PCA Case No. 2013-22

IN THE MATTER OF AN ARBITRATION UNDER CHAPTER ELEVEN OF THE NORTH AMERICAN FREE TRADE AGREEMENT AND THE 2010 UNCITRAL ARBITRATION RULES
BETWEEN:

WINDSTREAM ENERGY LLC

Claimant

- and -

GOVERNMENT OF CANADA

Respondent

TRANSCRIPT OF PROCEEDINGS
held at the offices of Arbitration Place,
333 Bay Street, Suite 900, Toronto, Ontario,
on Sunday, February 21, 2016 at 8:59 a.m.

FULL TRANSCRIPT
(including confidential information)

VOLUME 6 - REVISED MAY 12, 2016

CONDENSED TRANSCRIPT WITH INDEX

BEFORE:

Dr. Veijo Heiskanen (President)
Mr. R. Doak Bishop
Dr. Bernardo Cremades

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APPEARANCES:

John Terry for the Claimant
Myriam Seers
Nick Kennedy
Emily Sherkey

Also present:

Various parties Deloitte
Client representative, David Mars

Sylvie Tabet for the Respondent
Shane Spelliscy
Rodney Neufeld
Heather Squires
Susanna Kam
Jenna Wates
Valantina Amalraj
Melissa Perrault
Darian Parsons

Also present:

Various parties, Berkeley Research Group, URS, Ministry of Citizenship, Immigration and International Trade/Ministry of Economic Development, Employment and Infrastructure, Ministry of the Attorney General, Crown Law Office - Civil, Ministry of Energy, Ministry of Natural Resources and Forestry, Ministry of the Environment and Climate Change, Independent Electricity System Operator (Formerly the Ontario Power Authority)

Lisa Barrett Court Reporter

INDEX

Page 4

Toronto, Ontario
--- Upon resuming on Sunday, February 21, 2016
at 8:59 a m.
PRESIDENT: Good morning, ladies and 08:59:49
gentlemen. We are at Day 6 of the hearing. 08:59:49
Any housekeeping issues to be raised? 08:59:52
Mr. Terry. 08:59:55
PROCEDURAL MATTERS: 08:59:56
MR. TERRY: Yes, just a scheduling and 08:59:57
witness matter. As we informed our friends, we will 08:59:59
no longer be calling for cross-examination, Sue Lo, 09:00:02
Susan Lo. She is set to be up on Tuesday, so she 09:00:08
can be taken off the list. 09:00:14
PRESIDENT: Any comment from the 09:00:15
Respondent? 09:00:16
MR. NEUFELD: First of all to thank 09:00:20
Mr. Terry for letting us know. 09:00:20
The other thing I'd like to say is 09:00:22
that we do note in the letter to the Tribunal that 09:00:25
we specifically reserve right, when a witness isn't 09:00:29
called, to consider whether we should and we're 09:00:32
still considering. We haven't made a decision one 09:00:34
way or another. But we'll have it put our heads 09:00:36
together and come to a decision shortly and we'll 09:00:38
advise the Tribunal as soon as we know whether we'd 09:00:40

Page 5

like to call her. 09:00:43
PRESIDENT: Okay. Thank you very 09:00:44
much. 09:00:44
That means on Tuesday we'll start with 09:00:49
Deloitte, Low, first thing in the morning. 09:00:53
MR. TERRY: Yes. 09:00:55
PRESIDENT: Very good. So, if there 09:00:55
are no other issues we'll start with OCC/COWI, and 09:00:57
I understand it will be Mr. Cooper. 09:01:03
Good morning, Mr. Cooper. 09:01:35
THE WITNESS: Good morning. 09:01:38
PRESIDENT: I appreciate you being 09:01:39
available on a Sunday morning. 09:01:41
THE WITNESS: I'm happy to help. 09:01:43
PRESIDENT: Thank you. To begin with, 09:01:44
can you state your full name for the record and then 09:01:45
read the expert declaration that you have in front 09:01:48
of you? 09:01:50
THE WITNESS: My name is Brent David 09:01:51
Cooper, and I solemnly declare upon my honour and 09:01:52
conscience that my evidence and my opinions will be 09:01:56
in accordance with my sincere belief. 09:01:59
AFFIRMED: BRENT DAVID COOPER 09:02:01
PRESIDENT: Thank you very much. You 09:02:02
have submitted on behalf of your company, one expert 09:02:04

Page 6

report in this arbitration which is on record, and 09:02:10
this is a report dated May 2014 09:02:16
I understand you will make a brief 09:02:19
presentation up to 20 minutes on your report, as the 09 02:20
parties have agreed 09:02:23
THE WITNESS: Yes, but we have 09:02:24
submitted two reports 09:02:25
PRESIDENT: Sorry, I missed that 09 02:26
Yes Do you have any corrections to make, either 09:02:28
one 09:02:38
THE WITNESS: No, sir 09:02:44
PRESIDENT: So you will make the 09:02:45
presentation 09:02:45
Will there be any questions from 09:02:46
counsel on direct? 09:02:48
MS SEERS: Yes, we will have one 09:02:50
question, Mr President 09:02:51
PRESIDENT: Okay Thank you very 09:02:55
much That will come after the -- that will come 09:02:55
after the presentation? 09:02:59
MS SEERS: That's correct 09:03:01
PRESIDENT: Mr Cooper, please go 09 03:01
ahead 09:03:02
PRESENTATION BY BRENT DAVID COOPER, COWI, NORTH 09:03:02
AMERICA 09:03:02

Page 7

THE WITNESS: All right. Thank you. 09:03:03
So as I said, my name is Brent Cooper. I'm 09:03:05
a project engineer with COWI North American and 09:03:08
obviously, we all know what we're here to talk 09:03:15
about. 09:03:16
Today in my presentation, I'd like to 09:03:18
give a bit of both personal and corporate background 09:03:20
to establish who I am and who COWI is, and then 09:03:22
we're going to talk about the semi-floating 09:03:25
gravity-based foundations that COWI has proposed for 09:03:28
Windstream, speaking just briefly about the 09:03:31
different types of foundations, why the 09:03:33
gravity-based foundation we've proposed is 09:03:36
technically suitable, why it's possible to 09:03:39
manufacture and fabricate these foundations in 09:03:41
Ontario, how it's possible to install them, discuss 09:03:43
some considerations to the schedule with which these 09:03:46
foundations are built and manufactured, and then 09:03:49
summarize by discussing how all of these different 09:03:51
considerations are an overall risk-mitigation 09:03:54
strategy. 09:03:59
So I am a project engineer with COWI 09:04:00
North America. I have seven years experience 09:04:02
working with offshore wind structures, overall nine 09:04:06
years experience with coastal waterfront and 09:04:10

Page 8

offshore structures, and I have a professional engineer licence in the state of South Carolina. 09:04:13 09:04:16

Overall, a little bit of corporate background on COWI. We are a large consulting company, worldwide, headquartered in Copenhagen, Denmark. We have approximately 6,200 employees and we consult primarily in economics, and environmental science. We are working in over 24 countries with anywhere in the order of 13,000 projects ongoing at any one time. 09:04:21 09:04:23 09:04:27 09:04:31 09:04:35 09:04:39 09:04:42 09:04:45

We have considerable experience in the offshore Windstream industry. COWI was the actually the designer of the very first offshore wind farm in Vindeby, Denmark in 1991. 09:04:47 09:04:50 09:04:55 09:04:56

Since then, or I guess actually more appropriately, as of the time that Windstream would have been moving to construction, in approximately 2011, COWI held a 14 percent market share of all commissioned wind farms operating offshore. 09:04:58 09:05:00 09:05:03 09:05:07 09:05:10

Some of our highlight projects, we -- Thornton Bank, a large gravity-based foundation, six turbines, 5-megawatt turbine. The Wikinger, project, offshore Germany, ongoing now, 70 jackets, 5-megawatt turbines. The Merkur project, also offshore Germany, this is a next generation, 09:05:13 09:05:16 09:05:21 09:05:25 09:05:28 09:05:32

Page 9

extra-large monopile design, 80 turbines using the new Siemens 6-megawatt turbine. We are the lead foundation design engineer for the London Array. There's 175 Siemens 3.6-megawatt turbines, and we've also worked on the Nysted and Rodsand 2, gravity-based foundations, which are another good analogy for the Windstream project. 09:05:35 09:05:41 09:05:44 09:05:47 09:05:51 09:05:54 09:05:57

In addition to offshore wind experience in Europe, we have considerable experience with most of the offshore wind projects proceeding in North America, including the lead designer for LEEDco Phase I, in Lake Erie. 09:05:59 09:06:01 09:06:03 09:06:06 09:06:09

We're also the foundation design energy for Trillium project in Lake Ontario. We're an overall project manager and lead designer for all aspects of Santee Cooper's offshore wind demonstration project in South Carolina. We were engineer for Winergy's Met Mass, Offshore New Jersey before they were acquired by Deepwater Wind. 09:06:13 09:06:15 09:06:18 09:06:22 09:06:25 09:06:27 09:06:30

We also worked on the New York power authority solicitation for offshore wind in Lake Erie. And I don't need to read through the rest of these, but these are another scattering of actual projects moving towards development, technology development projects, industry research. And 09:06:33 09:06:37 09:06:40 09:06:42 09:06:45 09:06:49

Page 10

I should also say that we function in providing infrastructure studies such as the ports available to support the building of these projects. 09:06:51 09:06:54 09:06:57

All said, COWI's contributed to more than 400 on and offshore wind projects in more than 50 countries. 09:07:00 09:07:06 09:07:10

So what did we do with Windstream? We're a part of Windstream's integrated project design and installation team. 09:07:11 09:07:13 09:07:16

Windstream, as the developer, brought on SgurrEnergy. Both us and Weeks Marine were brought on to help design the foundations and offshore works construction installation plan for Windstream. Specifically, COWI's scope was the holistic foundation system design of the gravity-based foundations, so it's not only that -- the technical design of the foundation, but also the fabrication facility, layout and design that would be used to build the foundations, the manner in which these large foundations are launched into the water and how they're transported to site. And then we also contribute to the schedule and how these -- how and when these would be built. 09:07:18 09:07:20 09:07:25 09:07:27 09:07:30 09:07:34 09:07:36 09:07:38 09:07:40 09:07:43 09:07:47 09:07:49 09:07:51 09:07:55

So if we step back a little bit to understand offshore wind foundations, when you 09:08:04 09:08:06

Page 11

choose an offshore wind foundation, there's a huge number of considerations that go into the selection choice. Not only the water depth and soil conditions, but also the turbine size, the meteorological and oceanic environment, wind, waves, current, ice, all of these things feed in. But it's not just the technical suitability of the foundations; you also have to be able to build them. So we considered the supply change such as the available materials, equipment and labour that are available to build these. 09:08:09 09:08:11 09:08:15 09:08:15 09:08:15 09:08:19 09:08:24 09:08:25 09:08:28 09:08:30 09:08:32

