depth were you  
23 planning to come back out of the water under the Marine  
24 Preserve?

25 MR. COLLAR: Actually, the Marine Preserve goes

1 down to about 12 meters in depth. We'd come out of the  
2 water somewhere deeper, closer to 20 meters.

3 MR. HUNTER: Great. Okay.

4 MR. TURNER: Have you had any discussions with  
5 the Preserve, though, in terms of any concerns they may have  
6 with drilling under that?

7 MR. COLLAR: Well, through Washington Department  
8 of Fish and Wildlife.

9 MR. TURNER: Okay, but not in terms of having to  
10 pursue any necessary rights to drill underneath preserve.  
11 I'm not sure from a state perspective that there are any.

12 MR. COLLAR: Not that we're aware of.

13 MR. TURNER: And you won't occupy the Fort Casey  
14 State Park.

15 MR. COLLAR: Correct. I should mention, if I  
16 didn't already, we do have to pursue a lease with the state  
17 for the seabed that we use for the project.

18 MR. TURNER: Anything else, Mark.

19 MR. HUNTER: Yes, that actually brings up another  
20 question I have about the other end of the drilling. I  
21 can't tell because I haven't been to the sites, how much  
22 topographical relief there is between the beach itself and  
23 the picnic area where that vault is going to be. Can you  
24 give me a better idea what the site is like?

25 MR. COLLAR: Larry might be a better guy. You've

1 taken a closer look at it. This is Larry Armbruster from  
2 Sound & Sea Technology.

3 MR. HUNTER: Okay.

4 MR. ARMBRUSTER: Yes, I haven't actually measured  
5 it, but it's probably on the order of 20 feet above the  
6 beach where that picnic site is that we would be staging the  
7 drilling equipment and where the beach vault would be  
8 located.

9 MR. HUNTER: And so when you're drilling, the  
10 drilling will be far enough, I guess, underneath the beach  
11 and away from the edge of the topographical relief that  
12 there will be no erosion or anything caused by that?

13 MR. ARMBRUSTER: Correct. The drilling goes  
14 roughly 50 feet. It can vary from 30 to 90 feet under the  
15 beach that we aim for when we do that.

16 MR. HUNTER: Okay.

17 MR. ARMBRUSTER: So we'll be well under any risk  
18 of erosion or surfacing anywhere in that zone.

19 MR. HUNTER: Great. Okay. It's just hard to  
20 understand from the pictures that I've seen.

21 The last question I had was from the picture that  
22 you actually showed this morning, the one week December 16th  
23 to the 23rd of the shipping traffic, it looks like some  
24 traffic that goes outside the shipping zones and it looks  
25 like the course that the ferry takes varies quite a bit over

1 the course of that week and it looks like there's a couple  
2 of times the shipping traffic and possibly even the ferry  
3 traffic has gone over the site that you've planning to use,  
4 and I just wondered if you've talked with people involved  
5 with the shipping and the ferry about, does it matter that  
6 they're going over your site; is that a concern to you?

7 MR. COLLAR: Right. This is Craig Collar.  
8 Again, the shipping industry, largely that dialogue and  
9 consultations occurred through the Puget Sound Harbor Safety  
10 Committee, although we have consulted directly with  
11 Washington State Ferries as well. The only concern that the  
12 ferries had -- they had no concern -- if they ever had to go  
13 over the top of the turbine, it wouldn't be a problem for  
14 them. There's more than adequate clearance for that.  
15 They're only concern and request was that we coordinate with  
16 them closely during any installation or removal or  
17 maintenance activities, which obviously we would. But they  
18 felt that was perfectly manageable.

19 As far as most of the shipping, really the only  
20 shipping that would be of a concern that far out of the  
21 shipping channel that also could potentially impact the  
22 turbine at that depth would be the catanary or the toll  
23 cable between tugs and barges. So that is probably the lone  
24 issue with respect to this particular site. But again that  
25 was one that the Puget Sound Harbor Safety Committee deemed

1 to be manageable. We've also consulted with Jason Lewis,  
2 who, at least to us was the representative from the Pacific  
3 Waterway Operator organization who represents those folks in  
4 the tug and barge industry, at least many of them, and he  
5 was also aligned with that recommendation.

6 MR. TURNER: We've got a question in the back.

7 MR. SCLESINGER: Yes, my name is Jeff Sclesinger.  
8 I'm with Western Tugboat here in Seattle and Jason Lewis  
9 actually asked me to --

10 MR. HUNTER: We can't hear him, David.

11 MR. TURNER: I'm sorry. Hang on a second, Mark.

12 MR. SCLESINGER: My name is Jeff Sclesinger. I'm  
13 with Western Tugboat, a towing company here in Seattle. And  
14 Jason Lewis asked me to appear because he could not. But in  
15 addressing your question, the towing industry is very  
16 concerned about the location of this project, and  
17 specifically because of the catanary on the toll wires.  
18 Those little threads that you see that are close to  
19 Admiralty Head are most likely tugs and tows that are  
20 transiting that area.

21 That week, December 16th to 23rd, is probably one  
22 of the slowest weeks of the year for that type of traffic,  
23 and I think during the rest of the year you see quite a bit.  
24 Our concern is that we have quite a bit of tugs and tows  
25 that are geared for ocean towing. They're going up to

1 Alaska or Abbott Springs or Wannapuka and they have heavy  
2 chains and long tow wires where the catanary when under  
3 strain is anywhere between 60 and 120 feet under the water.

4 The problem with that specific area is that there  
5 are quite a few tide rips and eddies that will cause that  
6 tow wire to dip down farther than that. And one of the  
7 reasons that we end up over in that area is because we  
8 travel slower than some of the main shipping traffic. We're  
9 kind of forced outside the lanes, and it's quite a concern  
10 for us. These barges that are being towed contain petroleum  
11 products, containers with hazardous materials bound for  
12 Alaska and I just want to express that we have a great deal  
13 of concern about that particular location with the catanary  
14 and the tow wires going over on a very consistent basis.

15 MR. HUNTER: I'd like to follow up with another  
16 question there. Forgive my ignorance of the shipping  
17 industry, but can you explain what a catanary cable is, and  
18 also give us an idea of how much the tow cables might drop  
19 due to the tide rips and eddies?

20 MR. SCLESINGER: Well, a catanary is -- even  
21 though these are very heavy, even when that cable is under --  
22 -- it's under a suspension bridge, you know, when you have a  
23 cable going from two suspended points.

24 MR. HUNGER: Right.

25 MR. SCLESINGER: Even when it's under strain it

1 will sag. So normally it will sag between 60 feet under the  
2 water to as much as 120 feet under the water, depending on  
3 how much gear there is on the barge, how heavy the chain is,  
4 the length of the toll wire. The problem is, when that  
5 strain is relieved where, for instance, the tugboat and the  
6 barge are in different types of current it will sag down  
7 farther than that. And you know, it can go quite a ways  
8 down. I mean the length of the wire from the towing vessel  
9 to the barge can be 1,500 feet. So the potential is there  
10 that it could sag down to half that distance, which is quite  
11 a ways.

12 Now that's a little unusual, but it is not  
13 unusual when you encounter a tidal situation for the cable  
14 to go down below 120 feet. It could come very close to the  
15 turbines.

16 MR. HUNTER: Thank you. David, are there any  
17 other questions on that issue?

18 MR. TURNER: You guys want to respond to that?

19 MR. COLLAR: I mean we can only refer to the  
20 feedback that we've gotten from Jason Lewis for over two  
21 years now that relative to this specific site and this type  
22 of overhead clearance that they did not have any objections  
23 to the project. So what was just reflected here is new  
24 information to us.

25 MR. TURNER: Would you guys be willing to put

1 anything on the record in that regard and information to  
2 support how much you guys may use and how often that kind of  
3 a lead or catanary issue might come into play?

4 MR. SCLESINGER: Yes, as a matter of fact,  
5 there's a letter here that the CEO of the American Waterways  
6 has written to Ms. Kimberly Bose, and it describes it in  
7 more detail and documents these concerns about the catanary  
8 and the depth and the location. So that should have been  
9 submitted here today.

10 MR. TURNER: Today? I was going to say I hadn't  
11 seen it, but that doesn't necessarily mean anything.  
12 They're on E-Library sometimes.

13 MR. JAYJACK: This is Nick Jayjack from FERC. I  
14 think one thing we'd want to see on this issue is we're  
15 talking about the turbine being out about a kilometer from  
16 shore and I don't remember what the depths are there, but I  
17 think one of the things we would want to know is if you were  
18 passing over that area today, no turbine there, what kind of  
19 length of a catanary or chain would you use through there  
20 and how much clearance do you allow yourself? For instance,  
21 you probably wouldn't go through there with a 1600-foot  
22 chain because of the depth there with the risk that this  
23 thing would sag all the way to the bottom I'm sure you don't  
24 want to hang up the bottom with these things. So I think  
25 what we would want to know is, again, what the typical

1 length of chain would be that you would use going through  
2 that area today.

3 I'm sure if you had a longer chain you would  
4 probably go closer to the main shipping channel, but that  
5 type of information would be helpful to our analysis.

6 MR. SCLESINGER: Yes, I'll definitely have them  
7 include that. The short answer to that is, typically, that  
8 area can have extremely rough weather because of the  
9 incoming sea swell and rain from the Straits of Wannapuka  
10 where it meets the tidal area. So it's not uncommon for us  
11 to have anywhere between 1,000 and 1,500 feet of wire out at  
12 that juncture.

13 MR. JAYJACK: Okay.

14 MR. TURNER: Anything else, anybody?

15 MR. MURPHY: Yes, hello. This is Nick Murphy  
16 from Open Hydro. I just feel like I'd like to jump in there  
17 for a second. I can maybe clarify a couple of points for  
18 you.

19 We've been talking about the depth there on the  
20 site and we hear your concerns regarding the catenary wire.  
21 Just to clarify, we're looking at a water depth of 60 meters  
22 at lowest astronomical tide. Our turbine is 15 meters high,  
23 the top of it, so that'll leave a clearance of about 45  
24 meters. I guess that's around what, 130 odd feet for you  
25 guys.

1           The other point I was going to make is in  
2           relation to something which was said earlier regarding the  
3           marking of site. Now we've deployed a couple of these sub-  
4           sea units in the past. One up in Auckney in the European  
5           Marine Energy Center north of Scotland and then, of course,  
6           the one over in Canada in the Bay of Fundi. We went through  
7           this whole process discussion around marking the site then  
8           with buoyage and it was decided very much by those doing the  
9           navigational risk assessment that actually the buoyage  
10          required to mark a site to keep it above the surface at all  
11          times would actually create more of a hazard to shipping  
12          than not having a buoy. That was the generally felt opinion  
13          just because of the significant tidal flow you get in  
14          locations like this. Most buoys would just dip underneath  
15          the surface unless they were absolutely massive.

16                 MR. TURNER: I think we had one more question  
17          over here.

18                 MR. McCALLISTER: I was just going to add the  
19          other issue here is that the Sno-PUD site is well outside  
20          the marked traffic lanes. And while I recognize -- we all  
21          recognize, I think, that there are occasions where the  
22          slower tugs are pushed over to the side of the traffic  
23          lanes, I think that the Coast Guard is more than willing to  
24          provide some flexibility there to ensure that the tugs have  
25          adequate room to pass to the north or to be passed.

1                   MR. JAYJACK: This is Nick Jayjack from FERC.  
2                   Craig, I'm not too familiar with recreational fishing in  
3                   that area there, but one thought that comes to mind would be  
4                   I'm sure folks here use downriggers there as part of their  
5                   fishing tools, and I wondering if there's been a concerned  
6                   raised about a 10-pound or 20-pound downrigger lead weight  
7                   getting caught up in the turbine or how that would be marked  
8                   to -- so those fishermen would know about that.

9                   MR. COLLAR: Yes, I can't say it hasn't come up,  
10                  but we've consulted with folks like the Puget Sound Anglers.  
11                  Most of the feedback we've gotten is that this is not a spot  
12                  that's particularly fished much, so the activity there seems  
13                  to be low. That's also been echoed by Seattle Pacific  
14                  University. The outreach effort and the communication  
15                  effort I mentioned earlier would be our way of making sure  
16                  the folks were informed as possible.

17                  Nick and Open Hydro could probably speak to what  
18                  concern they might have about the effect of a 10-pound piece  
19                  of equipment on that rigger on the turbine. But to this  
20                  extent, it's been deemed a pretty unlikely event and one  
21                  that would not be likely to result really in adverse  
22                  consequences. Nick, anything you'd add to that?

23                  MR. MURPHY: Just really, I mean, our view of the  
24                  likelihood of an occurrence like that of your 20-pound  
25                  weight you were referring to going through our turbine we

1 would see that as being a very unlikely situation. Though,  
2 if it did, it's our view that our machine is probably strong  
3 enough to survive that. I mean definitely we've designed  
4 for that sort of impact. We wouldn't really have any  
5 concerns about that.

6 MR. TURNER: Any other questions, comments?  
7 Anything on line, telephone?

8 MR. MCALLISTER: I was going to say I thought  
9 Nick put up a good point. We really don't understand what  
10 kind of recreation occurs there, and so we don't know if  
11 that kind of fishing happens or if crabbing happens and crab  
12 pots again could get entangled, so we really need a better  
13 understanding of how that site actually being used now for  
14 outdoor recreation.

15 MR. HUNTER: Mark Hunter, Washington Department  
16 of Fish and Wildlife. We have inquired into some of the  
17 recreational interests in the area. It's difficult to say  
18 what the interaction there's going to be between  
19 recreational fisheries. The point of the matter is when the  
20 turbine's running, the velocities are fairly high. You  
21 don't want to be fishing with a 20-pound ball rolling over  
22 rough cobble tough grade than going over a turbine. It can  
23 easily break off. It's something to be examined during the  
24 trial period, but it's not a clear showstopper.

25 MR. TURNER: Thanks Mark. Susan.

1                   MS. ROSEBROOK: Susan Rosebrook, National Park  
2 Service. Just to follow up on that, that was one of our  
3 questions, too. I think that draft license application does  
4 a good job of describing the different activities in Puget  
5 Sound as really important for recreation activity, but the  
6 specific site itself there isn't any evaluative information  
7 on is that area fished. It sounds like there's been some  
8 consultation on that, but some sort of assessment, maybe  
9 something as simple as like a focus group for some of the  
10 recreation users to just verify that site -- what that site  
11 is used for, and also it can be a start for some of the  
12 communication plans in the future.

13                   And then as the project is implemented, I think  
14 it would be good to, again, do a check in as the project is  
15 already online do a monitoring plan with recreation users as  
16 well as how the restrictions -- whatever the restriction is  
17 of this exclusion and navigation restriction, how that is  
18 being communicated to the average user. The user groups I  
19 think will be on it, but how is that being communicated to  
20 folks that are doing that and how is that working? Are they  
21 aware of that? So those type of things we think would be  
22 good to include in some monitoring plan for recreation.

23                   MR. TURNER: Any other comments, questions,  
24 concerns?

25                   MR. COLLAR: This is Craig Collar. I should have

1 mentioned, if I didn't before, that one of our primary  
2 outreach efforts has been through the various county marine  
3 resource committees in the area. Island county Marine  
4 Resource Committee being one of the ones we've engaged with  
5 the most. They're on Whidbey Island, particularly, in  
6 Coupeville, several meetings with those folks. A lot of the  
7 guidance that we've gotten regarding recreational use and  
8 fishing of the area, that being that it's fairly limited has  
9 come from that group who, arguably, has tentacles into  
10 pretty much all of the comings and goings and uses of the  
11 waterway, so we're open to engaging with anybody else who  
12 has interest, but Marine Resource Committees I wanted to  
13 point out has been one of our primary ways to engage with  
14 the community and the users of the environment.

15 MR. TURNER: Okay, let's move on to the next  
16 topic unless somebody needs an eminent break. I thought  
17 we'd break at 10 o'clock for about 15 minutes. Okay. We  
18 were going to look at operation and installation next in  
19 terms of our questions and actually, Craig, your  
20 presentation answered some of the ones that I had in regards  
21 to how frequent you operate and how hopefully you'd be  
22 generating electricity into such.

23 The question was basically coming up from NOAA  
24 Fisheries, so Ed I was wondering if Keith or somebody on  
25 your part, see if that answers some of your concerns or

1 questions?

2 MS. AGNESS: About how often the turbine runs?

3 MR. TURNER: Yes, you guys had made in your  
4 comment letter some questions about exposure duration of  
5 operation and that kind of thing, so I don't know if this  
6 gets that answered.

7 MS. AGNESS: It's certainly new information that  
8 wasn't included in the draft license application. It  
9 appears that it runs a majority of the time.

10 COURT REPORTER: Would you identify yourself?

11 MS. AGNESS: What's that?

12 COURT REPORTER: Would you identify yourself?

13 MS. AGNESS: My name -- Alison Agness, NOAA  
14 Fisheries.

15 MR. TURNER: Is there anything else that you  
16 would need that you were thinking about in your comment  
17 letters?

18 MS. AGNESS: I mean, certainly, the information  
19 on the amount of time spent in different seed states will be  
20 good information. Yes, through a process that we'll be  
21 engaged in with PNNL, I'm sure we'll ferret out the  
22 potential additional pieces of information specific to  
23 operations that we'd need to better model exposure under  
24 those different operational scenarios when the turbines are  
25 running, but, yes, that will certainly be coming. I can't

1 think of anything else currently regarding the just running  
2 characteristics.

3 We had identified that it would be good to have a  
4 better handle on the effect of shutdown on turbine lifetime,  
5 I guess. How often can you trigger a temporary shutdown and  
6 still have the turbine function, that type of thing, was  
7 another kind of piece of the operation performance that  
8 would be good to know about.

9 MR. TURNER: Craig, you guys want to respond to  
10 that question?

11 MR. COLLAR: Well, Nick could probably respond.  
12 This is Craig Collar. Nick could probably respond the most  
13 directly about the effect to multiple shutdowns on the  
14 turbine. Nick?

15 MR. MURPHY: I'm sorry. I didn't fully hear the  
16 questions, but as I understand it, it refers to what the  
17 impact on our machine would be related to regular shutdowns;  
18 is that correct?