The main foundation types that we see, monopile foundation, jacket and gravity-based. I gave an example just a moment ago. There are some newer innovative foundation types. These are just scatterings, but -- and Windstream has chosen the gravity-based foundation, which we're going to start getting into a little bit now. 09:08:33 09:08:36 09:08:39 09:08:42 09:08:46 09:08:49 09:08:53

There are three different types of gravity-based foundations. They're all based on similar technology and similar premises. But they are the cone type, the fully floating foundation and the semi-floating foundation type. Most of the European projects rely on the cone type of foundation. They're brought out to site, sunk down 09:08:54 09:08:56 09:08:59 09:09:03 09:09:06 09:09:09 09:09:10

Page 12

and ballasted. They float and they're carried 09:09:14
either on a barge or by crane to site. The floating 09:09:16
foundations, as their name applies, are able to be 09:09:19
brought out completely floating on their own. 09:09:21
They're simply towed to the site and then ballasted 09:09:22
into place. 09:09:25

The semi-floating that we've proposed 09:09:26
for Windstream takes advantage of the best merits of 09:09:29
both types of foundations, the cone and the 09:09:30
floating, in such a way that we'll see it is 09:09:33
particularly suited to their installation for this 09:09:35
project in the Great Lakes. 09:09:37

So a typical installation process, is, 09:09:39
these foundations are fabricated on-shore, while 09:09:42
concurrently the seabed, or in this case, the lake 09:09:46
floor is prepared, and that preparation may include 09:09:49
excavation of some surficial sediments in the 09:09:51
placement of a gravel bed or gravel mat. 09:09:54

Once they're done, the foundations are 09:09:58
transported to the site, which we'll also talk about 09:10:00
the specific mechanism and why the semi-floating are 09:10:02
particularly applicable. They are lowered into 09:10:05
position on top of that gravel map. They're 09:10:09
ballasted into place, so they're initially filled 09:10:11
with water. And then once they're fully in place, 09:10:13

Page 13

they're filled with sand. And once they become 09:10:16
stable in their installed position, the cable and 09:10:20
turbine are installed beyond that. 09:10:22

So now we get into why the 09:10:24
semi-floating gravity-based foundation is 09:10:26
particularly suitable for Windstream. Considering 09:10:28
the conditions that were reported to us, in the 09:10:30
meteorological and oceanic reports and some of the 09:10:33
geophysical work that was done at the time that we 09:10:36
were engaged, there is minimal sea floor preparation 09:10:38
required with shallow surficial sediments and 09:10:43
shallow bedrock making this particularly suitable. 09:10:46
The large mass of the concrete foundations as 09:10:49
compared to steel foundations are particularly able 09:10:51
to resist the ice loads found in Lake Ontario, with 09:10:54
little adaptation necessary to the base design. 09:10:58

This foundation is readily adaptable 09:11:00
to changes in water depth by varying different 09:11:03
elements of the design. And it is a proven 09:11:05
technology, not only in offshore wind as we've seen 09:11:08
in Europe, but this is a float in place and floating 09:11:10
large concrete case on technology. It is a 09:11:13
technology that we've seen in Canada in the 09:11:17
Confederation Federation bridge Caissons. We've 09:11:18
also seen it in oil and gas, such as the Hybernia 09:11:22

Page 14

oil and gas platform in water depths far exceeding 09:11:23
what we expect for this project. 09:11:28

So, we were asked to provide a 09:11:31
scenario in which case these foundations could be 09:11:33
built. We identified a number of sites on the 09:11:36
Ontario side of Lake Ontario, either six or seven of 09:11:39
them possible, that seemed to have a large amount of 09:11:42
land available. As our representative site, we 09:11:45
chose the St. Mary's cement plant because it had 09:11:49
some piers in place and was located immediately next 09:11:53
to a cement facility. So what this does is this 09:11:56
allows us very quick and easy access to local 09:11:59
materials, labour and equipment. 09:12:04

This is technology that's well known 09:12:06
in the area, all of which helps to mitigate the risk 09:12:07
of trying to obtain materials from far away. It 09:12:11
enables local control and also facilitates local 09:12:14
economic development. 09:12:18

So, as to the specific design of the 09:12:23
fabrication yard, we've done a number these designs. 09:12:26
The premise behind all of these designs is the same. 09:12:30
The -- let me see if the laser pointer works. 09:12:33

My laser pointer's not working, but in 09:12:41
general, the foundation fabrication begins furthest 09:12:43
from the water, the on-shore positions, where the 09:12:47

Page 15

jetty here is the widest. The foundations are built 09:12:50
from the bottom up and as construction proceeds, 09:12:52
they're slowly skidded along these rails. In this 09:12:54
case, they're concrete rails with a plastic surface 09:12:57
to reduce the friction. But they proceed along 09:13:00
these rails in progressive stages of development 09:13:02
such that as the foundations are completed, they're 09:13:05
at the most offshore position, ready to be lowered 09:13:07
into the water by the elevator platform. This 09:13:11
particular scenario we're seeing is based on having 09:13:13
25 foundations in concurrent fabrication and 09:13:16
staging. 09:13:19

We're showing an acre -- we're showing 09:13:19
an area contained within the yellow boundary of 09:13:22
approximately 26. The actual fabrications that are 09:13:25
being used in this particular circumstance is 15 09:13:31
hectares. 09:13:33

This is a readily scalable design. To 09:13:35
increase production, it's easy to add either 09:13:38
additional positions along the line or add 09:13:41
additional fabrication lines. And if we go back one 09:13:44
slide, we can see that beyond this yellow area there 09:13:46
appears to be a lot of additional area to the 09:13:49
outside of that yellow highlight, if we need to 09:13:51
expand the site. 09:13:54

Page 16

Specifically with regard to the elevator system, there are a number of mechanisms to place these foundation into the water. We have proposed an elevator system for Windstream. This is a technology that's been around for about 70 years. There are approximately 240 to 250 installations throughout the world, and some have been able to achieve as many as 500 launchings per year using the system. 09:14:01 09:14:02 09:14:04 09:14:07 09:14:09 09:14:13 09:14:17 09:14:21 09:14:27

We have proposed approximately 18 months for the elevator system, including 16 months of -- for procurement and approximately two months of installation. This is based on both this project, as well as our previous experience with Weeks Marine. 09:14:29 09:14:33 09:14:35 09:14:40 09:14:44 09:14:47

You know, it's been suggested that six months for installation is more appropriate, but we think that based on the site already being prepared, the piers, in place, that two months is more than ample time to install the wenches and elevator platform. 09:14:48 09:14:50 09:14:52 09:14:55 09:15:00 09:15:03

So here we see a view of the semi-floating GBF in its transport position. Once the GBFs are placed into the water, these barges are placed around the buoyancy chambers. Wenches or 09:15:06 09:15:08 09:15:14 09:15:18

Page 17

hydraulic jacks proceed down to connection points and the foundation's pulled up tight to the bottom of these barges, up into its fully floating position. 09:15:22 09:15:26 09:15:29 09:15:33

At this point, these barges are then towed out to the site using two tugboats, one in the lead, one in back to take the strain and keep control of the foundation wall towing. And the benefit of this system is that we don't require a lot of the more complicated expensive vessels that are being used in Europe. This is a more benign environment. The wave conditions are lower, so we're able to use barges that are fabricated here in Ontario to facilitate this and both reduces the schedule and cost risks associated with other types of installation. 09:15:33 09:15:34 09:15:38 09:15:42 09:15:45 09:15:47 09:15:51 09:15:54 09:15:56 09:15:59 09:16:04 09:16:07

So as far as the schedule goes, COWI was the lead design engineer on the project. We worked very collaboratively with the contractor, who was Per Aarsleff on that project. 09:16:08 09:16:14 09:16:19 09:16:22

Those six foundations, they were a technology demonstration project, more than they were concerned about costs, but those foundations were built on average in 135 days. Both from our experience as well as interviews with the 09:16:25 09:16:26 09:16:30 09:16:32 09:16:37

Page 18

contractor, if they were doing this again and no changes to the technology, they would estimate 120 days per turbine foundation would be a reasonable estimate. 09:16:39 09:16:41 09:16:43 09:16:46

We've proposed 120 days per foundation, as the schedule for Windstream. However, we think that's a conservative estimate because we simply -- we have a learning curve with building 130 turbines. We expect, if nothing else, experience with the fabrication, that alone would bring down the construction time. 09:16:48 09:16:51 09:16:55 09:16:58 09:17:01 09:17:04 09:17:07

We also have not fully quantified the additional benefits of using the manufacturing assembly line, some additional slip forming which was not used in, the skidding system to facilitate moving the foundations around the site. Our schedule estimate is based on the 25-metre foundation, which is the images that we've seen earlier today. 09:17:08 09:17:10 09:17:12 09:17:17 09:17:22 09:17:24 09:17:27 09:17:30

Based on the five to, I believe, 42 metres proposed, 32 metres proposed for Windstream, this is one of the larger foundations. So a lot of the foundations are smaller, should be able to be constructed more readily. 09:17:31 09:17:34 09:17:39 09:17:43 09:17:46

The other thing that we'd like to 09:17:48

Page 19

point out is using this fabrication scheme, the foundation's been moved along these rails as progressive stages of our construction are ready. 09:17:49 09:17:52 09:17:55

Along with the foundations moving, the construction crews and equipment are also mobile. So are you're able to stay with the foundation and give it the attention that it needs. You also have the resources in place, already to provide the different types of fabrication, whether it be tying rebar, placing formwork, pouring concrete. These are known in place by the contractor along that line. And so that just helps ensure that the concrete foundations are produced as they should be. 09:17:58 09:18:00 09:18:02 09:18:06 09:18:08 09:18:11 09:18:13 09:18:18 09:18:20 09:18:25

So, in summary, all of this foundation, the entire foundation system design is designed to mitigate risk. We've established the fabrication areas, as well as our indicative area. There are a number of areas readily available in Ontario. 09:18:29 09:18:31 09:18:33 09:18:37 09:18:40 09:18:43

The materials and labour, concrete foundation technology is very common. You are able to build these foundations all year round. We believe we have a realistic, if not conservative fabrication schedule, and we're using local tugs and barges, reducing our offshore equipment risk. 09:18:43 09:18:45 09:18:49 09:18:52 09:18:55 09:19:00

Page 20

So thank you for giving me this opportunity to present this information. 09:19:03 09:19:04

PRESIDENT: Thank you very much, Mr. Cooper. Ms. Seers. 09:19:07 09:19:07

EXAMINATION IN-CHIEF BY MS. SEERS: 09:19:14

Q. Good morning, Mr. Cooper. 09:19:17

A. Good morning. 09:19:19

Q. In response to concerns expressed by the Government of Canada in their opening statement about the question answered by experts retained by Windstream, would you please confirm whether, absent the moratorium, in your opinion, it is more likely than not that the foundations would have been built and installed within the timelines set out in your reports on the project schedule? 09:19:19 09:19:21 09:19:22 09:19:26 09:19:29 09:19:32 09:19:34 09:19:37