19 MR. COLLAR: Correct.

20 MR. MURPHY: So I would say we have a breaking  
21 system on the turbine, which we can engage on demand. We  
22 have used this. It does cause some stress on the turbine.  
23 It would be our preference not to do repeated shutdown from  
24 high speed, though it is something we could handle. We  
25 could certainly work around it. Being as it's still sort of

1 an early stage development of the technology, this is an  
2 area which we probably would prefer not to have to shutdown  
3 regularly, but it's certainly we could certainly work with  
4 if we needed to.

5 MS. AGNESS: So that's not been a part of the  
6 kind of testing of performance for the turbine to date?

7 MR. MURPHY: No, it certainly has been a part of  
8 the testing, but our test scale is a 6-meter machine. So to  
9 date, we've deployed a single 10-meter machine and that has  
10 a brake engaged and we tested that during our commissioning  
11 trials and it worked fine. Really the concern would be  
12 around -- we're now scaling up significantly from the 6-  
13 meter, which we have adequate -- very happy with the test  
14 data we have to date up to a new 10-meter scale and let's  
15 say we only have the one turbine for reference there. So  
16 it's something that we would want to investigate a bit  
17 further. I'd really have to take this away and speak to our  
18 mechanical guys.

19 MS. HARPER: Jennifer Harper from FERC here. Did  
20 I read in the application that at very high velocities that  
21 even with the brake on the turbine was still rotating?

22 MR. MURPHY: Yes, that's correct. What we  
23 currently have is a purely electrical brake system. So what  
24 that means is that we short-circuit the turbine and it  
25 stops, but it sort of creeps around very, very slowly. I

1 mean you can barely see it. You'd have to mark a spot on  
2 the turbine and then watch it, and you might get maybe half  
3 a revolution a minute. It's that sort of speed turning with  
4 a 6-meter anyhow, but we're working towards a clamping  
5 system, which we're currently having testing now. It's a  
6 more mechanical brake.

7 MS. HARPER: And so do you know at what flows  
8 you can get complete stoppage and at what flows you still  
9 see some rotation?

10 MR. MURPHY: Personally, no. I can take that  
11 away and get you an answer to that question. Is that  
12 something you'd like more information on?

13 MR. TURNER: Sure.

14 MR. MURPHY: Okay.

15 MR. JAYJACK: This is Nick Jayjack from FERC. I  
16 agree with what David was saying that that was the type of  
17 information we were looking for as far as the on/off  
18 periods. But my first question related to that would be is  
19 how is that information going to get to us? Was it your  
20 intention to present that information today to us for the  
21 record or to follow up with a filing to provide us with the  
22 data? And related to that, my second question would be I  
23 think what we were looking for also was kind of the intra-  
24 daily type on and off periods. In other words, what hours  
25 of the day the turbine would be operating and what hours

1 during the day it wouldn't. I think we can get a good idea  
2 from the slide, and it looks like your time stuff there is  
3 fairly broad for us to pick off the hourly period. So I'm  
4 wondering if that information would also be available to be  
5 filed with us?

6 MR. MURPHY: Sure. I mean it was really our  
7 intention to provide that information for Sno-PUD's final  
8 license application, but I can talk you through it now.

9 So you would have seen the histogram, which Craig  
10 showed earlier, and which shows over a year's period what  
11 RPMs we would be getting from the turbine from what periods  
12 of time, and that data is based on site data. It was  
13 collected by University of Washington, and we would have  
14 predicted forward, using the data they have and be able to  
15 calculate what a year's worth of tidal velocity would look  
16 like on the site, and from that we can calculate what the  
17 rotational speed would be and there from get this histogram.  
18 But if you want more of a daily view on the thing, give me a  
19 second. I have some information here from our mechanical  
20 team. Really it depends on what state of tide you're on in  
21 the two-week spring tidal cycle, but we would have on a  
22 spring day, say, we would have -- the turbine would be  
23 operating at most time on a spring day you would have maybe  
24 four periods of maybe an hour to an hour and a half when the  
25 turbine wouldn't be rotation, where it would be below the

1 required velocity on spring tidal day. Equivalently, on a  
2 neat tide day, we would be looking, again, the four periods  
3 but they'd be a little longer, so we'd probably looking at  
4 probably 6 hours out of the 24 in the day that the turbine  
5 wouldn't be operating.

6 MR. TURNER: And the velocity again that you guys  
7 have for minimum rotation is 1 meter per second, as I  
8 understand from this diagram.

9 MR. MURPHY: No, 1.1 per knot our machine starts  
10 at. It's about .7 meters per second. There's very little  
11 power in the tide below that, so we're less concerned from a  
12 power perspective, anyhow, about not being able to start  
13 below that. And we can run it all the way up through the  
14 tide to whatever you have there. I think we have a peak  
15 flow -- bear with me a second. We're calculating a peak  
16 tidal flow of 3 meters per second at depth on your site so  
17 we don't break up to that speed and beyond, should it  
18 happen.

19 MR. TURNER: I thought I saw your hand go up.

20 MS. BISHOP: We had another question.

21 MR. TURNER: Identify yourself.

22 MS. BISHOP: I'm sorry. Alicia Bishop, NOAA  
23 Fisheries Service. We just wanted to kind of reiterate that  
24 it still hasn't been clarified how long the turbine is going  
25 to be in the water and operational.

1                   MR. TURNER: You mean how long the license might  
2 be issued for?

3                   MS. BISHOP: That as well, but that would be a  
4 factor. So how long the license would be issued for and  
5 then obviously a portion of that time is going to be  
6 gathering the technology and installing it and leaving time  
7 for renewable as well, so we still don't have a clear idea  
8 of how long the turbine will be in the water and operating.

9                   MR. KALLSTROM: This is Jeff Kallstrom with  
10 Snohomish. We have a couple ways that we can get you the  
11 information. I don't think this presentation was intended  
12 to be the final answer as far as the question. We can  
13 either voluntarily file a document with FERC or if you're  
14 intending on including it in your additional information  
15 request, the ones coming, we can do it as a response to  
16 that.

17                   And as far as Alicia's question, we can also  
18 include our estimates of timeframes, at least until initial  
19 installation and then from that you can kind of extrapolate  
20 some various assumptions for a license duration.

21                   MR. JAYJACK: This is Nick Jayjack from FERC. So  
22 then my understanding then would be then -- I mean we could  
23 tell from the timeline you give us that the tentative  
24 expected date that that thing goes in the water and starts  
25 rotation to the day it comes out.

1 MR. KALLSTROM: Correct.

2 MR. JAYJACK: So you could see a three, four,  
3 five, six year window we'd be able to tell.

4 MR. KALLSTROM: Yes, we can put together an  
5 estimate of about how long we think it will take to fill the  
6 hydro, procure the equipment and then get it installed.  
7 This is a new technology. Open Hydro is building these to  
8 order, so there'll be some time required for that, but we  
9 can give you an idea of rough estimates of what that would  
10 be.

11 MR. JAYJACK: Great. Thank you.

12 MR. TURNER: I think it would be -- behoove us to  
13 have it sooner rather than later, though, so a timeline of  
14 how quickly you could pull that that information together.

15 MR. COLLAR: Quickly, weeks.

16 MR. TURNER: Weeks?

17 MR. COLLAR: A week or two.

18 [LAUGHTER]

19 MR. TURNER: Recognizing that we're going to be  
20 making a decision by April.

21 MR. COLLAR: Well, let me put it this way. We  
22 could give you an answer now, but this is the kind of thing  
23 that really merits more dialogue with Open Hydro. We'd ask  
24 folks to remember this is the first time what we're  
25 proposing to be done will have been done. We're proposing

1 to install two large turbines, connect them together and  
2 connect them to the grid, in a place like Admiralty Inlet.

3 Nobody's ever done that before, so one of the key  
4 questions about how long is it going to take to fully  
5 evaluate the turbines nobody knows the answer to that. I  
6 think our view would be that two to three years would be a  
7 reasonable amount of time, but we certainly would hate to do  
8 all of this work when the primary purpose of the project is  
9 to gather that very data and then find after two years of  
10 study that we don't have the answers that we would have  
11 hoped to have gotten.

12 So yes, we're trying to give ourselves as much  
13 room as we can, but only to complete the mission that I  
14 described earlier to make sure that we have the data we and  
15 others need to better understand these types of technologies  
16 and their risks and benefits. So it's a difficult question  
17 to answer with a lot of precision. We'll just have to give  
18 you our best current view of how we think it would work.

19 MR. TURNER: But you should have a tentative  
20 schedule in terms of when you would be putting it in the  
21 water.

22 MR. COLLAR: And we do. We have that.

23 MR. TURNER: Obviously, we're going to be  
24 monitoring that for whatever period we ultimately require  
25 you to if we issued the license.

1                   MR. COLLAR: In fact, we have a quite detailed  
2 schedule. We just want to pick the right time. We really  
3 want to make sure that we're comfortable with it before we  
4 say this is it.

5                   MR. TURNER: Okay.

6                   MR. KALLSTROM: We'll do the best we can to get  
7 the information.

8                   MR. TURNER: Okay. Did you want to ask some  
9 questions regarding installation and operation?

10                  MS. PADGETT: Thank you. Rebekah Padgett with  
11 the State Department of Ecology. I think I have fewer  
12 questions as much as maybe a couple of comments for FERC's  
13 information about where Ecology stands on a couple of issues  
14 and things that we're going to be looking for.

15                  We're fully expecting an application of JARFA to  
16 be coming from Snohomish PUD soon. I'm not sure of the date  
17 on that, but prior to the submittal of the final license  
18 application at our request. And we're expecting within that  
19 to see some information regarding -- one of the things that  
20 we're concerned about is the near shore habitat.

21                  We understand that the HDD is supposed to go  
22 under the near shore and so presumably will not have  
23 negative affects on habitat and so on. However, we still  
24 need to see the ROV survey from the cable route as well as  
25 the final ROV information about the siting of the devices

1 and then the plans for the HDD. We haven't seen the details  
2 of how that's going to be done as well as cost management  
3 practices to ensure that water quality standards are met if  
4 there were a frac-out or what they're going to with the  
5 slurry. Those kinds of things are definitely going to be  
6 needed in the application or soon thereafter.

7 As well we're going to be seeking further details  
8 about water quality monitoring protection. Operations and  
9 maintenance, it's been a little bit unclear the level of  
10 maintenance that's going to be required. There's a lot of  
11 presumption from what we've heard that they're only going to  
12 go in a couple of times, perhaps, after they install and  
13 before they remove, but I think, hopefully, as they get more  
14 information from the Fundi Project they'll be able to give  
15 us a better idea of what kinds of maintenance might be  
16 required. Those things certainly play into water quality  
17 issues that we're going to be examining under the Section  
18 401 Water Quality Certification as well as the Coastal Zone  
19 Management Act.

20 We are concerned as well about seeing a schedule  
21 for the construction, operation and removal of the turbines.  
22 We understand now that Snohomish PUD is pursuing a 10-year  
23 pilot license, so presumably, that extends the window or  
24 we're just not sure, so we'll look forward to seeing that as  
25 well.

1                   We are hoping to see an adaptive management plan  
2                   and we have been participating in interagency meetings and  
3                   will continue to do so. The adaptive management plan should  
4                   include the shutdown thresholds and I'm sure we'll be  
5                   getting into that later. And those are our primary comments  
6                   in regards to the installation. I mean the installation  
7                   itself we don't have very strong concerns about, based on  
8                   what we've seen so far from Open Hydro.

9                   MR. MURPHY: Can I comment on that? Is that  
10                  Rebekah, is it?

11                  MS. PADGETT: Yes.

12                  MS. MURPHY: Comment on your questions, I'll take  
13                  the first one first about the installation plan we're still  
14                  working on that. We don't know where our construction site  
15                  would be, where we'd be mobilizing from. In terms of, as to  
16                  the time on sites, we would anticipate not being out there  
17                  more than on two occasions, and these would be significantly  
18                  less than a day each for the actual deployment of the  
19                  turbines. Cabling may take a little longer, but again, it'd  
20                  be a couple of days really to get the cabling between the  
21                  turbines and back to shore. So that's the sort of the  
22                  construction timings we're talking about.

23                  As to the sort of an operations and maintenance  
24                  plan, you're right, we haven't really drafted this in full,  
25                  though, we realize we need to be looking at what our

1 requirements would be. And we're anticipating we would go  
2 out there, perform fairly regular ROVs surveys initially and  
3 then as we see how the situation lies, we'd probably begin  
4 to reduce those ROV surveys. We will, of course, have full  
5 scouting systems monitoring the turbine so we'd know how the  
6 turbine's behaving, what generation is going on, the rpm,  
7 that sort of thing. We'd know well about how the turbine's  
8 operating. And then I think the plan would be to probably  
9 recover maybe after one or two years, subject to how the  
10 operation is going, to have a full inspection and then  
11 redeploy. But as I say, at this time it would be hard to  
12 say any more than that.

13 Is that fair enough? Do you follow that?

14 MS. PADGETT: I do follow. Thank you. I guess  
15 one other question on the cable installation, it's not been  
16 clear to the agencies yet as to whether those will be pinned  
17 down or if they're just going to lay on the surface or how  
18 the cables will be placed and left on site?

19 MR. MURPHY: Could I maybe let Larry Armbruster  
20 respond to that. He's far more of an expert than I am in  
21 that particular area.

22 MR. ARMBRUSTER: This is Larry. The cable is  
23 planned to be installed as a surfaced-laid cable, which  
24 means it will lay right on the surface right up to the tri-  
25 frame where the devices are mounted on the bottom and to

1 enter into the horizontally, directionally drilled pipe at  
2 about the 20-meter contour where it exits from the drill.  
3 And it will be pulled through that to the surface.

4 We attempt to lay the cable -- this is an armored  
5 cable and we like to lay it directly on the bottom with no  
6 suspensions, and that helps make sure that the friction of  
7 the cable weight against the bottom keeps it from moving in  
8 this current regime, but there are slopes that people have  
9 to go up as we go towards the exit of the drill bore. And  
10 when we do the installation, we'll be viewing that with an  
11 idea of trying to keep any suspensions down. Suspensions  
12 are bad for the cable because it can strum and therefore can  
13 move.

14 If we do get anything like that, we'll try to put  
15 enough slack in the cable so it lays on the bottom. There  
16 may be places where we'll have to pin it to the bottom,  
17 depending if it's going crosscurrent and it's got little  
18 suspensions in it, we may wish to pin it at the front and  
19 back of those suspensions. And we do that with weighed  
20 sacks. Essentially, it's like a cement bag you put over it  
21 that keeps the cable from moving. So that will be our  
22 approach. We'll know a lot more once we've done the visual  
23 ROV survey of the cable route. And then, once we put the  
24 cable in, we will also look at it to see as installed and  
25 make any pinning or weighted bag adjustments we have to do.

1                   MR. MURPHY: Could I maybe just add one point to  
2 that? Our turbine in Auckney, and I believe Craig was  
3 showing you a picture of the pile installation, the test  
4 structure we have up there. That's installed or that became  
5 installed in exactly that fashion there. It's just the  
6 weight of the cable itself is laid -- the cable is laid  
7 directly on the seabed and the weight of the cable itself is  
8 what stabilizes it in that position.

9                   The cable weighs something in the order of I  
10 think 17 or 18 kilos a meter in water, so that's what, about  
11 40 pounds per meter in water. So that's pretty heavy, the  
12 cable, so it'll settle naturally onto the seabed. We have  
13 quite a history of installing sub-sea cables in the Scottish  
14 Islands, wire them all up and there's a significant amount  
15 of tidal flow between the Islands and they would generally  
16 be deployed in exactly this fashion. It's just considered  
17 that it's very hard work to be trenching, plowing or pinning  
18 cables where not necessary under the seabed.

19                  MR. SCOTT: Brady Scott, Washington Department of  
20 Natural Resources. I've got a question about the  
21 directional drilling and am wondering, I guess, the  
22 certainty there is with being able to do that technology.  
23 My understanding with other projects somewhat just similarly  
24 related to outfalls that there's problems, directional  
25 drilling, due to unconsolidated sediments, potentially. So

1 I'm wondering if there are studies that have been done to  
2 determine the practicability of the directional drilling and  
3 whether there are contingencies in case you run into  
4 difficulties with that?

5 MR. COLLAR: This is Craig Collar. I'll like  
6 Larry Armbruster to respond to that question.

7 MR. ARMBRUSTER: Almost everything we do in the  
8 last 15 years for the U.S. Navy has involved directional  
9 drilling because it's far less obtrusive. Yes, you do  
10 occasionally run into issues. Mostly, in the Hawaiian  
11 Islands you can run into problems with coral and volcanic  
12 structures that allow the seepage of the bentonite drilling  
13 mud into the environment. You have to stop when that  
14 happens and fix that problem.

15 When that occurs, and we don't expect it in this  
16 site, but if it does occur what you end up doing is either  
17 slowing down the process to let the bentonite mud kind of  
18 seal its own fracture zones or you have to remove it. In  
19 extreme cases, you'd have to grout the fractures or you  
20 redrill in a slightly different location by backing out and  
21 taking a different path.

22 There was another question in here that I'll  
23 address at the same time, and it was how do you make sure  
24 there are no bentonite spills. When we start a drilling  
25 program, there'll be a drilling plan made for this and it'll

1 include a bentonite plan for monitoring and controlling the  
2 bentonite. It's a nontoxic substance, but you don't want it  
3 escaping into the environment because it's got mass to it  
4 and it's an issue with clarity of the water and all that.  
5 So we monitor the pressure and the volume. The bentonite is  
6 returned up the drill line so that when you're drilling you  
7 know the volume that you're putting and the volume you get  
8 back, so that's one way you monitor whether you've got any  
9 leakage.

10 The second way is that you look at the pressure.  
11 If you start losing pressure in the drill mud line, then you  
12 also know that you have a leak, and you do that, depending  
13 on where the drill is and we know where the drill head is,  
14 X, Y, and Z precisely. And so we can put observers there to  
15 look if you start losing the pressure and watch what's  
16 happening and to monitor. So you can do that on a beach  
17 zone and surf zone, and then you use divers in the deeper  
18 water to look and see if you've got any leakage of the  
19 bentonite. If you detect it, you stop and you regroup by  
20 either slowing down, choosing another route or in the most  
21 extreme case grouting. Does that answer your question?

22 MR. SCOTT: Sort of. Yes, I guess so. It was  
23 more surrounding certainty and contingency plans, so if you  
24 could cover that a little bit more. You feel pretty certain  
25 that this technology will be successful at this particular

1 location and if there's any sense that they may not be  
2 successful, is there a contingency plan for that laying of  
3 the cable under the ground?

4 MR. ARMBRUSTER: Maybe I'll have Mike talk a  
5 little bit about the geology of the location because that  
6 will answer, I think, the first part of your question.

7 MR. McCALLISTER: The only real uncertainty --  
8 Mike McAllister with Sound & Sea. The only real uncertainty  
9 that we have I think right now is the fact that we know that  
10 the sediment there, the offshore sediment is large cobbles  
11 and boulders. But at the 50-foot contour, essentially where  
12 we're looking at, the punch out for the HDD, although we  
13 were not able to survey in water that shallow because of the  
14 kelp beds right along the shore, the presence of sand waves  
15 and other structures would indicate that the sediments there  
16 are finer and that there's less powerful tidal action right  
17 along the shoreline and essentially a small bay just north  
18 of Admiralty Head that we're looking at coming out of, the  
19 cable running into. So I think if we were concerned that  
20 the cobbles were very deep, and that we were looking at an  
21 uncertain depth of very irregular sediment, large, blocky  
22 sediment we'd be pretty concerned about how the HDD punch  
23 out would operate, whether it would have to come through a  
24 lot of sediments with gaps in it. But based upon what we've  
25 seen and with the preponderance of kelp, which usually finds

1 a nice sandy bottom to grow out of, admittedly with some  
2 rocks to hold fast, we don't think that we should have a  
3 problem. The HDD should be able to punch out without  
4 providing a lot of potential for leakage.

5 MR. TURNER: But you actually haven't surveyed  
6 the cable area yet to know that for certain. I wasn't sure,  
7 looking at the figures, whether or not --

8 MR. McCALLISTER: There's been no diver survey  
9 there as far as I'm aware. Craig?

10 MR. COLLAR: No.

11 MR. TURNER: Are you planning to do that, or are  
12 you guys projecting?

13 MR. COLLAR: Right now, we're projecting this  
14 summer.

15 MR. TURNER: Alicia?

16 MS. BISHOP: I guess a follow-up question I have  
17 of that is part of the reason for doing directional drilling  
18 is to potentially avoid sensitive habitat. It sounds like  
19 in order to punch out this needs to occur within areas where  
20 there's kelp beds?

21 MR. ARMBRUSTER: We're punching out below the  
22 marine reserve and the kelp beds, around the 20-meter  
23 contour. And I think we have discussed here today that we  
24 think the limits of the kelp beds are in the 12-meter range.

25 MR. ROMANSKI: Tim Romanski, Fish and Wildlife

1 Service. To get back to the cabling, the decision to do any  
2 kind of pinning of the cabling is that something that you  
3 would make prior to the FLA or is that something you'd make  
4 a real time situation?

5 MR. ARMBRUSTER: This is Larry Armbruster again  
6 of Sound & Sea. The ROV survey that we do this summer with  
7 any attendant diver survey in the shallower waters will  
8 determine in detail that cable route, which will inform the  
9 decision about what the cable is going to look like on the  
10 bottom, and hopefully, we will find a route where we can  
11 minimize any chance of suspensions and the cable will lay  
12 flat on the bottom. If we can do that, then we will plan to  
13 do the cable without any pin and without any gravity bags or  
14 anything on it.

15 If it looks like there might be a suspension or  
16 two, we'll take a look at how big those might be and then  
17 identify a means of pinning it. It won't be actual pins  
18 into the bottom. It'll more likely be the gravity bags that  
19 go over it. We'll do an ROV and diver survey once it's  
20 installed to look at the as-installed condition too and make  
21 a decision at that point as well.

22 MS. AGNESS: Alison Agness, Marine Fisheries. We  
23 had a number of questions in our comments that were  
24 submitted on the acoustics or the sound or noise produced  
25 during operations when the turbines are running, and that

1 appears to be an unknown, but something that may become  
2 available in the short term through the Bay of Fundi  
3 Project, and I'd just like to hear out -- if you have any  
4 idea when that information would be coming because that will  
5 be important to evaluate affects.

6 MR. COLLAR: Yes, a couple of comments on  
7 acoustics. There was another comment, I think, the National  
8 Marine Fisheries or otherwise that asked about the noise  
9 produced by horizontal, directional drilling. So since  
10 we're on that topic, we might as well let Larry speak to  
11 that as well. In case you didn't catch it, Larry, the  
12 question was how much noise is associated with horizontal,  
13 directional drilling. And then we'll let Nick Murphy  
14 comment on the noise data that may be available from Open  
15 Hydro up in Bay of Fundi.

16 MR. ARMBRUSTER: The noise associated with the  
17 directional drilling is airborne noise at the drill site and  
18 maybe you've seen these little ditch-witch machines that put  
19 the fiber optic cables in your neighborhoods. This is a  
20 bigger version of that that we'll be using and so it's  
21 diesel engines running and that's the environmental noise  
22 that's created. It's like a construction site. There's  
23 pumps and the drill machine, so there's at least two diesel  
24 engines running at the time of drilling. And under water,  
25 you won't detect a thing. The drill goes through the ground

1 and will punch out, and once it's in the punch out  
2 operation, it'll be a diver operation that goes on at that  
3 point in time, so there'll be some boat noise and some  
4 divers in the water, but the noise of actually punching  
5 through you won't hear above the vessel traffic.

6 MS. AGNESS: Do you know if the noise associated  
7 with -- if under water there has been any measurements of  
8 sound during the actual time.

9 MR. ARMBRUSTER: I'm not aware of any, but I can  
10 check into that and we can look and see because there's been  
11 a lot of commercial and Navy projects that have done that in  
12 sensitive areas, and I'll see if there's any data on it.

13 MS. AGNESS: Just a comment, in consultation of  
14 any cabling project, for example, across the Strait of  
15 Wannapuka under water sound level was estimated for the -- I  
16 don't know if it's the same kind of drilling, but what  
17 happened it was for a cable that would go all the way across  
18 the Strait. So there may be information available. I just  
19 don't know for this specific method if there would be sounds  
20 associated.

21 MR. ARMBRUSTER: One reason we want to do a  
22 surface lay of the cable is it's much less intrusive than  
23 trenching a cable in.

24 MS. AGNESS: So that's the difference.

25 MR. ARMBRUSTER: It's a different part of the

1 technology.

2 MR. TURNER: Let's take one more questions, and I  
3 promised a break 15 minutes ago.

4 MR. PEDERSON: Bob Pederson, Island County. I  
5 want to shift to the land-based side of things for a minute  
6 because you've alluded to the noise, and following on from  
7 the lady from Ecology, is it your intent to file a local  
8 shoreline master program permits for that activity within  
9 the shoreline environment? The reason I ask I've been  
10 involved in FERC projects in past lives and other locations  
11 where they exercise preemption and did not file those  
12 permits and so I want to get that out, that information up  
13 front so we know if we're going to be anticipating an  
14 application and we can coordinate with you as to the  
15 details, the information, whether you're going to do a joint  
16 NEPA/CEPA process or you're going to complete the CEPA  
17 checklist when you file this application to do the things  
18 like the best management practices, the origin control, the  
19 noise, the local concern about whether directional drilling  
20 was going to be taken place in accordance with our noise  
21 ordinance and during what hours, so several questions there.

22 MR. KALLSTROM: I think just as a general -- this  
23 is Jeff Kallstrom. As a general answer, we will be  
24 consulting with you about those issues, and so you will be  
25 informed and we'll pursue any permits. My guess is most of

1 those are going to be required under CZMA anyway, but we'll  
2 be talking.

3 MR. TURNER: Let's take a 10-minute break. So  
4 back here at about 10:45.

5 (Whereupon, a recess was taken.)

6 MR. TURNER: Before we get started, the court  
7 reporter has asked me for the spelling of the names from the  
8 people that are on the telephone. I've got the folks from  
9 FERC already to him. I was wondering if we could go through  
10 NOAA Fisheries folks first. Is anybody on line left?

11 MS. BARR: Hi, it's Open Hydro here. We're still  
12 here.

13 MR. TURNER: Okay, Susan, real quick. How do you  
14 spell your name, folks?

15 MS. BARR: It's Sue, S-U-E, and then it's Barr,  
16 B-A-R-R.

17 MR. TURNER: Okay, Open Hydro, Sue Barr. Anybody  
18 else on the line still?

19 MS. BARR: We also have Nick Murphy.

20 MR. TURNER: Okay.

21 MS. BARR: Right.

22 MS. KRAMER: Sharon Kramer still on, S-H-A-R-O-N,  
23 K-R-A-M-E-R.

24 MR. TURNER: Okay, thank you. Anybody from NOAA  
25 Fisheries on line? Maybe you guys could give us those

1 spellings on who was on line, just for the record.

2 Jeff wanted to follow up on a couple of questions  
3 before we get into the operational things.

4 MR. KALLSTROM: This is Jeff Kallstrom. There  
5 was an earlier question about the marine exclusion zone, and  
6 so we went back to the DLA to see how we'd described it in  
7 there. In Section 3, on page 257 it's Hydro's expectation  
8 that the exclusion zone will be as small as possible. It'll  
9 be the immediate area around the two turbines, between the  
10 turbines and then the immediate area around the cable along  
11 the cable route.

12 So to add some context, we'll back up an earlier  
13 slide that Craig had shown that has the red triangle. Our  
14 expectation is that it will be within that red triangle and  
15 much smaller than that triangle, just to provide a context.  
16 Now again, as Craig has said, we have not heard back  
17 official word from the Coast Guard as far as what they want,  
18 but our expectation is that it will be very small for these  
19 two turbines, so I wanted to add that.

20 The other thing I wanted to talk about is there  
21 was a question earlier about the timelines and project  
22 operations and the amount of time the turbines are in the  
23 water, physical install. We talked at break and our  
24 expectation is about 18 to 24 months to procure and  
25 construct the turbines, so say two years on the outside.

1 And then in the DLA, in Section 2 of the Draft Environmental  
2 Report we have an installation schedule that shows 236 days,  
3 so a little shy of a year for the construction, from the  
4 time from beginning construction until startup. So we're  
5 looking at about two and a half to three years from license  
6 issuance until turbine operation.

7 And then where we got the 10-year license term  
8 for folks I know what we were thinking is we were estimating  
9 about three to five years of turbine operation before we  
10 initiated a relicensing process, if the operations suggest  
11 that such a process is warranted. Our expectation is that  
12 if we do not pursue a relicense, whether or not the project  
13 continues to operate, and remains in the water will be  
14 dependent on the other various articles that surround  
15 whether the project should be removed.

16 The last time I want to talk about is -- there  
17 was a question about the maintenance plan. Our expected  
18 maintenance plan is in the DLA. It's in Section 2, and that  
19 is, it is as Nick Murphy described earlier with a series of  
20 ROV surveys, initially, kind of expanding over time and  
21 there are some other description in there as far as turbine  
22 maintenance, electrical, that sort of thing. So right now  
23 what we have in the DLA is our expected maintenance plan as  
24 well. I just wanted to add some clarity on that.

25 MR. TURNER: I can't remember where we left off.

1 Susan?

2 MS. ROSEBROOK: I just have a follow-up question  
3 on that license term. With that installation being two and  
4 half to three years, so would your licenses include when  
5 you're in the water or the license term -- ?

6 MR. KALLSTROM: Yes, the license term would  
7 include the moment -- I mean FERC can answer this, but the  
8 moment they issue a license our term begins, and so we added  
9 up everything, so we're thinking three years in the water,  
10 four years to do a relicense, and it came out to ten. So  
11 that's how we got it there.

12 MS. PADGETT: Rebekah Padgett from Ecology. So  
13 where we left off was Island County was talking about the  
14 Shoreline Committee.

15 MR. TURNER: Right.

16 MS. PADGETT: And Ecology, I can jump on that  
17 just for a second. So we had left off regarding the  
18 shoreline permit, and I would just note that generally the  
19 older shoreline master programs do not address tidal energy  
20 projects. I was just talking to Bob Pederson and it sounded  
21 like maybe he thought that it might, so we don't know. It  
22 could be a shoreline substantial development permit or a  
23 conditional use permit under the Shoreline Management Act,  
24 and that permit would also be reviewed by Ecology and then  
25 required for the management consistency determination.

1                   MR. TURNER: So it would be an element of the  
2 CGMA review?

3                   MS. PADGETT: That's correct, along with CEPA.

4                   MR. TURNER: Okay, were there any other questions  
5 around operation and installation. We had started talking  
6 about noise, which was kind of folding into another topic  
7 down below, so I think I'd like to delay some more of those  
8 questions until a little bit later, but is there anything  
9 else you guys want to talk about? Tim?

10                  MR. ROMANSKI: Tim Romanski, Fish and Wildlife  
11 Service. I mean, ultimately, FERC is going to be the one  
12 that sets the license term. Will you do that and what will  
13 you consider in doing that?

14                  MR. TURNER: We will do that in the license  
15 order. I think for our environmental analysis, however, we  
16 would probably examine the effects over the term that they  
17 requested. We would probably end up weighing the  
18 sensitivities of the issues in our decision on whether to  
19 grant the waivers. And if we grant the waivers, they'd file  
20 their final license application. Assuming we grant the  
21 waivers, they file the final license application. Our  
22 analysis would consider that timeframe that they've  
23 requested. I think that would factor into the Commission's  
24 decision, but I don't think you'd have that until we  
25 actually issued the order. Susan?

1 MS. ROSEBROOK: I just have a follow-up question.  
2 Does FERC feel constrained by the pilot process?

3 MALE VOICE: We can't hear the questions.

4 MS. ROSEBROOK: This is Susan Rosebrook with  
5 National Park Service. I was wondering if FERC felt  
6 constrained with the pilot process in terms of issuing a  
7 license term, and so far I've just seen maybe not policy but  
8 general guidance that it'd be five-year terms and this is a  
9 ten-year term. And I was wondering if there's flexibility.  
10 If you guys thought there was flexibility within the pilot  
11 license process to have a shorter term, any time shorter  
12 than 30 years?

13 MR. TURNER: Well, most definitely. The whole  
14 concept behind the pilot was that it was short term. We put  
15 in the pilot licensing procedures five years as our guide in  
16 that regard, and we said we would consider on a case-by-case  
17 basis the need for a longer term, recognizing, I think, in  
18 that the potential for applicants that maybe pursuing a  
19 commercial license in the timeframes that relicensing may  
20 take place.

21 Jaclyn, our court reporter asked a while back  
22 asked for spellings and affiliation for the court reporter,  
23 could you do that real quickly.

24 MS. DALY: It's J-A-C-L-Y-N, Daly, D-A-L-Y.

25 MR. TURNER: And your affiliation?

1 MS. DALY: National Marine Fishery Service,  
2 Silver Spring, Maryland.

3 MR. TURNER: Thanks. Where was I? I think I  
4 covered your answer. Anything else? Rebekah?

5 MS. PADGETT: I just wanted to note because it  
6 hasn't come up yet, again for FERC, and realizing that Sno-  
7 PUD is only at this time applying for the pilot license for  
8 the short period, Ecology is following the discussions  
9 around the energy extraction at this location and we don't  
10 have any concerns about the pilot, per say, provided that  
11 there is some consideration in terms of any other  
12 development. So for example, if the Navy project were to go  
13 in on the other side of Admiralty or if there were other  
14 commercial developments for tidal energy we'd be very  
15 interested to look at the cumulative effects and as well if  
16 Sno-PUD does end up expanding in a full license, we're going  
17 to be looking at that issue.

18 MR. TURNER: Well, from our perspective, if that  
19 is, in fact, turns out to be the case that it is, they  
20 pursue it, they will again begin their own licensing  
21 process, begin the whole new issues of what information  
22 we're going to need to analyze that buildout and we'll  
23 consider that cumulative effect based on what we know at the  
24 time around what's going on in the basin. So we're looking  
25 now at where we sit today and what we know is going on today

1 from a cumulative point of view and the size of these two  
2 projects.

3 Okay, I think we've covered marine debris from  
4 the questions that I had except for one. There was an issue  
5 around whether or not the proposed approach is when debris  
6 had been demonstrated historically or whether or not they  
7 were actually feasible, and I was hoping maybe you could  
8 expand on that, given some of the comments that have been  
9 filed.

10 MR. COLLAR: Sure. I think there were a couple  
11 of questions, primarily with respect to removal of derelict  
12 fishing gear or other debris that could snag on the turbine.  
13 In our draft license application, we proposed that that  
14 would be done through the use of ROVs. A couple of  
15 questions that came back were is that viable? Has that been  
16 done? Can ROVs do that? And the second question is why  
17 don't you have divers do it?

18 So I think to respond to both of those questions,  
19 I'll ask Larry Armbruster again to describe the capability  
20 of the types of ROVs we would use for that purpose as well  
21 as the capabilities and viability of using divers to do that  
22 work.

23 MR. ROMANSKI: Could you address response time,  
24 too, if you could? How long would it take to identify the  
25 issue and then address it with the ROVs?

1           MR. COLLAR: I think the time to identify it  
2 falls into the monitoring plan discussion, so we may table  
3 that until we get to that point. Larry can probably speak  
4 to the time to mobilize the types of ROVs that would  
5 suitable for this purpose.

6           MR. ARMBRUSTER: Right. You recognize the depth  
7 that we're at is beyond what a scuba diver can do, and so  
8 what's happening here in Puget Sound is one of our major  
9 contractors in removing derelict fishing gear, crab pots and  
10 what not is Natural Resource Consultants. They have a  
11 contract to do that. They've been doing that routinely over  
12 several years now and I've talked in detail to them. They  
13 are developing a deep diving capability that will reach our  
14 depth here with some ex-Navy seal divers, a decompression  
15 chamber, and it would be mixed-gas diving.

16           So while it's not in place right now, they feel  
17 within one year that they will have that capability in Puget  
18 Sound where you could do this work with divers. Heretofore,  
19 they've used ROVs on deeper work, and usually in pairs so  
20 that one cuts away and one pulls away so you don't get the  
21 nets entangled in the ROVs themselves. Both techniques are  
22 workable, but when I was talking to Jeff June at NRC he  
23 pointed out that in Admiralty Inlet net fishing hasn't been  
24 allowed for a while and most of the derelict nets have been  
25 removed.

1                   He also pointed out they tend to be within 50  
2 feet of where they got hung up because they've snagged on  
3 something. That's why they're lost, typically, so they  
4 don't wonder. And they're doing a lot of cleanup work now  
5 in the northern portion of the Sound and the Straits and  
6 they haven't seen much going on in Admiralty Inlet in a  
7 while. So the expectation that we would get much derelict  
8 gear there is very low. And if it does happen, there are  
9 two techniques or will be two techniques for dealing with  
10 it, but right now we could deploy ROVs to do it.