A. We see no fatal flaws given this proven technology. We believe it's more likely than not that Windstream could have achieved these. 09:19:40 09:19:43 09:19:45

MS. SEERS: Thank you very much? 09:19:50

PRESIDENT: Thank you, Ms. Seers. 09:19:50

Cross-examination, Ms. Squires? 09:19:52

CROSS-EXAMINATION BY MS. SQUIRES: 09:19:54

Q. Good morning, Mr. Cooper. As you know, my name is Heather Squires and I'm counsel for the Government of Canada in these proceedings. 09:20:47 09:20:47 09:20:50

Page 21

I'm going to ask you a few questions this morning about the two reports that you filed in the arbitration, so I can better understand the conclusions that you've made. If you don't understand the questions that I've asked, let me know, I'll rephrase it or try and ask it again so that you do understand. And in that regard, if the question is a "yes" or "no" question, if you could start with that first and provide whatever context you'd like to provide, go ahead, but if you could give a "yes" or "no" just so the record's clear. That would be great. 09:20:53 09:20:54 09:20:56 09:20:58 09:21:00 09:21:01 09:21:04 09:21:07 09:21:10 09:21:13 09:21:15 09:21:15

In front of you you've been given quite a large binder. There are numerous tabs in there. Throughout the course of my question, I'll be referring you to specific tab numbers there as we go, so when I say Tab 1, or 3, that's what I'm referring to is the binder there in front of you. 09:21:17 09:21:18 09:21:21 09:21:22 09:21:25 09:21:29

I should also note for the benefit of everybody, because your second report was embedded into the SgurrEnergy report, we've actually exerted it into your binder to make it easier for everybody to look at so you don't have to be flipping through both reports at the one time. So your first report is found at Tab 1 and your second report is found at 09:21:31 09:21:33 09:21:37 09:21:37 09:21:37 09:21:37 09:21:37 09:21:45

Page 22

Tab 2. So when I refer to your first page of your first report as page 51, we can all know why it's at 51 for the first page. 09:21:48 09:21:50 09:21:55

A. Very good. Thank you. 09:21:57

Q. All right. Now, I want to start by looking at your second report at Tab 2 in your binder. As I mentioned, that's labeled page 51. And I want to look at the background section. 09:21:58 09:22:00 09:22:05 09:22:09

You note there that you were retained by Windstream, via SgurrEnergy to provide consulting services for the design and fabrication of GBFs for the Wolfe Island Shoals wind farm? 09:22:12 09:22:14 09:22:18 09:22:22

Do you see that? 09:22:25

A. Yes, I do. 09:22:25

Q. And you were not retained until 2014; correct? 09:22:26 09:22:28

A. That's correct. 09:22:30

Q. So, in fact, you were retained by SgurrEnergy to provide a report for the purposes of this arbitration, but not to actually work on project, correct? 09:22:30 09:22:31 09:22:34 09:22:37

A. That's correct. 09:22:38

Q. Now, the purpose of your report was to discuss the selection of the appropriate foundations for the project as well as the 09:22:43 09:22:44 09:22:46

Page 23

manufacturing of the foundations and to feed into the overall project schedule; correct? 09:22:48 09:22:50

A. No, I'm sorry, that's incorrect. Windstream had already made the decision to go with the concrete gravity-based foundation. We were able to confirm that, as a viable and likely choice, but that decision had already been made. 09:22:52 09:22:54 09:22:56 09:23:00 09:23:05

Beyond that, the rest of your question is correct. We were brought on to advise as to the design and fabrication. 09:23:06 09:23:08 09:23:11

Q. Okay. So you were told, "Let's go with gravity-based foundations," and you were then to discuss how that would be implemented? 09:23:13 09:23:15 09:23:18

A. Correct. 09:23:22

Q. Okay. Now. Tab 2 in your first report, you refer to it as a foundation conceptual design. 09:23:22 09:23:23 09:23:27

A. That's correct. 09:23:27

Q. And conceptual designs like this, they're not detailed designs, correct? They're not appropriate for construction purposes. You would have to do further refinements before you actually have the exact foundation you're going to use; correct? 09:23:28 09:23:31 09:23:35 09:23:36 09:23:39 09:23:41

A. That's correct. 09:23:42

Page 24

Q. Now, you mentioned in your presentation that your company was involved in the design of the foundations for the Phase I project; correct? 09:23:43 09:23:44 09:23:45 09:23:51

A. That's one of the projects, yeah. We've worked on a number of gravity-based foundations projects. 09:23:51 09:23:52 09:23:54

Q. Right. 09:23:56

A. Yes. 09:23:56

Q. But that is one of them. 09:23:56

Now, as both SgurrEnergy and URS note in their reports, the project changed from gravity-based foundation to another type of foundation after Phase I; correct? 09:23:58 09:23:59 09:24:01 09:24:02

A. Yeah. Keeping that we are in Thornton Bank yes, that did change. 09:24:05 09:24:06

Q. And that was because of difficulties encountered with that specific project as it pertained to the use of gravity-based foundations; is that correct? 09:24:09 09:24:09 09:24:12 09:24:15

A. The Phase I -- I'm sorry. Yes, they did change foundation types as to some of the construction logistics, but we have to remember too that the Thornton Bank Phase 1 was a technology demonstration. They did not build that project to 09:24:16 09:24:18 09:24:21 09:24:24 09:24:27

Page 25

be a moneymaker. 09:24:29

Further, the type of facilities that were available in Belgium to support that, were mainly steel facilities. They had those online. So it was an easy switch to make to the jackets because a lot of that infrastructure was already there. Whereas here, in -- for Windstream, Canada doesn't have a lot of the steel infrastructure in place, but they have the concrete infrastructure in place. So that's their natural switch. 09:24:32 09:24:34 09:24:36 09:24:40 09:24:43 09:24:46 09:24:49 09:24:52 09:24:55

Q. All right. So if we're talking about the Windstream project then, if something was to occur where a change in foundation was required during the construction phase, that would greatly impact the project schedule in this; correct? You mentioned that we don't have the infrastructure in Canada to do, say, the steel foundations. 09:24:58 09:25:00 09:25:04 09:25:07 09:25:10 09:25:12 09:25:14

If for some reason Windstream had to shift like Thornton Bank did for the gravity-base to steel, there could be a problem for the project schedule, correct? 09:25:17 09:25:19 09:25:22 09:25:25

A. I mean, if you change the foundation, mid-construction, that's obviously a project schedule impact. But it would be very rare for a developer to switch foundation type by the 09:25:26 09:25:28 09:25:29 09:25:31

Page 26

time that we've gotten to construction. And they've embedded a number of levels before you get to that point. 09:25:34 09:25:36 09:25:39

Q. So even at some point if you start down the path of gravity-based, there could be some lag time if you do need to switch? 09:25:39 09:25:40 09:25:43

A. Yeah, a re-design would require additional time. 09:25:45 09:25:46

Q. Now, in both your reports, you recommended the use of semi-floating gravity-based foundations. And we've talked about that a bit in your presentation this morning, but -- and so we all understand, and just so I'm on the same page here, if these foundations differ than regular gravity-based foundations in that they're floated out to the site, they're not jacked up on a barge and taken out to the site; correct? 09:25:48 09:25:50 09:25:52 09:25:55 09:25:57 09:26:00 09:26:03 09:26:05 09:26:08

A. Correct. The difference is all in the installation methodology. As to how they're -- their function when they're out there and they've been installed, it's all the same principles. 09:26:10 09:26:11 09:26:14 09:26:18

Q. Okay. And to the extent that these foundations are used for the project then, as you mentioned, it alleviates the need for those heavy-lift machinery or vessels that are not readily 09:26:20 09:26:22 09:26:24 09:26:27

Page 27

available on the Canadian market; correct? 09:26:30

A. Correct. 09:26:32

Q. Now, you note in your second report that gravity-based foundations have been successfully installed in over 13 operating wind farms. Do you recall that? I can take you to the page if you need it? 09:26:32 09:26:33 09:26:35 09:26:38 09:26:40

A. I do recall that, but I'd like to see the page anyway. 09:26:41 09:26:43

Q. It's page 51 if your second report, which is the first page of your report at Tab 2. 09:26:44 09:26:46 09:26:49

A. Yes, okay. I see at the. 09:26:50

Q. And you list some of those projects there? 09:26:50 09:26:52

A. That's correct. 09:26:54

Q. Now, none of those projects employ the semi-floating installation methodology, correct? Those are all regular gravity-based foundations? 09:26:54 09:26:56 09:26:59

A. Yeah, these are all cone-type foundations. 09:27:04 09:27:06

Q. And if we go ahead two pages to page 53, still staying in your report there, under Section 2.1 you refer to the semi-floating foundations as "Innovative and the next generation 09:27:07 09:27:09 09:27:14 09:27:16

Page 28

of technology development." 09:27:21
Do you see that? 09:27:22
A. Yes, we did write that. 09:27:23
Q. Okay. And on the next page again, 09:27:24
page 54, you note that the semi-floating 09:27:26
gravity-based foundation was installed in 2015 to 09:27:30
support a single meteorological tour; is that 09:27:35
correct? 09:27:38
A. No, that's not correct. The sea 09:27:39
tower crane free foundation is a fully-floating 09:27:40
technology. So it's is not a semi-floating 09:27:44
technology. 09:27:46
Q. Okay. So it's not relevant to the 09:27:46
discussion today then? 09:27:49
A. Well, they -- you know, it's 09:27:50
a blend of all the foundation types. Like I said, 09:27:51
once they're installed they all function 09:27:53
equivalently. They're all held in place by their 09:27:56
self weight. 09:28:00
Now, how you get them out there 09:28:01
changes. The cone-type foundations relied on cranes 09:28:02
that could lift thousands of tonnes. They're large 09:28:05
cranes. Some of them can't fit through the locks to 09:28:08
get to Lake Ontario. 09:28:11
The floating foundation, they're 09:28:13

Page 29

actually the heaviest type of foundation because 09:28:14
they have to have that extra mast to be able to 09:28:17
float. They also require the greatest water depth, 09:28:19
so that's also not a viable foundation for this 09:28:22
location. So by combining both aspects into the 09:28:22
semi-floating foundation, we're able to use the 09:28:24
water depths that are available with the benefits of 09:28:26
both technology by reducing those installation 09:28:29
vessels while still being able to work in the water 09:28:31
depth available. 09:28:34
Q. Okay. So if I follow then, given 09:28:36
that correction, we have the 13 projects that you 09:28:37
mentioned that have used the regular cone-type 09:28:40
foundation. We have the MET tour that's been 09:28:42
installed in the full-on-floating foundation, but as 09:28:45
of to date, there's been no wind farms that have 09:28:48
used the semi-floating methodology to install their 09:28:52
foundations; correct? 09:28:55
A. No, not as far as wind farms, but 09:28:56
this is -- this is actually one of the great 09:28:59
opportunities where we've been able to leverage this 09:29:01
technology from other industries, because the 09:29:04
semi-floating technology has been used in bridge 09:29:07
industries and some of the other concrete Caisson 09:29:08
projects, such is things like that Venice Lagoon. 09:29:09