11                   MR. COLLAR: And Larry, the availability of those  
12 types of equipment?

13                   MR. ARMBRUSTER: Usually, you can call them out  
14 within 24 hours. And if something is actually impacting the  
15 system, I would expect that we would know it from the  
16 accelerometers and other indicators on the equipment. So we  
17 would know in real time that that's happened and then we  
18 could remove it.

19                   MR. TURNER: Not being a diver, what are the  
20 limits on a diver?

21                   MR. ARMBRUSTER: Normally, scuba diving is  
22 considered at 120 feet, but you can't get a lot of work  
23 done. You don't have much bottom time, and mixed gas divers  
24 have gone very, very deep, but 170, 180 feet is what NRC is  
25 targeting right now.

1           The other issue, as Mike was saying is that the  
2 bottom time you have is very limited as well because you  
3 have to pick a current window where you're not going to be  
4 swept away. A mixed-gas diver is heavy. He's got lead in  
5 his feet, literally, and so he's heavy. He can work under  
6 more extreme conditions than a scuba diver can that's free  
7 swimming.

8           MR. TURNER: Okay.

9           MR. COLLAR: I should mention too, just to avoid  
10 any confusion, one of the comments that came in also noted  
11 that it didn't look like the University of Washington's ROV  
12 was suitable for this purpose. It absolutely isn't. This  
13 is a completely different breed of ROV that we're talking  
14 about here.

15           MR. ARMBRUSTER: And there are several of them in  
16 the Sound available for lease.

17           MR. JAYJACK: This is Nick Jayjack from FERC. I  
18 got a question as far as where this stuff might hang up.  
19 The slide that we saw earlier, the graphic showed a pretty  
20 substantial base as part of this turbine, and I'm wondering  
21 if this gear hangs up on the base how that would be  
22 detected. I'm envisioning the type of detection you're  
23 talking about as if the thing goes right through those vanes  
24 and clogs that thing up, but how about as far as the base  
25 goes? How would you do that and how often would you check

1 for that?

2 MR. ARMBRUSTER: Well, this gets into the whole  
3 monitoring concept, but one of the features of monitoring is  
4 most likely to include some sort of video surveillance of  
5 the area. You can't use it very often. You're below the  
6 photoic zone. You're not going to have any visibility, so  
7 you're going to have to use lights to see things and lights  
8 alter the environment, so you don't want to leave them on.  
9 But strobe lights to occasionally take a picture or get a  
10 video clip are feasible.

11 It's probably not a big deal if derelict gear  
12 hangs up on the base. The base is 275 tons or more. It's  
13 not going to cause it to move or do anything. If it doesn't  
14 hang up on the turbine itself, we won't know it unless we  
15 see it with an ROV or through the video that would be there  
16 or photo that would be there.

17 MR. JAYJACK: This is Nick Jayjack. Thanks. I  
18 was coming more from the perspective of the ghost fishing  
19 aspect of it, so if this thing is hung up on the base it  
20 continues to fish. How long could I expect it to continue  
21 to fish? What are the likelihood of different organisms, be  
22 it crabs or some of the fish there being caught while this  
23 thing is ghost fishing?

24 MR. ARMBRUSTER: Right. That's not an issue of  
25 removal issue, it's a matter of detection. And as you say,

1 I think that will just have to come out of the monitoring  
2 approach that we select and the operation and maintenance  
3 approach.

4 MR. JAYJACK: There's a follow up to this. I  
5 think one of the plans was to put a multi-beam acoustics  
6 transmitter. I don't really understand the acoustics real  
7 well, but what I do know about the multi-beam is that they  
8 have capability somewhat similar to video cameras, so I'm  
9 wondering if these things could be pointed at the base. And  
10 if they could, would one be able to detect a net? I'm not  
11 sure the types of derelict gear that would be located there,  
12 but could one discern from that acoustics data whether  
13 something is hung on the base of the unit?

14 MR. ARMBRUSTER: The capabilities exist to do  
15 that, and it's a question of where are we looking, the field  
16 of view of what we put in. We're most interested, I think,  
17 in what's happening in the turbine interface area and so our  
18 field of view would be highlighted on that and the beam  
19 patterns of these things tend to be conical and finite. So  
20 if you're looking at the turbine itself, which is 10 meters  
21 across, you're probably not seeing the bottom features  
22 around it. It's not to say you can't put another one in  
23 that looks down, but that's subject to a lot of what PNNL  
24 activity will be doing in developing a monitor system will  
25 be dedicated to defining what that system actually looks

1       like.

2                   MR. MALKIN: This is Devin Malkin. With respect  
3       to just putting outside bounds on what you might expect, the  
4       current version of the monitoring plan, which Larry noted,  
5       is going to get additionally developed, particularly from  
6       the perspective of near field detection of things  
7       potentially held up on the turbine face that's going to get  
8       additionally developed by PNNL and the University of  
9       Washington. But the current monitoring plan, in addition to  
10      that, includes a provision to look for derelict gear during  
11      the maintenance activities that are going to have to have to  
12      happen as part of just the initial installation and  
13      maintenance of the units. And I believe the current  
14      specifications for those in the DLA are every two to three  
15      months for the first year of installation and at least twice  
16      a year subsequently, and that just to place outside bounds  
17      we expect derelict gears (a) is going to be infrequent  
18      because you have few instances currently, no commercial  
19      fishing currently in Admiralty Inlet. And we also expect  
20      that to a degree it will be detected, at least partially, as  
21      part of our near field monitoring, but as an added measure,  
22      we have ROV maintenance surveys, during which we'll be  
23      checking for derelict gear.

24                   MR. JAYJACK: Two follow-up questions. This is  
25      Nick Jayjack. Is it safe to assume then that the type of

1 derelict gear we're talking about here is nets opposed to  
2 something like lines with hooks dangling from them? And  
3 number two, my understanding is so the worse case would be  
4 that, assuming that you put this thing in the water and  
5 within a few hours this thing catches some type of gear,  
6 that within about two to three months an ROV would be put in  
7 place and would detect it so that perhaps the longest time  
8 it would be fishing would be about on the order of two to  
9 three months before you either pull the turbine, the unit up  
10 out of the water and remove the entangled gear or you go in  
11 with two separate ROVs that go in and cut and tear away this  
12 material.

13 MR. MALKIN: Yes.

14 MR. JAYJACK: Okay. We're talking about gill  
15 nets or some type of netting is the main type of derelict  
16 gear that one would expect to find as opposed to the hooks?

17 MR. MALKIN: We have a broad definition, any type  
18 of fishing gear, including crab pots, gill nets. Most of  
19 what has been recovered I believe has been gill nets and  
20 crab pots.

21 MR. JAYJACK: Thank you.

22 MR. McCALLISTER: Again, part of the regulated  
23 navigation area that the Coast Guard is considering for this  
24 area would be to make it off limits for any type of fishing  
25 activity. So the permit or the RNA, the Regulated

1       Navigation Area, would allow transit through without  
2       checking with the Coast Guard, but no fishing or other  
3       bottom activities would be permitted without direct  
4       clearance from the Coast Guard. And the area to be  
5       considered for that RNA is yet to be determined.

6               The currents are pretty swift through that area  
7       and extremely turbulent, so it would be unusual for anybody  
8       to be net fishing in that region for any length of time.

9               MS. AGNESS: Alison Agness, NOAA Fisheries. I  
10       know we've talked about at least in some of the stakeholder  
11       meetings that we'd be better informed about how likely or  
12       how often derelict gear could get caught up as monitoring  
13       starts to happen and that would certainly be part of  
14       adaptive management planning that we would want to  
15       incorporate some measures to use the information that is  
16       learned to identify potential need for changes in terms of  
17       time between ROV survey, for example, if necessary, based on  
18       how often an event like that is found to happen. So there  
19       could be some ability to be flexible on that through the  
20       adaptive management part.

21              MR. TURNER: We're basically looking for some  
22       feedback in terms of change.

23              MS. AGNESS: Right.

24              MR. TURNER: Anything else? Anybody else on line  
25       have a question or comment?

1 [NO RESPONSE]

2 MR. TURNER: Okay, let's move on to another  
3 topic, and that's the killer whales and other marine mammal  
4 issues. We started out with noise. I basically wanted to  
5 get a better feel for just what was being gathered at the  
6 Bay of Fundi and the time schedule for providing that  
7 information.

8 MR. COLLAR: Sure. We can also speak to what we  
9 know about the noise of the turbine so far from the work in  
10 and also the background noise and the noise of shipping in  
11 Admiralty Inlet. So if you want to discuss those items, we  
12 capture that here as well.

13 As far the Bay of Fundi goes, we understand from  
14 Nick Murphy, though, we'll let him comment on it, that Open  
15 Hydro now, just of last week, does have some noise data that  
16 was taken up in the Bay of Fundi. It hasn't been provided  
17 to us yet, so we actually have not seen it, but Open Hydro  
18 can just speak to that for now. So Nick.

19 MR. MURPHY: Yes, sure, Craig. No problem. So  
20 as you say, we've received noise data, which was recorded by  
21 Force, the site operator out there. We received that last  
22 week and we're just going through the process to analyze  
23 that data. The intention would be that we would extract the  
24 turbine noise from the background noise. The only thing is  
25 we need to know a little bit more about the methodologies

1       which are used. This is quite a new science, assessing  
2       noise data in water of a tidal turbine, as you might  
3       imagine.

4                   In addition to that, we've done previous work up  
5       in Auckney where we have used hydrophones, using different  
6       methodologies to gather noise data from the 6-meter turbine  
7       and we're continuing with that. Actually, we're planning on  
8       gathering more data in the next couple of weeks as well.  
9       And the outcome of that data would, of course, be provided  
10      to Snohomish, but for inclusion in the final license  
11      application is the intention.

12                   MR. TURNER: In the final license application, so  
13      you're gathering data now? Could you elaborate on what  
14      you've done at the Bay of Fundi in terms of gathering data?

15                   MR. MURPHY: Well, we haven't done anything  
16      actually. The site operator, Force, have been gathering  
17      data. It was never really within Open Hydro's agreement to  
18      do the data gather, but they've been out and they've been  
19      gathering noise data from a vessel floating pass the turbine  
20      with the hydrophone in the water, and we've now received all  
21      of that data. It's a significant amount of data and we're  
22      running through it at the minute.

23                   And also, to say separately, we've done data  
24      gather up at EMAC where we've gathered hydrophone data  
25      ourselves at depth floating pass the turbine from a boat and

1       also from other noiseless platforms, which we would have a  
2       hydrophone hanging underneath from, so drifting pass the  
3       turbine.

4               MR. COLLAR: This is Craig Collar. Nick, it  
5       might be worth just a moment of your time to describe what  
6       Force is and what the relationship is between Open Hydro,  
7       Nova Scotia Power and Force is up in the Bay of Fundi. I  
8       think that's probably not clear to everybody.

9               MR. MURPHY: Sure. That's a fair comment,  
10       actually. So the Bay of Fundi Project there are really  
11       three main players at the moment. Force is a body, which  
12       has been set up -- it's a not-for-profit organization. It's  
13       paid for with government money, and the intention is to set  
14       up a test center to trial tidal energy technology in the Bay  
15       of Fundi and see if it's the thing for the Province of Nova  
16       Scotia, and for Canada, in general. It's been set up with  
17       federal and provincial money. Force effectively run the  
18       site.

19               Nova Scotia Power has a berth on this site, and  
20       there are three berths in total. And we've been employed by  
21       Nova Scotia Power to provide a technology and our sort of  
22       expertise and experience and install a turbine on that site.  
23       All of the environmental monitoring, post-deployment and  
24       pre-deployment, to be fair, was all under Force's umbrella  
25       and it's their responsibility as the site's owner and

1 operator to gather this data. And as they do so, they  
2 provide it to us and we analyze it and provide our on  
3 commentary on it. And then, ultimately, it will be released  
4 for public consumption.

5 MR. TURNER: And the timeframe for that release?

6 MR. MURPHY: Well, as I say, we've only literally  
7 received the data last week, so we need to analyze the data  
8 ourselves and understand exactly what it was that was heard.  
9 And so we're hoping that we would have it out within the  
10 next few months. But I have to say that it is extremely  
11 complex sets. We need to understand exactly the methodology  
12 by which it was recovered so that we can try and extract the  
13 noise of the turbine from everything else. As I say, this  
14 is a very new science, so we're learning as we go, really.

15 MS. AGNESS: Alison Agness, NOAA Fisheries.  
16 Question about how much data was gathered. I'm getting the  
17 impression it was taken over about a week's time, maybe  
18 longer than that. You can potentially expand on how many  
19 days across what environmental parameters the data was  
20 collected. I guess the goal would be to ensure that the  
21 data that you've collected accurately represent the  
22 variability and the environmental states that could affect  
23 the amount of sound produced by operations, such as the  
24 current peaks.

25 MR. MURPHY: Sure. My understanding is that

1       there was data collected up front, ahead of the deployment,  
2       pre-deployment, and that would have only been one day's  
3       worth of data and it was all taken from a drifting vessel  
4       with the engine on and the engine off and various other  
5       things like that. And then there's one day's worth of data  
6       collected post-deployment, again, with the engine on and the  
7       engine off. And as I say, we've received that and we're now  
8       working through it.

9                MS. AGNESS: I guess one day of data to evaluate  
10       what is the background sound in the area and then one day  
11       after to describe the operational sound doesn't seem to be a  
12       very rigorous approach to collecting data. Is there any  
13       potential for additional data being collected, at least  
14       post-deployment to better get at the environmental  
15       variability that could affect operational sound?

16               MR. MURPHY: One thing I should have made a bit  
17       clear than that was once the data was collected on a single  
18       day it was over a variety of tidal conditions, so they would  
19       have gathered the data at various speeds so that they could  
20       assess the difference in operational rotational speed of the  
21       turbine, if you like, versus the actual tidal flow and they  
22       could be able to characterize that.

23               In terms of gathering more data there, we'd like  
24       to -- it's a very challenging site in its location. There's  
25       actually nothing that goes on in the Bay of Fundi at that

1 area. There's maybe three or four lobstermen who go out  
2 there on a regular basis and that it. And they're in the  
3 middle of lobster season at the moment. Also, another thing  
4 is our mechanical design is developing all the time. It has  
5 developed since that turbine and what we're trying to do now  
6 is gather data from our current 6-meter turbine testing to  
7 be far more indicative of what the next generation of 10-  
8 meter turbines would be like. So we're always making  
9 changes and developing the technology and improving it. So  
10 data from the 6-meter testing will be, I think, of much more  
11 value to this project than data from the current 10-meter  
12 turbine out in the Bay of Fundi.

13 MR. KALLSTROM: This is Jeff Kallstrom. If I  
14 could just add to that, I think what you're seeing is with  
15 the Bay of Fundi Project, unfortunately, Open Hydro is kind  
16 of on the outside, and so they don't control the methods  
17 that Force uses to collect the data. They don't control the  
18 timing and that sort of them. And then Snohomish is even  
19 more outside, so they have even less influence. And I think  
20 that's why you see Nick not having as high quality of data  
21 as he might like or having to take more time to analyze it.

22 But then, as he referenced with the EMAC turbine,  
23 Open Hydro is in direct control and has much more ability to  
24 kind of design the studies and more quickly analyze the  
25 information, and so I think that's where Nick is trying to

1 go is what they've learned from the EMAC installation.

2 MR. TURNER: Will you be able to extrapolate from  
3 the 6-meter to the 10-meter? I mean would using the Bay of  
4 Fundi data who much difference in noise level are you  
5 expecting between a 6-meter turbine and a 10-meter turbine?

6 MR. MURPHY: Well, not actually significantly at  
7 all, is the truth. Part of the reason we use the 6-meter  
8 turbine, and just to correct you on one point. The data  
9 will come not from the Bay of Fundi, but from EMAC in  
10 Orkney. But part of the reason we use a 6-meter scale of  
11 turbine as our test scale is that it's very similar hydro-  
12 dynamically and mechanically to a 10-meter turbine and when  
13 you compare it with, say, if you had a small 1-meter, 2-  
14 meter turbine, which you'd test in a tank. So mechanically,  
15 operates the same, which would provide the same about of  
16 noise. The rotational speeds are very similar, and from  
17 that we can very well determine what a 10-meter turbine will  
18 exactly sound like -- not exactly, but we can make a very,  
19 very good calculation of what sort of noise that would be  
20 coming out of a 10-meter would be.

21 MR. TURNER: Any questions? Any more comments?

22 MS. AGNESS: I guess just to comment that it's an  
23 area that we're data poor and it is certainly very important  
24 to understand that piece of information as soon as we can to  
25 ensure that the kind of permit process under MMPA as well as

1       our ESA consultation could be meshed with the timeline for  
2       the FERC process. So if there is an ability for some  
3       Snohomish or for Open Hydro to work in collaboration with  
4       Force to get more information that will help with our  
5       process in a timely manner. That would be, I think, a good  
6       thing to getting that data gap filled.

7               MS. BARR: Hi, Alison. It's Sue Barr from Open  
8       Hydro here. Just to interject a wee bit there, the data  
9       that we have from the site, really the issue that we've had  
10      is around the analysis and understanding the methodology.  
11      Now that we actually have the raw data, we can take that and  
12      do an analysis ourselves. The preliminary findings from the  
13      consultancy did the noise survey work, and in the Bay of  
14      Fundi that the noise from the turbine was undetectable from  
15      the background that they'd measured beforehand. That was  
16      their overall conclusion.

17             What we're trying to do there really is validity  
18      that in terms of looking at the data and being able to  
19      analyze that from our perspective because we're not very  
20      sure how they've analyzed it. So as soon as we have those  
21      results, we can, of course, release them, but it is quite an  
22      arduous process with noise data and just takes a wee bit of  
23      time. But as soon as we have results, we can get those to  
24      each of you. But the overall findings have been that these  
25      are such valuable conditions, and you're absolutely right

1       that the environmental background noise is such that we're  
2       not hearing the turbine above that.  So we'll go through  
3       that data and we can give you some results as soon as we  
4       have that available.

5               MS. AGNESS:  And if there is an ability to share  
6       the raw data that could be analyzed by our acoustic experts  
7       as well, there's lots of different ways to post-process data  
8       and the results could be interpreted very different,  
9       depending on how it's post-processed.  And I guess I would  
10      just want to ensure that we agree with the final results and  
11      being able to -- if not, have a report with detailed  
12      information on how that post-process happened, having the  
13      ability to have access to that data would be important.

14             MR. MURPHY:  That's understood.  Unfortunately,  
15      right now our hands are a little tied in that we don't have  
16      ownership over that data.  It's provided to us under the  
17      contract in place with the berth haulers agreement on the  
18      site, but the data is very much Force's ownership.  So the  
19      intention would be, of course, to carry out the  
20      interpretation of the data once all the parties are happy  
21      with the reporting on that interpretation the report will be  
22      released and made public, and I can certainly take it away  
23      and have a word with Force and with Nova Scotia Power and  
24      see if they would be agreeable with releasing that data.  
25      But at this time, I'm afraid I can't provide that.

1           MR. JAYJACK: This is Nick Jayjack from FERC. I  
2 think what would help us when the results are reported to us  
3 and address maybe the transferability of the data issue in  
4 going from a 6-meter to a 10-meter turbine would be to maybe  
5 provide a short explanation as to what is the exact source  
6 of the noise. In other words, is it a matter of the  
7 bearings and the vanes spinning and the metal-on-metal type  
8 noise. Is it simply the vanes striking the water and the  
9 conversion of the tidal energy to some sound energy as an  
10 inefficiency? And I think that would really help us anyway  
11 to get some comfort in that, and also explain what is the  
12 most dependent variable here.

13           MR. MURPHY: Sure.

14           MR. JAYJACK: Is it the turbine speed? You don't  
15 have to have it now, unless you wanted to, but it would  
16 really help give us some comfort anyway and some  
17 understanding as to this transferability thing, given that  
18 we, intuitively, for me anyway, in going from 6-meters to  
19 10-meters it's easy for me to assume that it's a 40 percent,  
20 or whatever it is, increase in the noise level. Anyway,  
21 thanks.

22           MR. MURPHY: I can give half an answer now, and  
23 then follow up with a more detailed response later. As we  
24 understand, the sound that is made by the turbine is  
25 threefold. Firstly, you have turbulence that's caused

1 around the structure, much like you have around any rock or  
2 anything structure that's lying on the sea is the water  
3 flows around that and you create turbulent eddies and you  
4 get some noise from that. Secondly, we have noise from the  
5 turbulent eddies created as the water passes through the  
6 blades, and then, thirdly, we would have the swishing noise  
7 as the turbine rotates, so really it's bearings as they pass  
8 over the general surfaces and those kinds of things. So  
9 those are really the three components of noise from the  
10 turbine.

11 I don't know how familiar you are with our  
12 technology, but there's no gearbox or any components like  
13 that, so there's very little mechanical noise from the  
14 machine. It's really more of a fluid flow passing over a  
15 surface. That's really what generates the noise. That's  
16 the first part of the question. The second part, in terms  
17 of what the difference between a 10-meter and a 6-meter  
18 turbine would sound like, it's our understanding that if  
19 anything the 10-meter turbine would be quieter than the  
20 6-meter as it rotates more slowly, the RMP is less. Please  
21 don't ask me to explain why that is because I'm not a  
22 mechanical engineer by background, but that's what I'm told  
23 by the guys. But I can certainly take this away and see if  
24 I can provide some formal statement to this effect. Would  
25 that be useful to you guys?

1 MR. JAYJACK: This is Nick Jayjack for FERC.

2 Yes, it would be very helpful.

3 MR. MURPHY: Okay, I'll take that away and I'll  
4 get something to that effect.

5 MR. JAYJACK: Thank you.

6 MR. TURNER: Any other questions, comments?

7 [NO RESPONSE]

8 MR. TURNER: Okay, let's move onto another part  
9 of that topic, and that's blade strike. I guess I had some  
10 general questions. And maybe this is more directed toward  
11 NOAA in terms of what kind of information you're going to be  
12 needing to see to be able to document that blade strike is  
13 not going to be an issue for killer whales or whatever else,  
14 I mean from a marine mammal perspective. I know there was a  
15 lot of discussion in the EA about fluid dynamics and that  
16 kind of stuff, which didn't seem to satisfy your concerns,  
17 but I was wondering what would.

18 MS. AGNESS: Well, I think the risk is there and  
19 we need to mitigate for that risk, and so what we would want  
20 to see is an operations plan that adequately does mitigate  
21 for the potential strike. So that would be appropriate  
22 detection, alert and response for temporary shutdown to  
23 allow for safe passage, and the exact monitoring mechanisms  
24 that would be appropriate for that is still an area that  
25 needs more work to address, not only the exposure modeling,

1 but also the technology evaluation in concert with exposure  
2 modeling to allow us to hone in on performance  
3 specifications for our monitoring plan that would adequately  
4 mitigate that risk.

5 MR. TURNER: So basically, you're looking for  
6 real time monitoring at shutdown.

7 MS. AGNESS: Yes.

8 MR. COLLAR: Well, at some point, and this might  
9 be the point to do it. We need to describe the process by  
10 which we envision the entire monitoring package coming  
11 together. It's a very complex problem. In a lot of ways  
12 it's really the linchpin of the project, and I think it's  
13 going to take the best minds and technology and thinking  
14 that the world has to offer to pull this together. The bits  
15 and pieces are there. It's never been assembled in a way  
16 that would be technically and economically achievable for a  
17 project like this, but under the leadership of Pacific  
18 Northwest National Labs and Dr. Andrea Copping that is our  
19 proposed path forward is to work with Andrea and her team,  
20 ourselves, the Navy, the University of Washington, Applied  
21 Physics Lab and others to pull that plan together, and NOAA,  
22 the stakeholders. And I think Andrea is here today to  
23 describe broadly what she envisions that process looking  
24 like.

25 MS. COPPING: And I'd be happy to do that, and if

1       you'll just indulge me for a minute. Pacific Northwest  
2       National Lab, we are working --

3               COURT REPORTER: Your name please.

4               MS. COPPING: I'm sorry. Andrea Copping, PNNL.  
5       We are one of the Department of Energy's national  
6       laboratories, and as such, we have been tasked by Department  
7       of Energy to understand environmental affects of marine and  
8       hydrokinetic energy development, not specifically this  
9       project, but here we are, and it's one of the leading ones  
10      going on the water.

11              As part of that understanding that's the lead to  
12      monitoring methodologies and mitigation strategies. We're  
13      in a fortunate position because we have congressionally-  
14      directed project under the DOE funding that we are choosing  
15      to put towards this effort. And what we want to do is take  
16      on the issue of southern resident killer whales because that  
17      seems to be the first frontline issue that is possibly going  
18      to stop pilot projects right here, right now, but we see  
19      this as being part of the process to do this more broadly.

20              So what we intend to do is to develop a passive  
21      and active acoustics system that will detect, it'll  
22      characterize, it'll track and then post-process data to  
23      alert from an incoming killer whale, and that alert could  
24      take several different end points, but one of them could  
25      certainly be a turbine shutdown. We believe there may be

1 other possible end points, but that's where we are right  
2 now.

3 We worked out this concept, initially, in  
4 collaboration with NOAA Fisheries because I think we've all  
5 come to the joint conclusion that this is the stopping  
6 point. So what we intend to do is we will develop  
7 specifications for a system that would allow for this. We  
8 will do that in collaboration with the regulators, NOAA  
9 Fisheries and others, specifically, exactly the question you  
10 just asked, David. What would it take to figure out what  
11 needs to happen here to take on the risk of permitting? And  
12 we do this with the idea of creating a risk envelope. What  
13 is the distance at which you need to get this information of  
14 an incoming whale in order to carry out this process in a  
15 safe manner, and by working with NOAA Fisheries to get those  
16 specifications, we will then turn those specifications,  
17 we'll create sensors and a prototype system that meets those  
18 specifications.

19 Along this process, we'll be engaging regulators  
20 and stakeholders because we need to be able to validate this  
21 process. We need to be able to put this prototype in the  
22 water where we know there are southern resident killer  
23 whales, and that is no mean feat as we know, permitting-  
24 wise.

25 At that point, if the system works, which we

1 believe it will, we will then provide those specifications  
2 to other instrument manufacturers. We're not in the  
3 instrument manufacturing business. This is something for  
4 small business to really figure out the best way to create  
5 these systems. And at that point, the systems should be  
6 available to project developers and others to deploy on  
7 these systems.

8           The point here is that we have to develop a  
9 system. It's got to be reliable. It's got to be effective.  
10 It's got to be robust and it's got to be inexpensive, if  
11 it's going to be used broadly on these kinds of devices.  
12 But we think this has got real possibility. We do have  
13 background of doing this kind of thing, not for this  
14 industry and this environment, but we believe that we can do  
15 it. And we do believe also this methodology we can follow  
16 up later with other species, marine mammals, diving birds,  
17 fish in other environments or in this environment.

18           I do want to say that we consider this to be a  
19 high-risk project, high expectations. And frankly, the  
20 highest risk is not at the engineering solutions. It's  
21 really in the acceptance of regulators, of stakeholders, of  
22 project developers; but that is our proposal. And we are  
23 currently waiting for the funds to be delivered to us, but  
24 we are shooting, at least tentatively, for a schedule of  
25 having a system in the water for validation during the

1 summer of 2010.

2 MR. TURNER: This year.

3 MS. COPPING: Sorry. 2011.

4 MALE VOICE: You're good Andrea, but not that  
5 good.

6 MR. KALLSTROM: To add a little bit to what  
7 Andrea said, one of the issues that we've been struggle  
8 with, this is new, is how to integrate with the project and  
9 one of the approaches we've discussed internally is  
10 something that has been used in the more traditional  
11 process, which is that you have a requirement in your  
12 license to test certain affects, but then Andrea's work  
13 would go into what equipment you're using and how you aim it  
14 and that sort of thing. Our thought is that could be in  
15 incorporated in a plan that would get approved by FERC and  
16 commented on this April, after issuance, but before  
17 deployment. That was one of the things that we've been  
18 brainstorming. We have not talked with stakeholders to a  
19 great degree about that, but just wanted to let staff know  
20 that we're necessarily saying we can't have a license if  
21 Andrea's work is done. We're trying to explore ways to  
22 possibly have the two mesh and not cause too much of a  
23 delay.

24 MR. TURNER: I guess going along with that, that  
25 faces with us what kind of assurances that you're going to

1 need to see in terms of issuing incidental take statements  
2 and the like, knowing that those kinds of things are still  
3 developing, which is the whole crux of the question before  
4 us.

5 MR. KALLSTROM: This is Jeff Kallstrom again. We  
6 are intending to engage NMFS here in the next days or weeks  
7 on this topic. This is definitely something we're going to  
8 talk with them about, so we are intending to have that  
9 conversation.

10 MR. TURNER: Alison?

11 MS. AGNESS: I guess my question would be is  
12 having a licensing meeting there's a potential for something  
13 to go in the water, then not having plans in place or those  
14 assurances is non-adequate for the agency to be able to sign  
15 off. So I don't know what to say other than that. Having  
16 something in the water without plans appropriately developed  
17 that adequately mitigate the risk doesn't work for us.

18 MR. JAYJACK: This Nick Jayjack from FERC. I'll  
19 speak generally because I just don't know how it would apply  
20 to this project, but on original projects, generally  
21 speaking, construction doesn't begin until the plans come to  
22 us and we approve them. And so it's not unusual at all for  
23 us to put language in a license article where a plan is  
24 required to say that "construction shall not begin until the  
25 plan is approved by the Commission."

1                   MR. KALLSTROM: This is Jeff Kallstrom. That is  
2 our expectation, or at least that is the thought behind it.

3                   MS. HANNUKSELA: This is Jane Hannuksela with  
4 NOAA. I understand that often there are plans that are  
5 developed after the license are issued. One thing that we  
6 do need, though, is enough information and enough assurance  
7 to do our ESA consultation and the MMPA authorizations so  
8 that, as Jeff said, it sounds like we'll be working with the  
9 PUD to address our mutual concerns.

10                  MR. TURNER: But the concept of one a plan that  
11 covers certain specifications and certain goals and  
12 criterion and objectives might be reasonable, recognizing  
13 you had the chance to have input into that. That might be  
14 one way to approach it that would be okay with NMFS in terms  
15 of signing off?

16                  MS. HANNUKSELA: Would you repeat that?

17                  MR. TURNER: If you could define a plan that was  
18 to be developed with certain objectives and certain  
19 specifications and certain criteria, as mitigation or  
20 appropriateness as an objective, recognizing that the  
21 details of that plan would still be developed, and if you  
22 had a comfort level around the feasibility of those criteria  
23 that's something you would be willing to entertain in terms  
24 of the consultation?

25                  MS. HANNUKSELA: I think the theory is simply we

1 would definitely be willing to entertain again we'll have to  
2 see what we come up with. But yes, that could work.

3 MR. ROMANSKI: I have a question about that. Tim  
4 Romanski, Fish and Wildlife Service. I guess we have never  
5 developed a consultation solely around a mitigation plan. I  
6 mean not that I'm aware of. Certainly, we need to  
7 understand the affects the best we can of the unit before we  
8 do a consultation, and putting that all on the reliance of  
9 just a monitoring plan is something that we haven't done.

10 MS. HANNUKSELA: This is Jane Hannuksela again.  
11 I guess I wasn't assuming it would be just relying on the  
12 monitoring. I thought what you were saying, David, was more  
13 if we had certain criteria that have to met, if there were  
14 assurances that we do have ways to meet those criteria, we  
15 have enough information to understand what the affects would  
16 be, then we don't need every detail of the monitoring plan,  
17 but we do need to know the affects. We do need to have  
18 assurances. We do need the criteria. And Alison, correct  
19 me.

20 MS. AGNESS: Yes. But I guess all of that being  
21 said, certainly, we want all of those criteria in  
22 specificity well understood and agreed upon before the  
23 device has actually entered the water. So if there is a way  
24 to ensure that this is an agreement on those things before  
25 turbines go in the water, then we wouldn't have a

1 reinitiation issue.

2 MR. SCOTT: Brady Scott, DNR. I'm curious about  
3 the FERC process when you put in your license of conditional  
4 article saying you have to approve a plan, what's the  
5 process you go through to actually say, yes, we're going to  
6 approve that plan and what's a good consultation process  
7 with the other agencies and stakeholders?

8 MR. TURNER: Those articles typically include the  
9 development of that plan in consultation with them, and then  
10 once that's filed the Commission would review those plans  
11 and parties are free to comment on those plans when it comes  
12 in, but that consultation record is reviewed by the  
13 Commission when they're looking at the plans and seeing what  
14 kind of comments there were and how they were responded to.  
15 So it is part of the element, and we would include that  
16 consultation effort there. I'm not sure if that's getting  
17 to your answer or not, but

18 MR. JAYJACK: This is Nick Jayjack from FERC.  
19 Just to add, we rely heavily on the comments that the  
20 agencies and other consulted parties make when they review  
21 that plan before it comes to us.

22 MR. TURNER: Jane?

23 MS. HANNUKSELA: This is Jane Hannuksela. And  
24 what we often do is not just provide comments. We work with  
25 the applicant closely, and at the end of the day, depending

1 on which species it is and what we're looking at in  
2 particular, we may want to have sign off in our in effect,  
3 approval before it goes to FERC. FERC certainly has final  
4 approval, but we want to be okay with it before it goes to  
5 FERC for their approval.

6 MR. ROMANSKI: Right. So is that essentially a  
7 consensus-based approach with all the stakeholders then  
8 before you sign off as FERC?

9 MR. TURNER: Well, hopefully, there's consensus,  
10 but that's not always guaranteed. We're the ultimate  
11 arbiters of that.

12 MR. JAYJACK: This is Nick Jayjack from FERC. It  
13 depends how the condition is placed into a license. If it's  
14 mandatory, then I guess one might use the term it's more of  
15 a consensus-based approach. If it's not mandatory, then,  
16 yes, David's right. We take into consideration how the plan  
17 was developed, what the issues are, the concerns folks have  
18 in making that decision, but it just depends. I don't know  
19 if I would use the term "consensus," though, but I think I  
20 understand what you're saying.

21 MR. KALLSTROM: Folks who are on the phone if you  
22 want to have access and see the slides in the transmittal  
23 email with the agenda there were certain instructions on how  
24 to log on to the secure meeting, so if you refer back to  
25 your transmittal email you should see the link and the

1 password and all that.

2 MS. BEN-DAVID: What do you mean by transmittal  
3 email?

4 MR. KALLSTROM: The agenda was sent out via  
5 email, it was attached to an email, the body of that email  
6 has the login instructions for the secure meeting.

7 MS. BEN-DAVID: I'm not sure I have that email,  
8 but who would have been the sender?

9 MR. KALLSTROM: It would either have been Craig  
10 Collar or Ray Finnen.

11 MS. BEN-DAVID: Okay.

12 MR. KALLSTROM: Who is this? I can resend it to  
13 you, actually.

14 MS. BEN-DAVID: This is Debra Ben-David at NOAA.

15 MR. KALLSTROM: Okay.

16 MR. TURNER: You had a question?

17 MS. KNAPP: Yes, this is Anne Knapp with the  
18 Governor's Office of Regulator Assistance. And just to  
19 clarify, FERC will make their decision, after that the  
20 permitting agencies will issue permits where they can have  
21 additional conditions in those permits, if need be. Is that  
22 the correct sequence of how decisions are made on  
23 permittings?

24 MR. TURNER: The Commission is required to have  
25 certain things in place before it when they actually issue a

1 license, and one of them is a water quality certification.  
2 Hopefully, in the pilot procedures, and even in our A&R  
3 traditional licensing approach, the conventional projects an  
4 applicant is pursuing kind of a parallel course with other  
5 permitting requirements. But we're not bound by our  
6 decision to hold back on all the necessary permits and  
7 stuff, local permitting requirements that way. So they may  
8 be pursuing those or finalizing those after the Commission  
9 arrives at its decision.

10 MR. JAYJACK: This is Nick Jayjack from FERC.  
11 Just to add to what David is saying, usually, post-license  
12 we don't hear too much about the local permit setter issue.  
13 We know they're obtained frequently by our licensees, but we  
14 usually don't hear about them unless somebody alerts us to  
15 the fact that a condition in a local permit is inconsistent  
16 with the license and that's where we might get involved, but  
17 normally we expect our licensees to be good stewards and  
18 obtain the permits that they're required, the local permits.  
19 But that, again, if there's a conflict, though, with the  
20 federal license then that's where we might get involved.