Page 30

So it's -- while it's not novel to offshore wind, 09:29:09
it's a proven technology we're just borrowing from 09:29:13
other industries. 09:29:16
Q. Okay. But just -- 09:29:16
A. Yes. 09:29:17
Q. -- as a matter of fact, though, 09:29:17
yes, it's novel for offshore wind. Okay. 09:29:18
Now I want to turn to the Sgurr 09:29:23
report, Appendix 4, which is the project schedule. 09:29:26
I don't know if you guys have your giant printout 09:29:28
that you can -- make it easier on your eyes. 09:29:32
A. Okay. 09:29:36
PRESIDENT: Giant print out. 09:29:47
BY MS. SQUIRES: 09:29:49
Q. Exactly, so we'll call it even. I 09:29:49
know my eyes are grateful for that, so appreciate 09:29:51
you too, Donnie. 09:29:53
So, I want to have a look at line 368. 09:29:57
It indicates there that foundation installation for 09:30:14
the project was the project scheduled to begin on 09:30:17
November 12th, 2013 with mobilization beginning on 09:30:19
that date; do you see that? 09:30:22
A. Yes, I do see that. 09:30:23
Q. And if we jump back to line 275 -- 09:30:24
apologies for all the jumping around here, but take 09:30:29

Page 31

whatever time you need. 09:30:32
Line 275, it notes that: 09:30:40
"The design of these foundations 09:30:42
begins on February 11th of 2011." 09:30:43
A. Yes, that's correct. 09:30:46
Q. So presumably then, if Windstream 09:30:47
was to take advantage of the knowledge of any other 09:30:49
projects that have been designed and used 09:30:52
gravity-based foundations, leaving aside the 09:30:54
methodology of installation, just -- we're going to 09:30:56
just talk about gravity-based foundations, they 09:30:58
would need that information at that time, correct? 09:31:00
A. If they were using those projects 09:31:02
as references, then they would need that 09:31:04
information. 09:31:07
Q. Okay. So I want to turn to 09:31:07
page 10 of the second Sgurr report. So I believe 09:31:09
you've been given a copy, perhaps? 09:31:12
A. Is that in the binder? 09:31:14
Q. No. It's not, unfortunately, but 09:31:16
it's right here. Gravity-based foundations. 09:31:18
If he can get out, he'll pass it to 09:31:21
you. 09:31:23
A. I'm sorry, Page 10? 09:31:25
Q. Page 10, yeah. If you look 09:31:29

Page 32

towards the bottom of the page there, you can see 09:31:37
that SgurrEnergy is discussing the Thornton Bank 09:31:39
project. Do you see where I am there? 09:31:43
A. Yes. 09:31:54
Q. So they provide a bulleted list 09:31:54
there at the end of the page to compare Thornton 09:31:56
Bank to this project to indicate in their view it's 09:32:00
not appropriate. 09:32:02
Do you see -- follow where I am on the 09:32:04
bulleted list? 09:32:04
A. Yes, I do. 09:32:05
Q. Okay. So we're actually going to 09:32:05
turn over to the next page and look at one of the 09:32:06
factors on that list. It's around page 11. 09:32:08
The second bullet point on that page, 09:32:10
they argue that one of the reasons the comparison to 09:32:12
Thornton Bank is not appropriate is that the project 09:32:14
as the benefit of the experience gained from 09:32:16
approximately 6,900 megawatts of the offshore wind 09:32:19
industry projects built since Thornton Bank. 09:32:21
Do you see that? 09:32:25
A. Yeah, I see that. 09:32:25
Q. Okay. So now they're referring to 09:32:26
the number of megawatts installed for all projects 09:32:27
correct, not just gravity-based foundations? 09:32:30

Page 33

A. I don't have information as to 09:32:33
the -- the entire industry size. 09:32:34
Q. Okay. Well -- 09:32:36
A. I'm sorry. 09:32:36
Q. That's okay. Let's turn -- you do 09:32:36
recognise it's probably smaller than that, though? 09:32:38
You have a general sense of the number of megawatts 09:32:41
that are was that have been installed for offshore 09:32:44
generally? 09:32:47
A. As of which -- I mean, are we 09:32:47
talking 2011, 2016 or -- 09:32:49
Q. So I believe in that paragraph 09:32:51
they are referring to current date. They are saying 09:32:52
since the Thornton Bank project. 09:32:55
A. I don't know. I think it's 09:32:58
conceivable that there could be that many megawatts. 09:33:00
The UK is building huge number of wind farms. I'm 09:33:03
sorry, I don't know the number. 09:33:06
Q. Okay. Well, let's turn to Tab 13 09:33:07
in your binder. It's Exhibit C-1735. 09:33:08
A. 13 -- which tab, I'm sorry? Oh, 09:33:20
Tab 13. Okay.
Q. Tab 13, yeah. It's Exhibit 1735. 09:33:28
This is an offshore wind turbine 09:33:31
generator foundation parametric study that 09:33:33

Page 34

SgurrEnergy carried out in 2013, and I want to turn 09:33:38
to page 19 and have a look at figure 11. 09:33:40
So they note that there that the 09:33:51
market share of operating WTG foundations in 2013, 09:33:56
and they note that of that market share, only 09:33:59
16.1 percent of operating wind farms use 09:34:02
gravity-based foundation; do you see that? 09:34:10
A. No. I just have to remind you 09:34:10
that we didn't contribute to this report. I don't 09:34:12
know what the source is, but I do see their report 09:34:14
says that. 09:34:16
Q. And so if the 1600 megawatts is 09:34:17
a number -- a current number, which it seems to be 09:34:21
from that Sgurr report, and there were less than 09:34:23
installed -- there's obviously less installed in 09:34:26
2013. There's been projects that have come online 09:34:28
in between those two periods, and of that then, 09:34:30
a smaller number that was available was 09:34:33
gravity-based foundation at that time. Based on 09:34:39
this, if we take them for their -- if they take 09:34:39
SgurrEnergy for their word on this, that would be 09:34:41
the conclusion, correct? 09:34:43
MS. SEERS: Mr. Chairman, I have to 09:34:46
object here. Mr. Cooper says he doesn't know the 09:34:47
total size of the offshore wind megawatts and -- and 09:34:50

Page 35

my colleague is posing a hypothetical which I submit 09:34:54
is perhaps a little far afield from Mr. Cooper's 09:34:59
expertise here. 09:35:01
PRESIDENT: Well, I think the answer 09:35:02
only requires mathematics. 09:35:04
BY MS. SQUIRES: 09:35:11
Q. I -- I can rephrase the question 09:35:12
for you, Mr. Cooper, if you're not following where 09:35:13
I am, but the SgurrEnergy report, when it refers to 09:35:14
the 6,900, speaks of current day. We agree that 09:35:17
there would be less two years before that, correct? 09:35:20
A. Correct. 09:35:23
Q. And of that less number, 09:35:23
16.1 percent, according to SgurrEnergy, was 09:35:24
gravity-based; correct? 09:35:28
A. According to this, yes. 09:35:30
Q. Okay. So -- and then in 2011 we 09:35:31
can probably agree that that number was even 09:35:32
smaller? 09:35:35
A. That's actually a tricky answer. 09:35:36
It probably was smaller. But most of the early 09:35:37
phase foundations were gravity-based foundation. 09:35:41
And then since then -- and a large percentage were 09:35:45
installed and there have been a fewer number of 09:35:47
gravity-based foundation since. And now in 09:35:49

Page 36

2015/2016, most of the industry is actually turning back. But in that interim period, most of the foundations installed were steel foundations.

Q. Okay. I think we can at least agree that they wouldn't have the benefit of that full 6,900 megawatts of today; correct?

A. Correct.

Q. I want to understand how foundations are chosen for an offshore wind farm, and you've gone through a bit of this in your presentation this morning. But you've mentioned there are numerous factors and they include factors such as the lakebed shape and slope, correct?

A. That's just a few of the factors, yes.

Q. And water, depth and ice effect, vessel availability and suitable manufacturing location; correct?

A. Yes, all of those are considerations.

Q. Now -- and depending on the slope of the lakebed or the amount of sediment present, different foundation types might be recommended; correct?

A. Yes, that's correct.

Page 37

Q. Okay. And gravity-based foundation generally tend to be best with relatively flat lakebed conditions because less slope means less work in preparing the lakebed and more stability with the foundations; correct?

A. The -- I mean, it's less work, but the -- also the type of work that we're talking about, the dredging and filling, is also relatively easy work. It's also work that's done commonly here with dredging -- navigation channels. Yes, if the seabed's flatter, it's less work, but that's not a major -- the slope here, as long as we're within with a certain range, is not a big consideration.

Q. Okay. Now, in order to determine if all of this -- this seabed, or lakebed, I guess, in this case, the conditions, in order to determine what is present, you have to do on-site field studies, correct, or geotechnical investigations?

A. Ultimately, before you get to the construction phase, we would generally recommend that. In a beginning phase of a project. We often rely on the navigation charts published. So if we're in the U.S., it would be the -- we would go on NOAA charts.

In Canada, we would rely on the

Page 38

Canadian Hydrographic Service, but that's where things start and then you proceed through a very measured approach, because you don't go out and take borings right in the beginning, so you start with -- you start with phased geophysical surveys. So you start with some of the site and the next -- and you get a little bit more information, refine your design, you might go back again and then survey all of the site, then go back again and form your geotechnical program. So yes, you do get lots of information before you finalize the design.

Q. Okay. So generally speaking then, when you're planning an offshore wind project, there's a certain element of risk that remains until you get to that final point of the on -- the on-site studies?

A. That's correct.

Q. Now. I want to turn to page 138 of the second Sgurr report. So it's is not in your binder; it is the report that was just handed up to you.

A. I'm sorry, page 138?

Q. 138.

A. Okay.

Q. About halfway down the page there,

Page 39

it indicates that COWI used studies completed by the Canadian seabed research to refine the proposed foundation type and to assist in layout recommendations.

Do you follow where I am?

A. Yes, I see that.

Q. Okay. And if we look to the footnote that's referred to in that paragraph, footnote 71, it refers to two separate CSR, Canadian seabed research studies that you relied on; do you see that?

A. I see that, but I'm trying to jog my memory here of this. I may have to defer to Sgurr on this because we did not write this section of the report. COWI was also not involved with the siting of the project or the micro-siting of the turbines within the turbine layout. So, unfortunately, I may have to defer to Sgurr on this section.

Q. Okay. So even though Sgurr --

MS. SQUIRES: If we can just scroll up a bit there, Donnie, back to the paragraph.