21 MR. TURNER: Any other questions, comments?

22 [NO RESPONSE]

23 MR. TURNER: One of the last things I'm wondering  
24 about is the transcript talking about this collaborative  
25 approach, you working with the PNNL. I think it would be

1       behoove us to maybe get something in the record in terms of  
2       your approach and your timelines and what you're thinking in  
3       terms of how to move forward, preferable before our April  
4       29th date.

5               MR. COLLAR: That noted, we can certainly do  
6       that. I don't know if Andrea mentioned this, but haven't  
7       not even gotten the money yet, and I think Andrea this idea  
8       merged, what, week before last I think or somewhere in the  
9       last few weeks, so this is pretty new.

10              MR. TURNER: What's your timeline, your estimate  
11       for getting your funding?

12              MS. COPPING: That's really dependent on the  
13       Department of Energy. The money is there. We're doing what  
14       we can to move it, and we have a very stringent timeline  
15       laid out to order to reach that summer 2011 validation plan,  
16       so I can't tell you.

17              MR. TURNER: All right.

18              MS. COPPING: We're trying to move forward.

19              MR. TURNER: Okay, I can't think of anything else  
20       right off the bat for me. Does anybody on line have any  
21       other questions, comments?

22                       [NO RESPONSE]

23              MR. TURNER: I guess maybe I do have one quick  
24       question, though, assuming this doesn't play out, your  
25       current approach to monitoring then can you elaborate on

1       what you're thinking about again in terms of the types of  
2       monitoring efforts that would go on versus what's in the  
3       draft application? I mean is it a modification of that or  
4       is it similar to or bigger?

5               MR. COLLAR: This is Craig Collar. I'll start by  
6       saying that I think what's in the draft license application  
7       is directionally correct. I think it's still the direction  
8       we expect the monitoring plan to go. What it lacked largely  
9       was the nuts and bolts of how something like that would be  
10      achieved. There is a work being done to pull together a  
11      requirement, a document that we're working on, Sound & Sea  
12      really has been working on, and soon will be available to us  
13      and other stakeholders and really that will expand, I think,  
14      on what we put in terms of our monitoring plan, and provide  
15      the vehicle by which really the requirements of the effort  
16      are really put down on paper so that everybody can either  
17      look at it and agree or that's the thing that we have  
18      dialogue about to determine what the parameters really are.  
19      So I don't think it's dramatically different than what's in  
20      our draft license application. It's more detailed. It's  
21      sort of the meat on the bones I guess you would say.

22              MR. TURNER: So it's still a multi-acoustics  
23      approach versus --

24              MR. COLLAR: I think every acoustic technology as  
25      well as video is on the table still for the plan. Larry's

1 folks have been looking at this most recently, so we may let  
2 Larry Armbruster chime in.

3 MR. ARMBRUSTER: This is Larry Armbruster, Sound  
4 & Sea. The issue is that you just can't go to a catalog and  
5 buy either a commercial or a military off-the-shelf system  
6 that does everything that we need to have done to have a  
7 robust monitoring approach to this. So that leads to the  
8 issue of trying to identify, number one, everything that's  
9 out there in the commercial and military fields. The  
10 military fields are related to diver detection and swimmer  
11 detection systems that they need for certain applications  
12 that have application to us.

13 The commercial fields are the kinds of things  
14 that Bio Sonics and Ditz and others do, and it's a matter of  
15 defining our full requirements, looking at what's  
16 commercially or militarily available and then taking that  
17 and developing it into what we actually need to meet the  
18 needs here. So we're preparing two documents right now for  
19 the community and we're only the authors of -- trying to  
20 pull it together, the community, all the stakeholders are  
21 going to weigh in on this, and that's the requirements  
22 document for the requirements for a monitoring system, and  
23 that will be addressing acoustic, active, passive, visual  
24 and other techniques.

25 The requirements documents will have to be vetted

1 by all the regulators. The Navy program has a say in this  
2 too because they need the exact same thing to meet their  
3 needs. Sno-PUD and all of the stakeholders related to Sno-  
4 PUD and then, of course PNNL has to pull it together and  
5 make it happen, all are going to be part of that  
6 development. And to say right now exactly what's in it or  
7 what isn't I think is premature, but it will for sure  
8 include a multi-beam like capability so that we can  
9 literally see what's going in the interface there and it'll  
10 probably have aspects that deal with further range detection  
11 of what's going on in the macro field so we know what's  
12 coming at the turbine. I'm not comfortable in saying  
13 anything beyond that right now because we just don't know.

14 MR. COLLAR: We have to say Dom Tollif from the  
15 Sea Mammal Research Unit has done work in this area before  
16 and is working for us on our project, so Don it may be worth  
17 some of your observations and feedback on this question,  
18 based on your experience.

19 MR. TOLLIT: Dominic Tollit. We've been working  
20 on monitoring the MTC device monitoring at Stratford Lock in  
21 Ireland, and we have been using active sonar as well as  
22 visual observers to shutdown the turbine there. It's been a  
23 sort of graduated approach where initially we used an  
24 observer on board. The actually device it's surface-  
25 piercing so we were able to put an observer on that, but we

1       also had to -- we call them mechanical single beams, tri-  
2       tech, super-seeking DSTs. They scan in a few seconds a 20-  
3       degree sway moves around a bit like a bow-tech device, two  
4       of those on a device and actually a sonar operator looking  
5       at screens to look for marine mammals, so you'd call it  
6       automated, but with people, not sort of the idea that we'd  
7       like to have where it's fully automatic. It hasn't gotten  
8       to that stage, and the regulator has moved from having a  
9       visual observer in the sonar. Now the visual observer has  
10      been taken off. They're relying just on the sonar. They're  
11      about to go to 24/7 monitoring or 24/7 spinning and  
12      monitoring just with the sonar operator. He has the ability  
13      to stop the turbine. So the detection and stop is being  
14      done at this moment in Europe.

15                   MR. TURNER: Jane?

16                   MS. HANNUKSELA: This is Jane Hannuksela. I have  
17      a question for Andrea about timeframes. How quickly do you  
18      think you can develop the monitoring plan that you were  
19      talking about that you'd have in the water in the summer of  
20      2011? Is that something that you have to wait to get the  
21      money for? Could you start now, and again, just what are  
22      you thinking of for timeframes?

23                   MS. COPPING: Andrea Copping, PNNL. We're not  
24      developing a monitoring plan at all, just to be a little  
25      careful there. We will be developing the technology, and we

1 intend to validate and test that technology with particular  
2 purpose. And assuming we get our money sometime in the next  
3 one to two months, we are shooting for that sort of August  
4 timeframe, 2011, to go in the water. A couple of reasons,  
5 it takes that long to get the engineering done, and frankly,  
6 the consultation with NOAA regionally and NOAA nationally to  
7 be sure that we have the ability to go in the water. And we  
8 also, of course, want to pick a time when we know there are  
9 significant southern resident killer whales in the region.  
10 But you know, there's no point in testing it without knowing  
11 whether you're detecting them. So we're kind of constrained  
12 in that sense.

13 Now theoretically, we could develop that without  
14 validating it, but that doesn't seem like a very responsible  
15 thing to do. So I think we're kind of in that spot. We are  
16 trying to get ourselves all geared up. When the funds get  
17 here, we will start the consultation with NOAA Fisheries and  
18 others immediately to try to develop those facts. So no, I  
19 don't think we could go any faster.

20 MS. HANNUKSELA: Thank you.

21 MR. TURNER: Well, I think that covered  
22 everything I had. Anybody else got any questions or  
23 comments?

24 [NO RESPONSE]

25 MR. TURNER: Why don't we move into fisheries and

1 then we'll take a lunch break if we don't get anywhere.

2 It's a quarter to 12 now. Keith?

3 MR. KIRKENDALL: You're going to lose people on  
4 the East Coast when you break for lunch.

5 MR. TURNER: Well, let's see how far we go.

6 MR. KIRKENDALL: The point is the persons on the  
7 phone are wanting to talk about MMPA.

8 MR. TURNER: All right. I mean we can certainly  
9 rearrange the schedule here if you want to do that. Why  
10 don't we move into that point? It makes sense to me. I  
11 mean I don't have a problem with rearranging the schedule so  
12 they can participate now.

13 MR. HUNTER: David, which topic are you moving to  
14 now?

15 MR. TURNER: The MMPA ESA consultation  
16 requirements. So, if you want to go Mark, you can?

17 MR. HUNTER: Okay. I just wanted to let everyone  
18 on the phone know what's going on.

19 MS. AGNESS: So Jaclyn on the phone?

20 MS. DALY: Yes, I'm here.

21 MS. AGNESS: Great. Please feel free to jump in  
22 because you know this stuff better than I do.

23 MS. DALY: You're coming in a little bit fuzzy  
24 there.

25 MS. AGNESS: Pardon me? Can you hear me now?

1 MS. DALY: Yes, that's better.

2 MS. AGNESS: Okay. All right, so I wanted to  
3 talk today about just the intersections of the marine mammal  
4 protection process with the Endangered Species Act process  
5 and timeline considerations that we should all become aware.  
6 This is just a tiny bit of background incidental take  
7 authorizations under the Marine Mammal Protection Act.

8 Under the MMPP, there is a prohibition on taking  
9 marine mammals, unless it's exempted by the MMPA on  
10 specifically permitted or authorized, incidental take  
11 authorizations being one of those. So the section that that  
12 happens under is 101(A)(5) and (D) to allow for those  
13 authorized incidental taking of marine mammals occurring in  
14 otherwise lawful activities. And these gives you a sense  
15 for what those authorizations are, what sections they happen  
16 under, what they are able to authorize and the structure of  
17 those authorizations in terms of -- if rulemaking is  
18 required, the amount of lead time that goes into getting  
19 those authorizations place, processing time. And you can  
20 see that these are not insignificant amounts of time.

21 So this is just more detail on the timeline for a  
22 letter of authorization. And I guess the details aren't  
23 necessarily important, other than just to recognize that  
24 overall you're talking about a 7- to 18-month process to  
25 actually promulgate a rule. And again, this is for covering

1 activities that could occur over more of a five-year horizon  
2 and those activities are types of take could injury as well  
3 as harassment. So I'm just going to go over this real quick  
4 and then we can deal with that.

5 So the timeline for an incidental harassment  
6 authorization slightly shorter, is more expedited, allows  
7 for a year of take at the harassment level.

8 I should mention that these timelines are all  
9 assuming that an application is complete at the time of  
10 receipt. If there is additional information that is  
11 necessary or required to go through all of these different  
12 steps by NOAA Fisheries, then you can add some more time to  
13 that process.

14 MS. HANNUKSELA: Because the INHH usually takes  
15 between four to nine months.

16 MS. AGNESS: Yes, four to nine months overall.  
17 Okay. And then we have here the intersection, and the  
18 important information to take away from this is we can't  
19 really complete our Endangered Species Act consultation to  
20 give the assurance to FERC that the applicant is covered to  
21 incidental take endangered species or threatened species  
22 unless they have that from incidental take authorization at  
23 hand under the MMPA. So these four prongs under this Why  
24 heading of Why Concurrent Process is the Best Approach, we  
25 just go through those one by one, but once issuance of the

1 incidental take authorization, pursuant to the MMPA is a  
2 federal action. So that action itself requires Section 7.

3 MEPS cannot issue take of the ESA species in an  
4 MMPA authorization unless there has been a no jeopardy  
5 biological opinion issued. So MEPS can't issue an  
6 incidental take statement, pursuant to the ESA unless a  
7 Marine Mammal Protection Act Incidental Take authorization  
8 has been issued. So this is very much a process that has to  
9 happen in tandem. I just added this other one kind of  
10 specific to developing terms and conditions. And certainly  
11 we want to be able to ensure that the ESA consultation needs  
12 as well as any MMPA permit conditions are met by fully  
13 developed terms and conditions that would somewhat diverse.

14 So basically, in starting with the consultation,  
15 a biop is developed, MMPA authorization is granted, ESA  
16 incidental take statement is issued. That is a very  
17 coordinated process internally with our regional staff and  
18 our headquarters staff, so ideally -- and this is how it  
19 happens for Navy process, the ITS and the ITA are issued  
20 around the same day. But in order for that to happen there  
21 has to have been all of those steps that I alluded to  
22 earlier in terms of the timeline for getting to the ITA  
23 issuance under MMPA has to be accommodated for in terms of  
24 time.

25 MS. HANNUKSELA: This is Jane Hannuksela. And

1 just to point out, as Alison said, she has been talking a  
2 lot about process, but underlying all of this is a complete  
3 application and getting all the information we need to start  
4 all this.

5 MS. AGNESS: Right.

6 MS. HANNUKSELA: So it's very important when we  
7 let the PUD know and FERC know that we need X, Y, and Z  
8 pieces of information, we're needing it for this process.  
9 And it makes things go much faster and more smoothly if we  
10 get it in a timely fashion instead of having to continue to  
11 make requests.

12 MS. AGNESS: Also, the awareness that issuance of  
13 an MMPA, incidental take operation because it is a federal  
14 action it requires NEPA, so at the earliest point possible  
15 providing a draft NEPA analysis that will meet the needs of  
16 the agency is helpful and useful to ensure that there's not  
17 additional process time allotted to the agencies to develop  
18 their own document.

19 MR. TURNER: Is that both permits or just the  
20 LOA.

21 MS. AGNESS: A NEPA is required for both the IHA  
22 and the LOA. But they're always rulemaking So there's  
23 additional steps of clearance and entrance in the Federal  
24 Register. Yes.

25 MS. ZIEMAN: This is Zelma Zieman from the

1 Governor's Office of Regulatory Assistance, and I just want  
2 to jump in here on this slide for a clarifying question, who  
3 is the NEPA lead?

4 MS. AGNESS: Well, in the case of issuance of the  
5 MMPA incidental take authorization NOAA Fisheries is the  
6 lead. It is really nice if the agency, in this case it  
7 would be FERC, that is also undergoing a federal action  
8 around the same activities if that document is sufficient to  
9 also cover NOAA Fisheries agency needs it really expedites  
10 process. So kind of coordinating at the draft NEPA stage to  
11 be able to give NMFS some headway in reviewing and  
12 incorporating additional information they may need to make  
13 it their own.

14 MS. ZIEMAN: That's just for clarification at  
15 some point as to who is going to be the NEPA lead for this  
16 process.

17 MS. AGNESS: All of those authorizations occur  
18 through the Office of Protective Green Sources, which is at  
19 our headquarters, the folks on the phone, Jaclyn Daly she  
20 will be handling that for this project.

21 MS. DALY: I can speak to that a little bit  
22 Alison.

23 MS. ZIEMAN: Good. Thank you.

24 MS. DALY: This is Jaclyn Daly. I will be  
25 working, as Alison said, with Snohomish on the MMPA

1 authorization. And as she said, we do have to comply with  
2 NEPA and NEPA's triggered as issuance of the IHA or LOA is a  
3 federal action. But there are couple of pathways to us  
4 complying with NEPA. One is that FERC or Snohomish develop  
5 an EA or EIS or whatever NEPA document they feel is  
6 appropriate and we can either adopt that if we find it meets  
7 our needs in covering the affects to marine mammals for  
8 issuing our permit.

9 We could also be a cooperating agency, and so  
10 when it comes time to issue the permits we will already be  
11 involved in that NEPA process, or we can create a NEPA  
12 document on our own. Now the last option, obviously, takes  
13 longer because we'll be doing that later on in the process  
14 when we get the application. So those are the three  
15 pathways. There's one, just comment on the draft  
16 application and be involved to make sure that all of our  
17 needs are covered and that we adopt it later, which is  
18 pretty much of a red tape process. We do have to write our  
19 on FONSI or ROD for that, depending on if an EA or an EIS is  
20 written. We can't adopt the agency's FONSI or ROD, and then  
21 there's also just recap the cooperating agency option or  
22 writing our own. Is that clarifying?

23 MS. HANNUKSELA: Yes, that's good.

24 MS. ZIEMAN: Yes, thank you. This is Zelma  
25 again, Zelma Zieman. Thank you for clarifying. That is

1 something that is going to have to be clarified in this  
2 process because I see that the EA is built into the pilot  
3 permit process from FERC, so it is coordination maybe  
4 between the federal agencies to determine who is going to be  
5 a lead.

6 MS. AGNESS: Right. Okay. And so I just put up  
7 here the overview of the pilot process because it either has  
8 to speak to how the MMPA ESA processes may dovetail with the  
9 pilot process. And as you can see, where we would actually  
10 enter into actually ESA consultation or where in the process  
11 the NEPA document is finalized those happen pretty late in  
12 the game, and so at least currently where we sit right now  
13 there is no application on the books for a Marine Mammal  
14 Protection Act Incidental Take Authorization, so certainly  
15 at least starting that phase will be important to some of  
16 those timing considerations for the two different types of  
17 authorizations that it went through today, but one thing  
18 that we've thought a bit about, at least with our group at  
19 this table here, is it would be great if there was some  
20 flexibility on the back end here between that DLA and the  
21 FLA to ensure that there is time allotted to complete  
22 adequately this MMPA and ESA process that really does work  
23 best if it's done concurrently. That's pretty much it.

24 MR. KALLSTROM: This is Jeff Kallstrom. I just  
25 wanted to add to this. Snohomish does intend to engage NMFS

1 very quickly on the ESA and MMPA processes and the timeline,  
2 basically everything that was just described right now. So  
3 we do intend to engage very quickly on that.

4 MR. TURNER: And that engagement actually goes to  
5 information needs as opposed to actually filing the MMPA  
6 authorization?

7 MR. KALLSTROM: I think the entire process, the  
8 whole thing, so we need to have -- we haven't sat down and  
9 had these discussions with NMFS face-to-face yet, and so I  
10 think we intend to do that very quickly and as a whole.

11 MR. TURNER: Does NMFS have a feel at this point  
12 which permit is going to be required, IHA versus LOA?

13 MS. DALY: They both have their limitations. I  
14 mean it really depends on a couple of different factors.  
15 One is if there is chance for serious injury or mortality,  
16 which is where possibly the strike issue could come into  
17 play, then an IHA is not an option because an IHA can only  
18 authorize Level B, which is behavioral harassment or a Level  
19 A, which is injury, and that can only be good for one year.