BY MS. SQUIRES:

Q. Even though it says SgurrEnergy is saying that those studies completed by

Page 40

Canadian seabed research were employed by COWI, your 09:40:14
view or your conclusion is that COWI did not rely on 09:40:17
those reports? 09:40:20
A. We were provided information for 09:40:20
this project in a series of summer reports and 09:40:22
overall conditions. We did he not receive the 09:40:28
entirety of reports. So it's possible that some of 09:40:29
the information that we received from Sgurr did 09:40:31
originate from those reports, but I did not see 09:40:33
those reports in their entirety. 09:40:35
Q. Okay. And -- okay. So perhaps we 09:40:37
can look through -- maybe if we look through certain 09:40:44
parts of the report it may trigger your mind if 09:40:48
you've seen that or not seen that before, but let's 09:40:50
turn to Tab 5 in your binder. So this is the first 09:40:54
document that was referred to in that footnote. And 09:41:04
this the 2007 Wolfe Island cable route survey. 09:41:09
Are you with me there?
A. Yes, I see that. 09:41:12
Q. We're going to turn to page -- to 09:41:13
figure 1.1, which is on Page 2. 09:41:15
MS. SQUIRES: And Donnie, for your 09:41:17
benefit, that's page 7 in the PDF. 09:41:18
BY MS. SQUIRES: 09:41:21
Q. This map demonstrates the survey 09:41:22

Page 41

area that was used for that report. 09:41:25
A. Yeah, that appears to be correct. 09:41:28
Q. Okay. Now, you can see there that 09:41:30
the project location is actually nowhere near that; 09:41:31
correct? So the red line goes from Wolfe Island to 09:41:35
Kingston. But the project location itself is off 09:41:39
the Long Point which is towards the southwest of 09:41:42
Wolfe Island? 09:41:45
A. I mean, that's what this graphic 09:41:46
shows. 09:41:48
Q. Okay. So if this study's then 09:41:49
based on that survey area, it's irrelevant for 09:41:50
determining the foundation types in the actual 09:41:53
project location; correct? 09:41:56
A. It could contribute some 09:41:57
information, but, you know, again, this is not -- 09:41:59
this is not something I've seen. It's not something 09:42:01
I've had time to review, but... 09:42:04
Q. Okay. That's fine. We'll turn to 09:42:05
Tab 6 then. Let's try the second report. And this 09:42:05
is the -- the other report that was conducted in 09:42:17
2010 by the Canadian seabed research. It's Exhibit 09:42:19
C-0514. And if we turn to page 18 and look under 09:42:21
Section 5.6. 09:42:27
A. I'm sorry, where am I? 09:42:38

Page 42

Q. We're on page 18. 09:42:40
A. Okay. 09:42:41
Q. Section 5.6. And it notes there 09:42:42
in that paragraph that ground truthing could not be 09:42:46
carried out as part of their study, due to weather 09:42:49
conditions that were encountered. 09:42:52
Do you see where I am there? 09:42:54
A. I see that it says that, yep. 09:42:55
Q. And so we'll just walk through 09:42:57
a couple provisions, couple sections of this and 09:43:00
then we can assess them after, but -- and 09:43:03
I understand you might not be familiar with the 09:43:05
document, but... 09:43:07
A. No, I'm -- it just says that this 09:43:08
is a cable route survey, so we didn't have anything 09:43:09
to do under our scope of work with the cable route. 09:43:12
I mean, I'm reading this. That's... 09:43:15
Q. So, I think it actually says on 09:43:18
the -- the subject is "The wind farm and cable route 09:43:19
survey," so it extends -- 09:43:24
A. Okay. Yep. 09:43:25
Q. Unlike the last report, this one 09:43:25
would extend to a broader area. If we turn to 09:43:29
page 33, and we're going to look at the second 09:43:31
paragraph. In the last sentence there, CSR notes 09:43:47

Page 43

that: 09:43:50
"Ground truthing determinations 09:43:52
from video and sediment samples 09:43:53
will be required in order to 09:43:54
determine grain size and 09:43:57
composition of the sediment." [As 09:43:58
read] 09:44:00
Do you see where I am? 09:44:01
A. No, I'm sorry. I'm -- like 09:44:02
I said, I'm orienting myself in this document for 09:44:04
the first time. 09:44:06
Q. So, understanding that you haven't 09:44:15
reviewed this -- 09:44:16
A. Yes. Okay. 09:44:16
Q. -- report yet -- 09:44:16
A. I'm up with you now. 09:44:17
Q. So to come back to something you 09:44:18
said earlier, CSR is agreeing with you that further 09:44:20
studies would need to be done because you need that 09:44:22
ground truthing in order to be determined -- make 09:44:25
final determinations on the site; correct? 09:44:27
A. Correct. 09:44:30
Q. Now, you mentioned -- so these are 09:44:30
the only two reports that are indicated by 09:44:32
SgurrEnergy that were relied on for the foundation 09:44:34

Page 44

conceptual design. And you mentioned that you haven't reviewed them or you maybe have seen parts of them, and I guess I'm curious to know what you did review because the scope of work with your report does not include any other type of geotechnical study. 09:44:38 09:44:40 09:44:43 09:44:45 09:44:47 09:44:52

A. No. I mean, we probably listed the references in our report, but we were provided a series of reports from Sgurr that had different types of information. The primary -- let me refer to my report for a moment, please. 09:44:54 09:44:56 09:44:59 09:45:02 09:45:10

Q. So your first report on page 28 lists off your references, if that helps. 09:45:12 09:45:15

A. Do we have the appendix that should be at the end of Section 6? Because that's the design-basis memo that would have all the design constraints that went into choosing this design. 09:45:32 09:45:34 09:45:36 09:45:40

Q. If you look at Tab 1 in your binder, it might be what follows after page 28. 09:45:44 09:45:46

A. Thank you. 09:45:57

Q. I note that that part has a separate list of references on page 9. 09:45:57 09:46:25

A. Yes, I see those references now. 09:46:33

Q. Okay. So, of those references then, none of those are a geotechnical desktop study 09:46:35 09:46:37

Page 45

or summary of the lakebed; correct? 09:46:44

A. I believe the draft project description did have some information. Bill Follett, the third reference, was our contact at SgurrEnergy who provided a lot of the information. And this was a couple of years ago. I'd have to go back into the reports to see if any of them also contained any additional information. 09:46:49 09:46:51 09:46:56 09:47:00 09:47:03 09:47:11 09:47:15

Q. Okay. Well, we can have a look, perhaps, at that Bill Follett email, and that's -- it's at Tab 9 of your binder. 09:47:18 09:47:19 09:47:21

A. Okay. 09:47:32

Q. So you will see there that Mr. Follett -- that this is an email from Bill Follett to you and he's indicating that the folks at Ortech put something together for you guys to look at and it simply touches one Isopach or bathymetry chart on the second page; correct? 09:47:32 09:47:34 09:47:39 09:47:45 09:47:47 09:47:54

A. That appears to be the case, yes. 09:47:55

Q. So, in doing your foundation design then, you didn't ask to see any other studies beyond what was provided to you by Ortech in this email and perhaps the draft project description from Ortech in 2012? 09:47:58 09:48:01 09:48:03 09:48:06 09:48:09

A. No. That would be inconsistent 09:48:10

Page 46

with the level of design that we were asked to provide. I mean,this was a concept study based on some of the general characteristics of the site. So somewhere we got some information that allowed us to get the rock quality designation that was in that earlier design-basis memo, but as to looking at specific turbine siting, that would not be done in a conceptual design. It wouldn't be done in preliminary design. You wouldn't get to that until the detailed design phase, so that -- we wouldn't have relied on specific turbine citing data. 09:48:12 09:48:13 09:48:16 09:48:19 09:48:22 09:48:25 09:48:28 09:48:30 09:48:33 09:48:35 09:48:38

Q. So it's fair to say that it's not clear, looking at your report, what exactly, what information -- we can't determine what information you relied on? 09:48:40 09:48:42 09:48:44 09:48:46

A. Two years ago, I don't remember exactly which reference was which, no. 09:48:47 09:48:48

Q. Okay. Let's move on to a different topic. 09:48:51 09:48:57

A. Okay. 09:48:58

Q. And we're going to look at your second report, which is at Tab 2, and have a look at page 54, which is the third page. And in the last paragraph, you note that the water depth for the for as proposed, ranges from 5 metres to 30 metres? 09:48:58 09:49:00 09:49:09 09:49:16 09:49:19

Page 47

A. That's correct. 09:49:24

Q. See where I am? 09:49:24

A. Yes. 09:49:25

Q. And if we turn back to Page 51, so the first page, you note that the gravity-based have been installed on offshore wind farms and projects up to 27 metres in depth. 09:49:25 09:49:27 09:49:34 09:49:38

Do you see where I am there? 09:49:41

A. Yes, I do. 09:49:42

Q. Okay. So, if Windstream's project is going to be built up to 30 metres, given that they're -- they have only been installed up to 27 metres to date, then Windstream's project would have been the deepest to date to use that technology; correct? 09:49:42 09:49:45 09:49:47 09:49:52 09:49:55 09:49:59

A. It would have been the deepest offshore wind farm at that time, but the next paragraph down, we talk about the viability of those foundations has been proposed for four projects and up to 55 metres of water, and the same technology's also been used for -- like I said, I gave examples in my presentation, the Confederation Bridge in 35 metres. Same technology in the Hibernia gas platform, the 80 metres, so the -- yeah, the first of the time -- first for a wind farm, but certainly 09:50:00 09:50:01 09:50:05 09:50:07 09:50:11 09:50:14 09:50:16 09:50:18 09:50:23 09:50:23

Page 48

not the first for the technology. 09:50:26
Q. Okay. But we agree on first for a 09:50:28
wind farm? 09:50:30
A. Yes. 09:50:30
Q. Okay. Now, let's turn to page 24 09:50:31
of your first report, which is at Tab 1. 09:50:32
And here you are discussing water 09:50:48
depth considerations for the installation of 09:50:49
foundations under Section 4.3.1. 09:50:51
Do you see where I am? 09:50:55
A. Yes, I do. 09:50:56
Q. And in the first paragraph, the 09:50:57
last sentence, you note that: 09:50:58
"The system, as designed, requires 09:51:00
a minimum water depth of 09:51:02
8.2 metres at the port, the 09:51:04
designed turbine location and 09:51:05
along a navigational fairway 09:51:06
between the two points." 09:51:08
[As read] 09:51:10
Do you see that? 09:51:10
A. I do. 09:51:11
Q. And at the end of the second 09:51:11
paragraph when discussing installation in less than 09:51:13
6 metres of water, you note that you have assumed 09:51:15