20 We have had instances where we issue subsequent  
21 IHAs through the year, but the whole process is repeated  
22 each year. So for an LOA what happens is you forefront all  
23 those continuing years and the LOA can issue serious injury  
24 or mortality, and keeping in mind that this applies to all  
25 marine mammals, not just killer whales and it is good for

1 five years. So it really depends on the applicant's choice  
2 here if it's just Level A or Level B harassment about which  
3 one you want to go for.

4 It seems like here another possible option that  
5 we do do sometimes is issue an IHA for one year first where  
6 those uncertainties like in affects and then subsequently  
7 issue a five-year rule, which is where you get your LOA  
8 from. So we can talk about that more if we want to have  
9 separate conversations on the MMPA process in general and  
10 then how that ties in with the ESA.

11 MR. TURNER: Okay. Any other questions or  
12 comments?

13 MS. BISHOP: Alicia Bishop with NOAA Fisheries.  
14 I would just reiterate that even in this FERC process it  
15 seems like we have a bit of flexibility between the DLA and  
16 FLA, and we don't have any timeline after this meeting as to  
17 when the FLA would be due. And we would highly encourage  
18 the PUD to sort of work with us to meet our information  
19 needs prior to filing the FLA because once that's in place  
20 that's starting those timelines again.

21 And as Alison already pointed out, if we're  
22 strictly following the letter of the law here, our  
23 engagement for either ESA consultation and MMPA  
24 authorization is really late in the game and it could  
25 potentially lead to more delay in your process if we're not

1 getting involved until these particular areas, which is  
2 highlighted up here. But working with us now to get those  
3 information needs met would be quicker in the long run and  
4 sort following have this process or phase it out.

5 MR. TURNER: We have to break at noon because the  
6 court reporter needs to revamp his equipment, or realign his  
7 equipment I think was the term he used, so let's take an  
8 hour break for lunch and come back at 1:00.

9 MS. DALY: This is Jaclyn. I'm sorry to  
10 interrupt, but I have to leave this call in an hour, so are  
11 all questions answered for MMPA?

12 MR. TURNER: I don't have anything. Does anybody  
13 else have anything for MMPA?

14 [NO RESPONSE]

15 MR. TURNER: Thanks for your time.

16 MS. DALY: No problem. Have a productive rest of  
17 your meeting.

18 MR. TURNER: Let's break.

19 (Whereupon, a lunch recess was taken at 12:00  
20 p.m.)

21

22

23

24

25



1 the magnetic field emissions from the transmission line or  
2 the cable to shore, and on the list here we have E fields,  
3 but that's a typo. We were talking more about the B fields  
4 or the magnetic fields. I know that generally speaking it's  
5 hard to eliminate those with shielding alone, but I was  
6 wondering if anybody here could speak to what degree can  
7 some of those magnetic fields be dampened through the  
8 shielding and what are the -- if anybody has any ideas what  
9 the expected affects might be on the various species there.

10 MR. COLLAR: Yes, I think there are two people  
11 who could probably speak to the question. Larry Armbruster  
12 from Sound & Sea would be one person. They're experienced  
13 with sub sea cables, and also Nick Murphy if Nick is still  
14 on the phone or if he had enough for the day. I don't know.  
15 It's getting pretty late over there.

16 MR. TURNER: Mike, are you on the line?

17 MS. BARR: Yes, we've got Nick on the line. He  
18 just had to step out for a minute, Craig, but he'll be back  
19 in a minute and he will be able to update you on that.

20 MR. TURNER: Okay, while we're waiting for Mike,  
21 Larry Armbruster, perhaps you can say a few words about that  
22 question.

23 MR. ARMBRUSTER: Well, the direct answer for the  
24 question is, yes, the cable will be shielded, but as you  
25 mentioned it s not going to be 100 percent effective. And I

1 think the best that I can tell you about -- perhaps Mike and  
2 Sue have additional information. This is a DC cable as  
3 opposed to the other side of the sound is doing an AC cable.  
4 That has some impact on what we're looking at as well, but  
5 there's some history in the literature about the measurement  
6 of fields that we can plum and get information to you on.

7 The other thing that can be done is if it becomes  
8 a requirement we can put sensors there and attempt to  
9 measure the fields around the cable, at least initially and  
10 see what's being produced. But I can't quantify it for you  
11 right now.

12 MS. BARR: Sue Barr from Open Hydro. Just in  
13 response to the B field question, which is where we've  
14 focused our effort at this end with our electrical  
15 engineers. You know there really is very little B field  
16 generated outside of a shielded cable, and also it's very  
17 difficult for this to be propagated in anything outside that  
18 -- in terms of magnetic fields, we'd need to look again and  
19 just ensure that we've got the correct cable spec and we're  
20 looking at the correct equipment. But again, I think it  
21 would be highly unlikely with the types of cable that we  
22 use, but we just need to, once that's been specified, have a  
23 look a that again.

24 MS. COPPING: Andrea Copping, PNNL. I want to  
25 put this one level above hearsay, but one level below

1 absolute fact. We're working on these issues in the lab. I  
2 just wanted to say that all preliminary assessment of the  
3 literature on EMF and marine organisms, at least, of which  
4 there are very, very few scientific papers, indicate that  
5 the AC cables are of considerably more concern than the DC  
6 cables, and they generate a magnetic field that are of  
7 concern to marine organisms and those are not generated to  
8 the same extent with DC cables. So this is the first I  
9 realized it was a DC cable.

10 MR. JAYJACK: And this is Nick Jayjack from FERC.  
11 Same here, I didn't realize it was DC. Were there any other  
12 comments on that question?

13 [NO RESPONSE]

14 MR. JAYJACK: The other question I had had to do  
15 with some of fisheries baseline information that was  
16 gathered, specifically with regard to the acoustic sampling  
17 that was done, and I guess I'm trying to get a feel for some  
18 of the ground truthing that was done. I know in reviewing  
19 the DLA the data was presented in terms of density of fish  
20 observed without really going a step further and talking  
21 about breaking that down into species that were detected  
22 using the acoustics, and I'm wondering why that was. Is it  
23 due to a limitation with the technology or is the data that  
24 you have with that would you be able to somehow ground truth  
25 it today and give some idea, at least, as to perhaps family

1 or genus and try to interpret some of that data a little bit  
2 further?

3 MR. MALKIN: As Craig said earlier, I think we're  
4 fortunate in that Admiralty Inlet, in particular, and the  
5 Sound is a pretty well-studied environment, so when we  
6 started off this process this was prior to FERC actually  
7 developing a pilot process, so we issued a PAD where we  
8 requested existing information, collected existing  
9 information. We found quite a bit. Subsequent to that when  
10 we started up the pilot process, we sent the PAD out for  
11 peer review to independent fisheries biologists and marine  
12 mammal folks with a directive to evaluate that existing  
13 information, identify data gaps and identify pieces of  
14 information that we missed, and what we got back was that  
15 there's a ton of information in terms of existing  
16 information, so that includes over 50 separate trowel  
17 surveys by WDFW, a series of video survey efforts also by  
18 WDFW, a lot of recreational catch information, of course,  
19 and also long-term records on commercial catch records.

20 And so the input that we got was that species --  
21 the distribution of species that you might find from a  
22 fisheries perspective and marine mammal perspective was very  
23 well know. So we have data in the DLA that describe the  
24 species that you can expect to find and the habitats that  
25 are there as well. So for instance, you don't have high

1 relief habitats and so you can use that to infer on-site  
2 conditions that would support or not support various  
3 different species.

4 We supplemented in the DLA, using those existing  
5 information sources, we provided information on salmon  
6 swimming depth, salmon emigrational patterns, timing of  
7 returns, the horizontal position of species within the water  
8 column, particularly for juvenile salmon and a suite of  
9 other existing information sources. The area that we found  
10 was not well discussed, not well studied was in particular  
11 on the distribution of fish and other aquatic organisms  
12 within the water column.

13 So we know what species are out there. We know  
14 what species to expect. To a degree, we know when to expect  
15 them, but the advice we were getting was that we needed more  
16 information on where they were within the water column and  
17 how they might be influenced by tidal patterns, in  
18 particular.

19 So we commissioned a series of efforts, both of  
20 moored and mobile survey, using the hydro acoustic gear, and  
21 as you mentioned, the hydro acoustic gear does not give you  
22 information on -- I mean detect size. It's the data  
23 reported just in terms of target strength. But because we  
24 already have information on what species to expect, we feel  
25 the information needed to support environmental analyzes are

1 all presented in the DLA.

2 Now the fourth hydro acoustic survey that does  
3 describe species used within the water column was just  
4 completed in February, and a consolidated report of all  
5 those efforts are not included in the DLA. As you see a  
6 limited description of those efforts and certainly we get  
7 the message from comments and from our own internal reviews  
8 that we need a much better description of the Approach To  
9 data analysis, the potential for false hits and along those  
10 lines that in our description the hydro acoustics work, and  
11 that's certainly our plan.

12 But the way we view that work is that it  
13 provides, to a large degree, a conservative estimate of the  
14 potential for fish use in the turbine site, and the  
15 potential for, I guess, encounter because it does contain  
16 we're pretty sure some false positive. So we feel that  
17 number, if anything, or the use numbers are, if anything,  
18 artificially high.

19 And we're fortunate, Bob McClure of Bio Sonics  
20 was able to join us from, I think, Spain. And so he's still  
21 on an unusual time zone, but Bob do you have anything to add  
22 to that?

23 MR. McCLURE: Sure. I'm also joined by Jim  
24 Dawson, who's here of Bio Sonics.

25 COURT REPORTER: Identify yourself.

1                   MR. McCLURE: Okay. Yes, this is Bob McClure  
2 with Bio Sonics. I'm also joined by Jim Dawson. Jim is one  
3 of senior scientists with Bio Sonics, and Jim was actually  
4 in charge of processing the data. And the information that  
5 we gleaned from this site was -- the goal was to find out  
6 what the distribution, both horizontally and vertically of  
7 these targets within the area was. So it wasn't species  
8 specific. As Devin alluded to, there's a lot of information  
9 on what species are in the areas, and so our goal was to go  
10 through the area during times of daylight hours, nighttime  
11 hours, high tidal flow and low tidal flow and determine the  
12 physical distribution of possible fish targets within the  
13 area.

14                   Jim, do you want to add anything?

15                   MR. DAWSON: I think you covered it.

16                   MR. McCLURE: Does that answer your question?

17                   MR. JAYJACK: Yes, that covers it, I think.

18                   MS. BISHOP: Alicia Bishop, NOAA Fisheries. I  
19 guess to kind of reiterate on what you were saying Devin,  
20 kind of a consistent issue throughout our comments is sort  
21 of the lack of description in a lot of the study plans and  
22 that we really -- you know, it sounds like you guys are on  
23 board with addressing some of the data analysis issues and  
24 the metrology and we're happy to here that, but I mean a lot  
25 of our questions we need a little more description and what

1 was done out there because there's just a lot of questions  
2 that remain, and it sounds like you're planning on doing  
3 that with this follow-up report.

4 MR. MALKIN: Certainly, on the hydro acoustics  
5 information, message received and additional discussion of  
6 methods.

7 MS. HANNUKSELA: Jane Hannuksela, NOAA. Just to  
8 make sure, Devin, it seems like you were qualifying just on  
9 the hydro acoustics, you were doing this. We have concerns  
10 on a number of study plans and are you addressing our  
11 concerns for each of these plans or was it just the hydro  
12 acoustics?

13 MR. MALKIN: The question raised by Nick that I  
14 tried to touch on was specific to the hydro acoustics, but  
15 we are, as I said, developing a detail comment response  
16 matrix and you'll have a response to each individual comment  
17 made in your most recent letter in our next filing.

18 MS. HANNUKSELA: And a response to comments is  
19 the way you're addressing them?

20 MR. MALKIN: In the short term.

21 MS. HANNUKSELA: All right. Well, we'll have to  
22 wait to see so we can have more of a conversation.

23 MS. BISHOP: And I guess, just to follow up with  
24 our previous EMF discussion, there sounds like there's the  
25 potential to monitor EMF emissions, but it does --

1 [FIRE DRILL]

2 MR. TURNER: All right, I think you were in the  
3 midst of answering some, at least on my part, I had one more  
4 follow-up question as to when some of that data might be  
5 coming in in terms of acoustics. You said you just finished  
6 gathering that up?

7 MR. MALKIN: Yes, we intend to include that with  
8 the AFL filing.

9 MR. TURNER: I think Jane was in the midst of a  
10 comment, is that right?

11 MS. HANNUKSELA: I was just asking a  
12 clarification question. It sounded like it was for EMF  
13 monitoring, but as far as -- no alternate proposed in the  
14 DLA was it to be proposed in the FLA?

15 MR. MALKIN: I think we're open to that, to  
16 expanding it. I think at this point, as reflected in the  
17 DLA, we don't see that it's likely to be warranted, based on  
18 our risks assessment, but if there's fish analyzes or  
19 literature or some reason to believe otherwise that our  
20 assessment is missing something I think we're actually happy  
21 to look at it. It's not something that we were going to  
22 close the door on. I mean, truth be told, that's the case  
23 for any number of pre-installation efforts. We're happy to  
24 continue the discussion.

25 MR. TURNER: Any other questions, comments?

1 Anything from anyone on line, including FERC staff?

2 [NO RESPONSE]

3 MR. TURNER: Let's go to the next to the last  
4 topic, and that was to the shutdown and removal-monitoring  
5 plan. In particular, there were some comments raised I  
6 think by the Tribes for Warren and others with regard to  
7 which species might cause shutdown and removal. When we put  
8 together the pilot procedures, we were focusing at FERC  
9 predominately on things that were probably or legitimately  
10 characterized as sensitive marine mammals and sensitive  
11 species that could easily be defined as something that has  
12 an environmental effect, basically, a no-brainer that those  
13 kinds of activities could lead to shutdown and removal.

14 It's not that we weren't open to other concerns.  
15 I guess I would want to get a feel from both Snohomish and  
16 the other parties what other species should be considered in  
17 that context in terms of removal? I mean given the scale of  
18 the project and size and what we're talking about at a pilot  
19 scale. I don't know who would want to take that first,  
20 maybe Craig?

21 MS. AGNESS: Did we move away from fisheries  
22 altogether as a topic?

23 MR. TURNER: Nobody said they had anything they  
24 wanted to talk about, but we can go back.

25 MS. AGNESS: I think the misunderstanding was --

1 I don't think we had the conversation, but --

2 MR. TURNER: Okay. If you've got something else,  
3 we'll table my question for a minute and go back to  
4 fisheries.

5 MS. BISHOP: We made in our comments, referring  
6 to asking PUD to gather more information on rockfish species  
7 because what plans are currently proposed didn't really  
8 address our concerns on those species and we'd requested  
9 additional ROV surveys to be done.

10 MR. COLLAR: Yes, I think in our mind right now  
11 that fits into what I described earlier as the path forward  
12 that we're proposing, and that's a series of facilitated  
13 workshops or meetings that really looks at both the data  
14 we've provided, the approach we're taking as well as the  
15 request of NMFS and other stakeholders and really driving  
16 that to a place where either we determine that we have some  
17 consensus on what needs to be done and how it should be  
18 done, or we determine that we can't do it, technically or  
19 economically, in which case we terminate the effort. So  
20 that's our approach is we want to have this series of well  
21 facilitated, well organized meetings and workshops that gets  
22 us to one of those two answers because ultimately those are  
23 the only two outcomes, I think, so that's how we see getting  
24 there.

25 So as Devin said, we're not taking anything off

1 the table. We've looked at the comments from the  
2 stakeholders. We probably have as many questions about your  
3 comments as you had about our DLA. We think that there were  
4 some misconceptions about what's in the DLA, maybe even some  
5 misinterpretation about what's written in there or we  
6 weren't clear. So really to move forward, we need to bring  
7 those out into the light and resolve those first and then  
8 see what really remains in terms of issues that are yet to  
9 be answered. So I mean that's our general approach to  
10 pretty much all the questions that have been asked. We  
11 won't get there in this meeting, but that's where we see  
12 going from here on out.

13 MR. TURNER: What's the timeline for that portion  
14 of it? I mean I guess I'm getting a little bit confused in  
15 terms of how it dovetails in with the PNL effort and your  
16 series of workshops. I mean are they the same questions,  
17 the same efforts?

18 MR. COLLAR: The PNL thing is new, so we think  
19 they dovetail together, but there are some separations.  
20 There are some questions and comments that are on the DLA  
21 that really are different from the monitoring that don't  
22 really fit with that dialogue and there are others that do.  
23 So we think that there's a connection between the two, but  
24 they're not the same effort.

25 MS. COPPING: Andrea Copping, PNNL. I just want

1 to remind you that we will be looking strictly at --  
2 initially. We're not trying to take on -- (voice  
3 decreased).

4 MR. COLLAR: Sure you want that.

5 MS. COPPING: Later. Later. One step at a time,  
6 one animal at a time.

7 MR. KALLSTROM: This is Jeff Kallstrom. You said  
8 they dovetail, but PNNL is looking at the -- it's my  
9 understanding is they're looking at the technology we used  
10 to achieve the objectives, but the stakeholders determine  
11 what those objectives are and that's going to be part of the  
12 discussion and that's going to be ongoing. We have a pretty  
13 clear idea of what the majority of the objectives are, but  
14 there are some ongoing discussions. In addition, the  
15 facilitated discussions will include additional studies --  
16 baseline studies or existing condition studies, and so to  
17 that extent they're separate efforts, but they do complement  
18 each other.

19 And to that end, we haven't embarked on this. We  
20 do intend to embark on this very, very soon and it would be  
21 useful to talk about this in more detail, I guess, for us to  
22 have a little bit of time, a week, 10 days to engage with  
23 NMFS and some of the stakeholders and get a better idea of  
24 how the facilitated discussions will play out and how much  
25 time we will need, other than a couple, three phone calls we

1 haven't delved into the detail of it yet.

2 MR. TURNER: So would it be safe to say in the  
3 next couple of weeks you could file something with the  
4 Commission that lays out a timeline?

5 MR. KALLSTROM: Yes, we can. Yes.

6 MR. TURNER: Did that cover your questions? Do  
7 you have anything else you want to talk about?

8 MS. BISHOP: I think we talked about our frac-out  
9 issues, angling.

10 MR. TURNER: Anybody else got anything else they  
11 want to ask before we move? Tim?

12 MR. ROMANSKI: Tim Romanski, U.S. Fish & Wildlife  
13 Service. In your slide presentation there was a reference  
14 to some continuous monitoring that occurred at a different  
15 Open Hydro project, is that correct? And is there any study  
16 or information on that that is available?

17 MR. COLLAR: You're referring to the videotape  
18 that somebody mentioned?

19 MR. ROMANSKI: Yes.

20 MR. COLLAR: That's at EMAC, so that's at their  
21 6-meter test in the European Marine Energy Center in the  
22 Auckney. As I understand it, Sue Barr, when she gets back  
23 on the line can speak to it. They're writing up that study  
24 now, I believe. Sue or Nick?

25 I think we may have lost them after that last

1 event we had here, but the last time I talked to them that  
2 was the plan.

3 MR. ROMANSKI: Is there a timeline for that? How  
4 does that fit into this timeline?

5 MR. COLLAR: I don't know the answer, to tell you  
6 the truth. I'm not sure. I think Nick and Sue would be  
7 able to tell us, but if they told me I don't remember.

8 MR. ZACKEY: Todd Zackey of Tulalip Tribes. So  
9 it's my understanding that we're going to have a  
10 consultation because I made a lot of comments on the  
11 monitoring plan, and does that mean that we're going to  
12 pursue it in a different meeting, setting our questions or  
13 our discussion along the monitoring plan and the monitoring  
14 effort that you guys have done so far?

15 MR. COLLAR: That we've done so far?

16 MR. ZACKEY: Where you see the monitoring  
17 information of the fish, the studies that you guys have done  
18 so far we made comments on that specifically, that  
19 information we were given and I just want to verify that  
20 we're going to have a conversation -- are you saying we're  
21 going to have meetings later on to kind of vet out what we  
22 asked and sort of gaps be solved in that?

23 MR. COLLAR: Yes, that's the facilitated working  
24 sessions I mentioned.

25 MR. ZACKEY: Okay.

1           MR. SCOTT: Brady Scott, DNR. It sounds like  
2 these facilitated working sessions are still being working  
3 out, but is it your intent to include the whole stakeholder  
4 group or is that a specific subset of that?

5           MR. COLLAR: I guess its open, but our intent was  
6 that it would include the stakeholder group that's been  
7 participating in the effort so far.

8           MR. SCOTT: Okay. Yes. Thank you.

9           MR. TURNER: Who joined us on the telephone line?  
10 I thought I heard somebody.

11          MALE VOICE: It was a drop.

12          MR. TURNER: It was a drop? I can't tell.  
13 Anything else?

14          [NO RESPONSE]

15          MR. TURNER: Okay, let's go back to the shutdown  
16 and removal then. Do I need to repeat that, basically?

17          MR. ROMANSKI: If you would.

18          MR. TURNER: I guess I wanted to get a feel for  
19 what other species were of such great interest in this  
20 regard, Tim?

21          MR. ROMANSKI: I think some of that is going to  
22 be driven by the technology available. I mean if PNL comes  
23 back and says we can only monitor species at a certain size,  
24 then some of the other ones will drop off the list, not  
25 because they're unimportant because we can't develop a good

1 enough monitoring program to address something small. I  
2 guess my point is some of that is going to be driven by what  
3 those results are.

4 MR. TURNER: So the question was not one of is it  
5 technology-driven issue in terms of whether there's a  
6 shutdown versus a concern about the sensitivity of that  
7 resource?

8 MR. ROMANSKI: Well, certainly, it could be  
9 driven by sensitivity of that resources. But if we don't  
10 have the technology to determine whether it's present at the  
11 unit, then how do you develop a shutdown plan around it if  
12 you can't even detect its presence?

13 MR. TURNER: It's a good question. I'm just  
14 wondering what was vetted here in some of the comments that  
15 we've received in terms of importance, and you need to  
16 broaden the species that would, say, we need to remove and  
17 shutdown this thing. I'm trying to get a better grasp in my  
18 mind as to where you, as a collective group, were coming  
19 from.

20 MS. AGNESS: Alison Agness, NOAA Fisheries. At  
21 least from our perspective, I don't know, but we've been  
22 focusing on southern resident killer whale because the risk,  
23 if left unmitigated, and we were left to consult on the  
24 affects of that unmitigated risk would lead us to have  
25 really tough time with our conclusions against our jeopardy

1 standard, given the status of the species and basically,  
2 there being such a low -- I may be talking in jargon terms,  
3 but potential biological removal levels that's acceptable  
4 under the MMPA. There isn't the ability to get a take  
5 permit to cover that risk. So under the MMPA, let alone the  
6 ESA. So that is why we have focused on that specific  
7 species as a showstopper, but other marine mammals  
8 certainly. There would need to be a take permit associated  
9 with the risk of injury or mortality of other species. I  
10 think that that's something that could be sought and that  
11 probably from our agency's perspective would be considered,  
12 given the status of other species.

13 MR. TURNER: But my point was that we've seen  
14 that in terms of listed species and marine mammals. I  
15 gathered from some of the comment letters that it needed to  
16 be even broader from the other species, and I'm just trying  
17 to figure out what those species are and to their relevance  
18 and what kind of usable threshold may be considered in terms  
19 of triggering removal. Jane?

20 MS. HANNUKSELA: Jane Hannuksela with NOAA. As  
21 well as the marine mammals that Alison mentioned, we have  
22 other fish species that are listed under the Endangered  
23 Species Act, and when we do our Section 7 consultation for  
24 those, accompanying it will be our incidental take statement  
25 and that will allow for a certain amount of take, but when

1       you reach that threshold then no more take is allowed. So  
2       we will need to have monitoring of the other listed species  
3       to know when the incidental take limit has been reached, if  
4       it has.

5               MR. TURNER: And again, I've seen the listed  
6       species question. I'm saying is there something else  
7       broader.

8               MR. HANNUKSELA: Even broader than that.

9               MR. JAYJACK: Like rockfish, for instance. Some  
10      of the rockfish species are not listed.

11              MR. TURNER: Yes, there are implications in some  
12      of the comment letters that we need to be considering other  
13      things. I'm trying to get a feel, what are those other  
14      species?

15              MS. HANNUKSELA: Well, there's habitat issues as  
16      well, having to do with critical habitat, essential fish  
17      habitat and habitat areas of particular concern we don't --  
18      I'm not sure that that would cause project shutdown, but  
19      it's something we need to think about for project affects as  
20      well.

21              MR. TURNER: Daryl?

22              MR. WILLIAMS: Daryl Williams, Tulalip Tribes.  
23      Besides the ESA listed species or species protected under  
24      the Marine Mammal Protection Act, there are a number of  
25      commercial fisheries that Tribes harvest that are protected

1 under our treaties with the United States Government, and if  
2 there's a major impact to any of those commercial species  
3 we'd like to see it shutdown as a part of that for  
4 monitoring purposes because there are species of salmon that  
5 aren't listed.

6 We've got crab and shrimp larva that travel  
7 through that area. There's a large percentage of the crab  
8 larva that feed the area that actually come from outside the  
9 north side of Admiralty Inlet that come all the way through.  
10 One or two turbines probably won't be a big impact, but we  
11 won't know until we start doing some monitoring. And if  
12 there's more development that's even a bigger question, and  
13 somehow we need to get a feel for what the impact is to  
14 those larva moving in and out of the system there.

15 MS. HANNUKSELA: And to follow up on that, I  
16 think that again points to our concern about having enough  
17 baseline information to know generally if there's huge  
18 changes in the environment and the fish species and the  
19 ecosystem in some way with the turbines there, and that will  
20 allow us to know. There's Tribal fisheries. There's all  
21 sorts of other concerns.

22 MR. TURNER: I guess I'm trying to figure out in  
23 my mind is that a perspective of the commercial build out?  
24 Is that being translated here or is this one of concern at  
25 the pilot scale in terms of removal? I mean I can certainly

1 see the listed species exceeding the incident take limit,  
2 but was this a good picture as I'm saying some of the  
3 letters seem to suggest. Do we need to be just figuring out  
4 whether or not there is some sort of threshold and a trigger  
5 for these other species as well. Is it even technically  
6 feasible, for one, is a question, but any comment about it.

7 MR. OSTROM: This is Tom Strom with Suquamish  
8 Tribe. I guess one question is when FERC says that these  
9 facilities won't be located in sensitive areas, I think  
10 that's the term, the terminology, does sensitive -- is  
11 sensitive restricted to just listed species or is it a  
12 broader resource; does it imply broader resource  
13 sensitivity?

14 MR. TURNER: Sensitive species, from our  
15 perspective when we developed the procedures, it's developed  
16 over time, but it's actually those things that were just  
17 statutorily limited for saying, no, if we can't put  
18 something there. When we start looking at our analysis  
19 through NEPA, and we are granted the waivers and start  
20 processing the pilot procedures we'll do an environmental  
21 analysis, and at that point we'll look and see whether or  
22 not there are other issues. And that's really the point of  
23 my question is trying to figure out what other species we're  
24 really focusing on here in terms of their value, their  
25 function, their importance in terms of trying to figure out

1 are those things making this site the wrong site to put in a  
2 pilot project, and then that might be our ultimate  
3 conclusion is that we can't site a pilot project here based  
4 on the information we know at this point. And that would  
5 lead the PUD to go back and say, okay, we'll need to develop  
6 additional information and maybe pursue another license type  
7 and further substantiate that this conclusion is good.

8 MR. OSTROM: I would think that it would have to  
9 be broader than just the listed species themselves. I mean  
10 because you do have, of course, trade resources of those  
11 sensitive species that are utilized and could be impacted by  
12 the facility. And I heard a comment that perhaps the  
13 monitoring equipment won't be able to detect species small  
14 than a certain size, something like that, and that we may  
15 never have the ability to cause a shutdown or a removal for  
16 those smaller species because it's just not technical. And  
17 I guess that would elevate the concern of the Suquamish  
18 Tribe because so far we have pretty sparse data to even  
19 determine whether this location is sensitive or not. I mean  
20 really we've got a few data points to say, yes, there are  
21 few fish here, but we don't know what they are. We don't  
22 really have a good idea of how they utilize this area.

23 I mean I don't think that we've pick up any  
24 aggregations of fish that may pass through the area from  
25 time to time. So one, we haven't determined whether this

1 area is sensitive or not based on the species utilization  
2 and if we're not able to detect species of a certain size I  
3 think that's a problem. And I don't think that it's just  
4 limited to the ESA listed species.

5 MR. TURNER: Okay.

6 MS. COPPING: Could I just clarify something?  
7 Andrea Copping, Pacific Northwest National Lab. What we  
8 will be focusing on right now is the southern resident  
9 killer whales. The tricky part, actually the project that I  
10 describe to you is not even so much the detection. It's  
11 finding the right gear, but it's really putting it together  
12 and the post-processing of the data to actually trigger  
13 something like a shutdown. But there is plenty of  
14 instrumentation and gear around that will detect many of  
15 these other sizes. I think it's a matter of determining  
16 what kind of end point you need. And I have to admit my  
17 mind boggles a little at the idea of shutting a turbine  
18 detecting one or more fish.

19 So I think Alison said it exactly right. We're  
20 trying to look at what those limiting factors, which right  
21 now seems to be southern resident killer whales are, and I  
22 think we'll find the technology improves tremendously  
23 towards being able to recognize these smaller species. But  
24 I guess there is a limit to -- this idea of alerting post-  
25 processing data in real time and taking an action like

1       shutting a turbine down this is brand new. I don't think  
2       we've done anything like this before. So I guess I'm sort  
3       of pleading for let's make sure we can do these things one  
4       step at a time.

5               MR. ZACKEY: Todd Zackey, Tulalip Tribes. I kind  
6       of just want to address the one of the things we thought was  
7       kind of cumulative impact analysis of the build out and I  
8       think our big concern with getting that in the monitoring  
9       plan and understanding that is that if you're going to do a  
10      pilot project and look at what the impacts are I think you  
11      need to start asking what potentially are the cumulative  
12      impacts so that you can look at the pilot project in the  
13      proper framework and ask those questions. Not to say you  
14      can sample everything, but at least those questions are  
15      starting to be vetted out and would make a lot of people  
16      feel a lot better going forward that there's some sort of  
17      plan to at least -- we're just not blind going forward.  
18      It's not just a pilot project. Them taking blind steps  
19      forward. That's there some sort of greater seeking of  
20      information about what the impacts of these things at  
21      different scales are, and that's where it comes into this  
22      other species.

23               I mean we don't even know, and Daryl mentioned  
24      the impacts to juvenile crab recruitment coming in from the  
25      Strait. We have no idea whether there's going to be enough

1 impact or where they travel from, say, a build out, but  
2 those are the questions that we'd like to at least put down  
3 or have at least thought about so that information can be  
4 plugged in at some point or at least it's not missed. So  
5 it's not something that comes back later on and bites us.  
6 So we want to be very proactive in addressing what may be  
7 coming down the road, even if it doesn't seem like something  
8 you can either assess right off the bat.

9 MR. TURNER: Fair enough. Anything else from  
10 anybody?

11 MR. SCOTT: Brady Scott, DNR. Let see if I can  
12 articulate this. So the goal of the FERC pilot license  
13 process as well as I think Sno-PUD's goal eventually is to  
14 be able to build out a commercial erective. That's actually  
15 explained in the licensing by the project as one of the main  
16 purpose to do a pilot process is to determine what the  
17 environmental and other affects of these devices are,  
18 presumably, for the long-term goal of building out a  
19 commercial array. So I'm being told by my scientists in my  
20 agency that there's significant scaling issues of being able  
21 to understand from a pilot process what environmental  
22 affects are using a pilot license procedures, o a difference  
23 between one or two turbines and studying that versus the  
24 effects of a larger array.

25 So my question is for FERC is this pilot license

1 project are you going to be approving it simply on the  
2 merits of itself as a pilot process, or are you going to be  
3 in the light of the overall purpose of the long term affects  
4 of building out? Are you going to be considering  
5 consideration for future information needs? That seems to  
6 be kind of the bottom line of what's coming up here, and how  
7 does that work in the FERC license process? Is it the focus  
8 of just permitting that or are you looking at the longer-  
9 term needs of information for the eventual buildout of a  
10 commercial array?

11 MR. TURNER: If we were to license a project as a  
12 pilot, it is as a pilot. And it is in this case the two  
13 turbines at 1 megawatt for some specified period of time,  
14 short term, whether that be 5 or 10 years still needs to be  
15 determine. But the intent of the pilot procedures were to  
16 evaluate the technology, evaluate the site and evaluate the  
17 environmental effects. So it's kind of hard to separate the  
18 two, and I agree it makes a lot of sense to have some  
19 forethought into where you're taking the next step, but  
20 given the unknowns associated with this technology, we have  
21 to scale back and think about what we are monitoring at the  
22 pilot scale. It's so egregious that even the pilot doesn't  
23 fit here is what's before us now and what kind of monitoring  
24 needs to be in place, what kind of things would have us say  
25 we need to shut it down and remove it because the

1 environmental affects are so bad?

2 If and when they decide to pursue the commercial,  
3 hopefully, the information that we've gathered from that  
4 monitoring will help build on that, but I don't know if  
5 we're looking too far into the future when start -- given  
6 all the unknowns. I mean that's my opinion at this point.  
7 Daryl?

8 MR. WILLIAMS: Daryl Williams, Tulalip. I have a  
9 follow up on this question. I think we do need to at least  
10 look at how we're going to do the monitoring, not only for  
11 the pilot but also for full development. I think one of the  
12 benefits of having a pilot project is being able to find out  
13 what sampling techniques or monitoring techniques will  
14 actually work to monitor what's going on in the full  
15 buildout. I do think we need to look at more than just the  
16 two turbines while putting together these monitoring plans,  
17 and also for the sensitivity of this area. When PUD  
18 originally started looking at tidal energy, they had  
19 preliminary permits for seven sites, but we wanted to do  
20 Admiralty Inlet first because it's the one that had the  
21 biggest potential power generation. But at least for the  
22 Tribes we considered Admiralty Inlet the worst site because  
23 every migratory fish that uses the Puget Sound area migrates  
24 through this site. That wasn't true for any of the other  
25 six sites, so for potential impacts to fisheries this one

1 really has the highest potential of any of the other sites  
2 that we're looking at.

3 MR. TURNER: Anything else.

4 MR. COLLAR: Yes. This is Craig Collar. A  
5 couple of general thoughts on this line of discussion. I  
6 think one of the things we have to think about in terms of  
7 the fact that there's a sense that you want to have sort of  
8 the plan laid out as far into the future as possible. One  
9 of the things that we really feel has to be woven into this  
10 is the adaptive management process. I mean to assume that  
11 we can figure out pre-licensing what we're going to know  
12 five or six or seven years from now makes no sense. Even by  
13 the time we put this device in the water, when if we ever  
14 do, three years from now I bet that this dialogue will be  
15 completely different. We'll know more. We'll have more  
16 data from other projects around the world. We'll know more  
17 about Admiralty Inlet. This has to be a step at a time  
18 process or we'll never get anywhere. We'll never get a  
19 piece of gear wet to start with.

20 What affect Admiralty Inlet, boy, there are lots  
21 of good arguments against every site we looked at. One of  
22 the things that we really take into account is that if you  
23 really want to learn about this and you really want to  
24 gather data that's relevant to the future you need to be  
25 testing equipment that's for the utility scale equipment.

1 If you're a utility, you could fit a small, 50-kilowatt  
2 generators and A-hitter rich or (indiscernible), but not  
3 Open Hydro devices. I mean this is really the only site  
4 that you could realistically hope to site an Open Hydro  
5 device and that's what we're interested -- we're interested  
6 in furthering the industry, not just for ourselves, but for  
7 the region, the industry and the nation. So we take all  
8 those things into consideration. I mean that's what got us  
9 to where we are today. So I know those are just some  
10 general comments, but hopefully they're helpful in terms of  
11 giving people a sense of where we're coming from.

12 MR. TURNER: Anything else from anybody?

13 [NO RESPONSE]

14 MR. TURNER: That takes us down to other issues  
15 and comments. Anybody have anything else they want to  
16 discuss that we didn't cover today?

17 [NO RESPONSE]

18 MR. TURNER: I guess silence means no or we all  
19 had enough. The next steps was successive preliminary  
20 permits. We covered that earlier this morning. Did  
21 anything else be good?

22 [NO RESPONSE]

23 MR. TURNER: That's it. I want to thank you guys  
24 for coming and putting up with a long day of talking. I got  
25 a lot out of it. I appreciate it. I hope you got something

1 out of it. Thank you for your efforts and being here.

2 We're adjourned.

3 (Whereupon, the matter was adjourned at 2:30

4 p.m.)

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24