Page 49

another foundation system would be used. 09:51:21
Do you see that? 09:51:23
A. Yes. 09:51:24
Q. Now, in your report you've not 09:51:24
opined on what foundations would be used in less 09:51:26
than 6 metres of water or what this would mean for 09:51:28
their manufacture or their impact on the project the 09:51:31
project schedule; correct? 09:51:34
A. No. I mean, what I can contribute 09:51:35
to this is that we've -- this is a system that we've 09:51:37
worked on with Weeks Marine previously. 09:51:40
This has been originally developed for 09:51:43
the freshwater wind project in Lake Erie, and we've 09:51:45
proven the stability of the system in the flotation 09:51:48
as low as 6 metres because that's -- that's as low 09:51:50
as we've been asked to look at it. 09:51:55
Chances are good that in less than 09:51:57
6 metres, because the foundations are lighter 09:51:59
weight, they would not draw as much water. They 09:52:02
would be shallower. So chances are you would be 09:52:04
able to employ the same system in less than 6, 09:52:07
metres but we've not run calculations to that 09:52:11
effect. 09:52:13
Q. Okay. And you've also not opined 09:52:13
what would be done for what water depths between the 09:52:15

Page 50

6 metres and 8.2 metres; correct? 09:52:16
A. No. We cut off our analysis 09:52:19
always 6 metres. 09:52:20
Q. Now, I just want to haul up 09:52:21
a demonstrative for everyone to look at. 09:52:22
MS. SQUIRES: And Donnie, if you could 09:52:24
haul up slide 1. 09:52:26
I think a copy of them has been handed 09:52:27
out or you have them there. Melissa is going to 09:52:30
hand out a copy so you can see, but it will come up 09:52:35
on the screen as well. 09:52:37
BY MS. SQUIRES: 09:52:39
Q. Now, this is the 2015 project 09:52:47
layout for the Wolfe Island Shoals wind farm. And 09:52:49
if you look there on the right-hand side, it 09:52:53
indicates the different dots for the different 09:52:54
turbines are based on different water depth. And 09:52:57
this is found at page 24 of the second Sgurr report. 09:53:00
MS. SEERS: And if -- Donnie, if you 09:53:04
could just click the next slide there. 09:53:05
BY MS. SEERS: 09:53:08
Q. You can see that the ones that 09:53:08
Donnie has highlighted, those are the ones that are 09:53:09
found between 5 and 10 metres of water. So, you 09:53:11
would agree with me that -- and taking for granted 09:53:17

Page 51

it is between 5 and 10, so I agree that some might 09:53:20
be more than 6 -- there are a possibility here that 09:53:23
some of those foundations could not employ the 09:53:25
technology that you've recommended into your report? 09:53:27
THE WITNESS: No, I suggested that 09:53:29
they may be able to use that technology, but we have 09:53:30
not proven as to such and run the calculation 09:53:33
numbers -- 09:53:36
BY MS. SQUIRES: 09:53:36
Q. So, it's uncertain -- 09:53:37
A. -- on those foundations between 5 09:53:38
and 6 metres. 09:53:40
Q. So it's uncertain right now? 09:53:41
A. There is a possibility. 09:53:43
Q. And to your knowledge, then 09:53:44
there's nothing in the SgurrEnergy schedule or in 09:53:45
any other technical reports filed by the Claimant 09:53:48
that discusses what other technology could be used 09:53:50
in the event that you could not use the methodology 09:53:52
that you provide in your report? 09:53:54
A. No, there's no discussion of 09:53:57
another technology. The only part that I would add 09:53:58
is that we were told -- and like I said, we didn't 09:54:01
have anything to do with the siting and the 09:54:04
micro-siting of the turbines, but that the turbine 09:54:05

Page 52

lay out wasn't -- wasn't set, and from general experience with other projects. This is part of the normal design phase. 09:54:08 09:54:11 09:54:13

Once you establish the technology and you understand the limits of it, you revisit your turbine lay1out and then you adapt -- you adapt that layout to fit the limits of your technology. 09:54:15 09:54:17 09:54:19 09:54:23

So multiple iterations of this layout, like I said, while we didn't have anything to do with them, would have been normal as parts of that development phase. 09:54:26 09:54:27 09:54:30 09:54:33

Q. Okay. So the stage we're at now then with the little bit of uncertainty or the uncertainty that remains is because of the early stage developments of the project? 09:54:34 09:54:35 09:54:37 09:54:39

A. Yes, I would say that's correct. 09:54:41

Q. All right. Let's turn to page 55 of your second report. 09:54:43 09:54:45

You note there that: 09:54:57

"Based on the preliminary geotech studies," the ones that you in fact did review, I guess, "the project area is comprised of shallow bedrock from exposed overlay by as much as 2 metres of 09:54:58 09:55:01 09:55:03 09:55:04 09:55:06 09:55:08

Page 53

surface sediment." 09:55:12

Do you see that? 09:55:13

A. I do. 09:55:15

Q. And we're going to turn back to page 8 of your first report, and we're going to look at the first paragraph. 09:55:14 09:55:16 09:55:21

It indicates that these initial geotechnical studies indicate that approximately 75 percent of the proposed foundations are located in area of where the bedrock is within 2 metres of the lake bottom. Do you see that? 09:55:29 09:55:31 09:55:33 09:55:36 09:55:40

A. I do. 09:55:42

Q. And if we turn ahead to page 13, you indicate there in table 3.1 that one of the design parameters that you used to select gravity-based foundation is the assumption that there's 1.5 metres of loose sediment over limestone bedrock. Correct? 09:55:42 09:55:46 09:55:50 09:55:54 09:55:55 09:56:01

A. That's correct. 09:56:02

Q. So despite 25 percent of the turbines being in more than 2 metres of sediment, you've based your report conclusions on a uniform assumption of 1.5 metres; correct? 09:56:03 09:56:03 09:56:04 09:56:08

A. Well, we have -- that's correct, but we have to understand why. I mean, we're in 09:56:10 09:56:11

Page 54

a place where the turbine layout's changing. We talked about that that's part of the normal development phase. 09:56:13 09:56:17 09:56:19

We also talked about that that area ranges from 0 to 2 metres. So if we talk about -- if we -- we assume, and I think everyone agrees. That more sediment is slightly more work, than an average value for design would be 1 metre of loose sediment. So we've erred on the conservative side for one representative design that 1.5 metres would be a reasonable starting space, given that we're only completing one representative design. 09:56:20 09:56:22 09:56:26 09:56:28 09:56:31 09:56:34 09:56:38 09:56:41 09:56:44

Q. Okay. So it's a starting space, but recognizing that different design or different considerations would have to go in for those 25 percent that are outside that realm? 09:56:46 09:56:48 09:56:52 09:56:54

A. If they were not relocated to other areas within the overall project site, you know, you may have some additional considerations. Certainly these can be installed in areas that have more than two metres of surficial sediments. 09:56:56 09:56:57 09:57:01 09:57:04 09:57:08

Some of the other projects have looked at excavating as much as 6 or 7 metres of sediment, so the technology's certainly applicable. 09:57:12 09:57:14 09:57:18

Q. It's theoretically possible, but 09:57:21

Page 55

for the purposes of your report you haven't explored -- you've just assumed the 1.5? 09:57:23 09:57:24

A. Correct. 09:57:26

Q. Now, I'm going to turn back to the Canadian seabed research study, and again, I recognise that you're not familiar with it, but maybe we can draw a conclusion from it. 09:57:27 09:57:28 09:57:30 09:57:33

A. Okay. 09:57:35

Q. We're going to -- it's at Tab 6 and it's Exhibit C-0514. So we're at page 34. 09:57:35 09:57:37

MS. SQUIRES: Donnie, that's 40 in the PDF. 09:57:50 09:57:51

BY MS. SQUIRES: 09:57:53

Q. They note there on the second paragraph, that there's a deeper channel with a thick layer of sediment over top of the bedrock that runs through the central region of the proposed project area. 09:57:53 09:57:57 09:58:01 09:58:04 09:58:07

Do you see where I am? 09:58:08

A. Yes. 09:58:11

Q. And they note that different turbine foundation designs may be needed for each of these two different lakebed conditions. That's their conclusion. 09:58:11 09:58:14 09:58:16 09:58:19

A. I see that it says that. 09:58:20

Page 56

Q. Okay. So I just -- I want to -- 09:58:21
PRESIDENT: Excuse me, where are we, 09:58:23
page 4? 09:58:24
MS. SQUIRES: We're at page 34. 09:58:27
PRESIDENT: 34, sorry. 09:58:28
MR. BISHOP: Is that the first or 09:58:33
second paragraph? 09:58:34
MS. SQUIRES: The second paragraph. 09:58:36
So it's the third sentence and the second paragraph 09:58:36
starting with "Secondly a deep channel"... 09:58:42
Okay. So we're going to haul up 09:58:45
another demonstrative on the screen which was also 09:58:48
in the package that was handed out, but I -- Donnie, 09:58:52
if you could click the next slide. 09:58:54
So, you can see from this, this is 09:58:56
the -- the survey that they did and it's actually -- 09:58:59
it's actually the same layout that was provided in 09:59:02
that Bill Follett email that we looked at earlier, 09:59:04
and you can note here that there is that -- that 09:59:07
deep channel that's placed in the centre there with 09:59:12
a green and blue; do you see that? 09:59:15
A. I see a deep channel, yes. 09:59:18
MS. SQUIRES: And if we just go to the 09:59:21
next slide, Donnie. 09:59:22
BY MS. SQUIRES: 09:59:23

Page 57

Q. You can see we've placed that then 09:59:24
over the 2015 layout that's found at page 24 of the 09:59:26
Sgurr report. So we've -- the foundations then are 09:59:31
placed on that channel. 09:59:33
MS. SQUIRES: And if we just go to the 09:59:35
next slide for ease of -- there we go. 09:59:37
BY MS. SQUIRES: 09:59:39
Q. So now we can see which turbines 09:59:40
in the project layout actually fall within that 09:59:42
deeper channel or deeper areas of sediment. 09:59:45
And you can see there that there's 09:59:48
quite a number of turbines that, in CRS' conclusion, 09:59:50
fall within a deep level of sediment that will 09:59:55
require either, as you put it, more considerable 09:59:59
lakebed preparation or would require another type of 10:00:02
foundation; is that correct? 10:00:05
A. Those -- you know, those are 10:00:07
possible options. Like we talked about the turbines 10:00:07
can be moved to other areas a of the project site. 10:00:09
Once the settlement's fully understood, whether it 10:00:12
is a competent sand or rock or gravel, it may be 10:00:14
possible that you don't have to excavate at all. 10:00:18
But, you know, its the -- you know, worst case, you 10:00:20
may have to have some different considerations. 10:00:22
Best case, you can use them as is with no 10:00:24

Page 58

preparation. That's just something that had to be 10:00:28
more understood. 10:00:30
Q. All right. So until we have those 10:00:31
studies, right now we're just guessing. 10:00:32
A. Yes. 10:00:34
Q. Okay. 10:00:34
A. Well, not guessing. We have 10:00:34
educated opinion which suggest they're competent, 10:00:34
but, yeah, more information is necessary. 10:00:36
Q. I don't mean to imply that you're 10:00:37
just pulling this out of the air, for sure. 10:00:39
Now, before we leave this topic, 10:00:42
I want to turn to Tab 13 in your binder, which is 10:00:44
C-1735. And this is the SgurrEnergy foundation 10:00:48
parametric study from October 2013 that we spoke 10:00:54
about earlier. 10:00:58
We're going to turn to page 10. And 10:00:59
we'll look at the paragraph that starts: 10:01:06
"At the Wolfe Island site under 10:01:09
geotechnical investigative." 10:01:12
And they note there that the layer of 10:01:16
the over burden material was 1.5 metres for 35 10:01:18
percent of the tests that they carried out. 10:01:22
1.5 metres to 3 metres for 47 percent of the tests, 10:01:24
and the remaining 18 percent of the tests comprised 10:01:27

Page 59

overburden of greater than 3 metres. 10:01:30
Do you see where I am there? 10:01:32
A. I see the report says that. 10:01:33
Q. Okay. So according to 10:01:35
SgurrEnergy then, when they did -- based on the 10:01:36
information that they had before them, 65 percent of 10:01:40
the turbines are located in areas that have an over 10:01:43
burden more than what you've used in your report; 10:01:46
correct? Assuming my math is right on 47 plus 18. 10:01:48
A. Yep. Okay. 10:02:00
Q. All right. So you've assumed 10:02:01
1.5 metres, but in fact it could be possible that 10:02:03
upwards if 65 percent of the foundations in the area 10:02:04
don't actually follow that assumption; correct? 10:02:08
A. Based on the statement. That 10:02:11
appears possible. 10:02:12
Q. Okay. Now. Before we leave that 10:02:16
tab, if you'll look at the next paragraph on that 10:02:18
page. In the last paragraph there before the 10:02:20
figure, SgurrEnergy also notes that: 10:02:22
"While the majority of lakebed 10:02:24
comprises between 0 and 1-degree 10:02:26
slopes, slopes of 3 and 4 degrees 10:02:29
exist at some parts of the project 10:02:31
location." [As read] 10:02:33

Page 60

Correct? 10:02:36
A. I'm -- I'm sorry, I was trying to 10:02:36
read ahead of you. I apologies. Could you read 10:02:40
that again? 10:02:42
Q. So I'm looking at the sentence 10:02:43
where they say: 10:02:44
"While the majority of the lakebed 10:02:45
comprises between 0 and 1 10:02:47
degree" -- 10:02:49
A. Yes. 10:02:49
Q. (Reading) 10:02:49
"Slopes of 3 and 4 degrees exist 10:02:49
in some parts"? [As read] 10:02:52
A. Yes. 10:02:53
Q. If we move ahead to page 29 to see 10:02:53
the conclusion that they've drawn from that, if you 10:02:55
look at the second-last paragraph, they note that in 10:03:03
their opinion: 10:03:08
"Uneven terrain encountered at the 10:03:09
lakebed that would require 10:03:11
significant preparation works 10:03:13
prior to leveling of the 10:03:14
gravity-based foundation, it may 10:03:17
also cause concern over 10:03:18
stability." 10:03:20

Page 61

[As read] 10:03:20
Do you see that? 10:03:21
A. Yeah, I see that that's written, 10:03:22
but from my perspective is that people designing the 10:03:23
foundation, 3 to 4 degrees doesn't scare me at all. 10:03:27
I mean, we've designed foundations that have gone in 10:03:30
and -- and sloped steeper than that. Some of the 10:03:33
European projects use more than that. I mean, the 10:03:36
gravel mats that we place have anywhere between 30 10:03:39
and 45 degrees angles to taper the mats. So 10:03:41
accommodating 3 to 4 degrees I don't see as a major 10:03:45
technical challenge. 10:03:49
Q. Okay. So you differ in opinion 10:03:51
from SgurrEnergy on that point? 10:03:52
A. In this particular point, the -- 10:03:53
I don't see 3 to 4 degrees as a technical challenge. 10:03:55
Q. Okay. Now, I want to move now to 10:04:01
discuss the manufacturing and the foundation at the 10:04:05
St. Mary's cement facility. 10:04:09
A. Okay. 10:04:11
Q. And you've noted for the purposes 10:04:12
of your report, you've assumed this is the facility, 10:04:13
it is a representative facility; correct? 10:04:16
A. Yes. 10:04:18
Q. And if we turn to page 29 of the 10:04:19

Page 62

second SgurrEnergy report. So again that's not in 10:04:21
your binder; that's the additional one. We look at 10:04:24
the third last paragraph on page 29. They note 10:04:33
that: 10:04:39
"Bowmanville was selected as 10:04:39
a possible location because 10:04:40
repurposing an existing facility 10:04:43
or capitalizing on the existing 10:04:45
infrastructure of these facilities 10:04:49
is expected to reduce facility 10:04:50
development, time and cost." 10:04:52
[As read] 10:04:55
Do you see that? 10:04:56
A. I do. 10:04:56
Q. Now, if we -- sorry. If we come 10:04:57
back to your report -- I should get the page number. 10:05:01
So we're going to come to your first 10:05:15
report and we're going to look at the appendices in 10:05:16
the back. It's where you have the different maps 10:05:19
and conceptual designs. We're going to look at the 10:05:21
third page, which is the -- a Google earth view of 10:05:27
the St. Mary's facility. 10:05:31
A. Okay. 10:05:34
Q. Give everyone a chance to get 10:05:38
there. 10:05:39

Page 63

So again, it's -- it's in the -- the 10:05:40
first COWI report in the appendices at the back 10:05:43
you'll see some maps. All right. So this is 10:05:45
a Google earth view of the facility, and then on the 10:06:03
next page you've drawn in there three production 10:06:06
lines into that -- that area; correct? 10:06:10
A. That's correct. 10:06:11
Q. And it notes there one of the 10:06:13
arrows that says that: 10:06:16
"This is the planned extent of the 10:06:17
site." 10:06:21
It that correct? 10:06:22
A. Yes, that's correct. 10:06:22
Q. Okay. So this represents the 10:06:22
outer boundary of the site as you had designed it at 10:06:23
the time; correct? 10:06:27
A. That was the limit of what we -- 10:06:28
we had recommended based on that scenario, yes. 10:06:29
Q. Okay. And it shows that the 10:06:31
majority of the land then is used up by the three 10:06:32
production lines; correct? 10:06:34
A. I mean, in -- in this case I think 10:06:37
we said 15 -- where is that number? I would not say 10:06:39
the majority. 10:06:47
Q. So, this diagram is to scale 10:06:48

Page 64

though, correct? 10:06:50
A. Okay. So we said 26 hectares for 10:06:52
the area contained within the yellow line, and the 10:06:54
actual production lines occupy approximately 10:06:58
15 hectares, so that's -- that's more than half. 10:07:01
Yeah, that's -- I'll give you the majority. 10:07:03
Q. Okay. Now, in your -- in your 10:07:06
second report, you noted that the facility had 10:07:09
been -- the design of the facility had been updated 10:07:13
from the May 2014 and now uses six parallel 10:07:15
construction lines; correct? 10:07:20
A. We did not actually update this 10:07:22
design. We said, "Based on that new scenario we 10:07:25
would recommend 6 lines," yes. 10:07:28
Q. So you've not provided any kind of 10:07:30
design details for a sixth production line? 10:07:32
A. That's correct. 10:07:36
Q. And if we look at that map then, 10:07:36
you would agree with me that you cannot fit -- as 10:07:38
the -- as it currently looks right there now in that 10:07:40
planned extensive site, you could not fit six 10:07:44
production lines; correct? 10:07:47
A. No, I don't agree because, (1), 10:07:49
we're not limited to this extent. 10:07:50
If we go back one more -- one more 10:07:53

Page 65

sheet to the sketch 3. We see a large amount of 10:07:55
un-developed land outside of that yellow line and 10:07:58
because that yellow line's arbitrary -- I mean. We 10:08:00
only drew that line because that's what we 10:08:03
recommended based on that scenario, but there also 10:08:05
appears to be extra undeveloped land to the east, to 10:08:07
the west, to the north. All of those -- those rocky 10:08:10
and -- and green areas appear un-developed and I -- 10:08:13
you know, based on the type of analysis we did, 10:08:17
I see no reason why you couldn't use those as well. 10:08:19
Q. Okay. So then in order to get the 10:08:22
six production lines, we're talking more than just 10:08:24
repurposing an existing facility by expanding it 10:08:26
with the consequence of time and money; correct? 10:08:30
A. The repurpose and whatnot was not 10:08:33
COWI language, but, you know, again, if we're 10:08:35
building fabrication rails here, I mean, we can 10:08:37
build them next door to where they are too. 10:08:40
There's -- there's no technical difference. 10:08:43
Q. Okay. But given the scale of the 10:08:44
diagram, if the three takes up the majority, if 10:08:46
you're going to build more lines next door, 10:08:48
presumably you would have to infill some lakebed or 10:08:51
something; correct? 10:08:54
A. No. We could move the location of 10:08:55

Page 66

the elevator platform and construct the lines 10:08:56
onshore and not use the jetty. We could use the 10:08:59
jetty for material staging and we could move the 10:09:03
construction lines on shore, put the elevator 10:09:03
platform on the shoreline. So there is a number of 10:09:08
options to expand. 10:09:10
Q. Okay. So lots -- as you said, 10:09:12
numerous theoretically possible, but as of right 10:09:12
now, we don't have that design in front of us? 10:09:17
A. Yeah, that's correct. Lots of 10:09:19
options; this is the only one we submitted. 10:09:20
Q. Okay. Now, you -- we've discussed 10:09:22
in your first report the three production lines and 10:09:23
that you've suggested boosting this up to six 10:09:26
production lines in your -- in your second report. 10:09:29
Now, you've had a chance to review the 10:09:32
rejoinder report of URS, I presume, since they -- 10:09:35
since it's been filed in November, and they noted 10:09:40
an either further problem with the six production 10:09:42
lines and that results in a bottleneck in 10:09:45
production; correct? 10:09:48
A. Yeah. We -- we take exception to 10:09:48
a significant portion of the URS report. They 10:09:50
seemed to have not have understood how the 10:09:53
fabrication facility works because they've -- we can 10:09:57

Page 67

go through their assumptions if you want, but the -- 10:09:59
the constructions activities are not limited to 10:10:00
a certain position on the line. 10:10:02
I mean, an informed and experienced 10:10:04
contractor will know when they need to move the 10:10:07
foundations along the line to receive the next stage 10:10:09
of construction. 10:10:11
So, I mean, also these facilities with 10:10:13
their cross rails, the entire design of the system 10:10:17
is -- is intended to reduce bottlenecks, so we 10:10:19
might see that as a risk. This is actually 10:10:24
a risk-mitigation strategy. 10:10:26
Q. Okay. So -- but when URS was 10:10:27
looking at that and made that conclusion on the 10:10:30
bottleneck, they were looking at the project 10:10:32
schedule; correct? They were looking at the 10:10:34
sequential production of those foundations; do you 10:10:36
recall? 10:10:38
A. They -- yes. They were looking at 10:10:40
a number of activities that were required, and they 10:10:42
were looking at some of the schedule, but what's not 10:10:44
included in the schedule is when the foundations are 10:10:47
actually moved from position to position and URS has 10:10:50
assumed that the entirety of one fabrication 10:10:54
activity takes place in one position and then the 10:10:56

Page 68

foundation is moved and then you do the entirety 10:10:59
duration of that next construction activity and then 10:11:02
the foundation is moved, and that's not the case. 10:11:05
These -- these are fabricated in such a way that 10:11:07
maybe in one position, yes, the -- the -- I don't 10:11:10
know the durations, but say component A takes ten 10:11:12
days to build, but that could take six days in 10:11:16
position one and four days in position two. And 10:11:19
that's simply based on the other production rates 10:11:21
and tying all the different crafts together. 10:11:23
Like I said, that's -- that's 10:11:26
a construction scheduling issue that an experienced 10:11:28
contractor's used to dealing with. 10:11:29
Q. Okay. So you can fix it, as you 10:11:31
said in your opening presentation then, by moving 10:11:33
workers and equipments along that line to deal with 10:11:36
those bottleneck issues? 10:11:38
A. Well, like I said, this entire 10:11:40
system is designed to reduce bottle necks and 10:11:43
mitigate that possibility, so we don't see the 10:11:45
possibility of bottlenecks as a major issue, but 10:11:48
yes, that's the benefit of the system is that you're 10:11:51
able to relieve a lot of those potential issues. 10:11:53
Q. Okay. 10:11:56
A. I should also point out that 10:11:56

Page 69

because of this and because of the redundancies in 10:11:59
the reliability of this system, this is the type of 10:12:01
system that France is moving to in some of the new 10:12:03
like Fécamp and Saint-Nazaire projects. So I mean, 10:12:06
they've -- I mean, this is a system that's proven 10:12:08
its reliability. 10:12:12
Q. Okay. And -- but just to confirm, 10:12:13
though, we still -- we don't have that explanation 10:12:14
in the report. You're providing that now, but URS 10:12:17
wouldn't have the benefit of that knowledge of how 10:12:21
you were going to modify this when they wrote their 10:12:23
report; correct? 10:12:25
A. We did not submit it. Those are 10:12:26
the press releases that are in many of the offshore 10:12:27
wind magazines, 2015 and 2016. So if they were 10:12:30
reading those, they could have had the benefit, but 10:12:34
we did not provide them. 10:12:37
Q. Now, I just have one last topic 10:12:38
I want to explore with you and that's the offshore 10:12:40
substation that could possibly be employed for the 10:12:42
project, and I'm not sure we are aware, but if 10:12:45
you're not, we can turn to page 34 of the second 10:12:47
Sgurr report. 10:12:50
A. I was going to say, I can try to 10:12:51
answer these, but the substation was outside the 10:12:52

Page 70

scope of our work. 10:12:54
Q. I just have a couple of questions. 10:12:55
A. That's the big book again? 10:12:57
Q. Yep. Big book, page 34. We're 10:12:59
looking under Section 3.1.10. 10:13:02
A. Okay. 10:13:07
Q. And you can see there in the third 10:13:07
sentence that they note that: 10:13:09
"An island-based substation has: 10:13:11
Been proposed at this stage of the 10:13:15
design of the project, but other 10:13:16
options are possible, including 10:13:18
a substation mounted on 10:13:20
a foundation platform." [As read] 10:13:22
Do you see that? 10:13:23
A. You know, again, we didn't have 10:13:24
anything to do with this. I do see that it says. 10:13:25
Q. Yeah, so my question is not then 10:13:27
related to the appropriateness of a substation. My 10:13:28
question then is the foundation platform that would 10:13:31
be used for that type of substation, you have not 10:13:32
accounted for that design or manufacture in the 10:13:35
manufacturing facility that you have designed; 10:13:38
correct? 10:13:39
A. Well, if it were on an island, it 10:13:40

Page 71

wouldn't use an offshore type of foundation, but if 10:13:42
you go back to my presentation, one of the things 10:13:46
that we've done, very early on, but I showed the 10:13:48
example of it the Nysted project, and right next to 10:13:52
that is an offshore substation. So there would be 10:13:56
a few additional calculations, but the offshore 10:13:58
substation, you use the same foundation as the 10:14:01
turbines in that particular case. 10:14:04
Q. In that case? 10:14:05
A. So it may be possible to re-use 10:14:06
the turbine foundations. 10:14:08
Q. Okay. Again, possible, but we 10:14:10
haven't done the design work for this project? 10:14:11
A. No, based on the scope of design 10:14:13
at which Windstream was proceeded, that work would 10:14:14
not have been done yet. 10:14:17
MS. SQUIRES: Give me one second and 10:14:19
I'll check with my colleagues. 10:14:20
Those are all my questions, 10:14:53
Mr. Cooper. 10:14:55
THE WITNESS: Thank you. 10:14:56
PRESIDENT: Thank you, Ms. Squires. 10:14:56
Any question in redirect? 10:14:59
MS. SEERS: We do, Mr. Chair. If 10:15:01
I could ask for the Tribunal's indulgence of a few 10:15:03

Page 72

minutes to get it together. 10:15:04
PRESIDENT: Five minutes. 10:15:07
--- Recess taken at 10:15 a m. 10:15:13
--- Upon resuming at 10:20 a m. 10:15:13
PRESIDENT: Let's go on. 10:20:24
BY MS. SEERS: 10:20:25
Q. Thank you, Mr. President. As 10:20:25
I indicated to Ms. Nettleton, we're ready to proceed 10:20:25
with most of my questions. My colleagues are simply 10:20:29
researching one minor point and hopefully the answer 10:20:31
will arrive before we reach the end of the question. 10:20:37
PRESIDENT: We will take it in stride, 10:20:41
then. 10:20:42
MS. SEERS: We will. 10:20:43
RE-EXAMINATION BY MS. SEERS: 10:20:43
Q. Mr. Cooper, you will recall that 10:20:43
Ms. Squires asked you questions about the Thornton 10:20:44
Bank project. 10:20:47
A. Yes, she did. 10:20:47
Q. And she took you to various dates 10:20:52
regarding it. Just to be clear for the record, are 10:20:52
you aware of when the Thornton Bank project was 10:20:54
commissioned and when its foundations would have 10:20:57
been designed in that process? 10:20:59
A. It would have been approximately 10:21:01

Page 73

2008. 10:21:02
Q. Okay. Thank you. You'll recall 10:21:03
that Ms. Squires asked you questions about the 10:21:09
source of your information regarding the lakebed. 10:21:11
You mentioned during your presentation your 10:21:15
involvement with various projects in the general 10:21:18
area, and so I guess if -- if you could clarify 10:21:20
whether you have any other sources of knowledge 10:21:25
about the project area from -- from those 10:21:27
projects -- from your involvement in those other 10:21:30
projects? 10:21:32
A. The -- most of our information, 10:21:33
like I said, was -- was derived from information 10:21:35
provided by Sgurr in a series of reports, and -- and 10:21:39
I -- I don't remember specifically which they were. 10:21:44
Q. Okay. You'll recall that 10:21:46
Ms. Squires asked you questions about the level of 10:21:52
design work conducted in your report. In this, 10:21:54
but-for scenario in which we're operating where 10:21:58
we're assuming that the -- the moratorium did not 10:22:01
occur and that your report is about what would more 10:22:03
likely than not have occurred in that scenario, 10:22:08
where in the project cycle would the detailed design 10:22:10
work that Ms. Squires referred you to have occurred? 10:22:13
A. Detailed design work on a project 10:22:20

Page 74

like this doesn't occur until just before 10:22:22
construction. Normally at that point, the developer 10:22:25
has -- has already selected a contractor, the 10:22:27
preliminary design is in place, and that final 10:22:30
design is only completed. Certainly less than 10:22:35
a year but within a few months of actual 10:22:37
construction. 10:22:39
Q. You recall that Ms. Squires asked 10:22:46
you questions about the proposed fabrication 10:22:48
facility at St. Mary's Cement and you gave answers 10:22:48
about the options that were available at that 10:22:54
facility. 10:22:55
Could you give greater context to the 10:22:56
various options that would have been available, more 10:22:58
generally, for fabrication of the foundations? 10:23:01
A. Yeah, so we -- we identified 10:23:03
a number of sites in Hamilton and Toronto in -- that 10:23:05
site in Bowmanville, in -- in Pickering, in -- and 10:23:10
either way, there were a number of un-developed land 10:23:17
parcels that we found simply by aerial image that 10:23:20
appeared to have good water access and a significant 10:23:25
amount of upland area available for the assembly 10:23:28
or -- or for the -- the fabrication facility. So 10:23:30
they -- those -- you know, the exactly out would 10:23:35
depend on the number of turbines you needed to 10:23:40

Page 75

create. They would addendum on the -- the layout of 10:23:42
the site, but it's -- it's a -- it's a flexible 10:23:45
process. 10:23:47
Q. Thank you. 10:23:49
You'll recall that Ms. Squires asked 10:23:50
you questions about locating turbines within 10:23:51
a particular channel located at the -- at the 10:23:54
project site. 10:23:57
Could you provide some context as to 10:23:59
the design work that would have been done had the 10:24:01
project been permitted to proceed in regards to the 10:24:04
siting of turbines within that particular area of 10:24:07
the project? 10:24:10
A. Yeah. So as I started to allude 10:24:10
to, within the project there's normally a huge 10:24:12
number of iterations of the actual turbine layout, 10:24:18
once within the overall project site. And it starts 10:24:20
with generally a pure wind resource assessment and 10:24:23
a very regular uniform grid. Once that's 10:24:27
established, you start looking at the technical 10:24:32
merits of the foundation. So that's some of the 10:24:34
cabling issues, length of cable, where the cable has 10:24:36
to go, you know, some other things we weren't -- we 10:24:39
get input from other partners on. But all of these 10:24:41
different things are considered and if there are 10:24:44

Page 76

particular turbine locations that are challenging, 10:24:46
the project site is reoriented, either so that it's 10:24:49
within the constraints of the technology that's 10:24:54
chosen or for constructibility purposes. 10:24:57
It could be as simple as going from 10:24:59
a square grid pattern to a diamonds grid pattern, 10:25:01
relocating turbines from deeper areas to shallower 10:25:04
areas or very shallow areas to deeper areas. It's 10:25:09
all part of the natural iteration. 10:25:14
Even at a 30 percent design, it would 10:25:17
be to say there's over 20 iterations of the micro 10:25:17
siting layout. So that's certainly something that 10:25:20
would have continued to be done and refined as the 10:25:23
project developed. 10:25:25
Q. And you referred just now to 10:25:26
"micro siting layout." Could you provide greater 10:25:27
context as to what that is and when that occurs in 10:25:30
the development cycle? 10:25:33
A. Sorry. So, yes, the micro 10:25:34
siting -- there's the project siting, which is the 10:25:36
overall boundary of the project, and that has to do 10:25:38
with the -- the property rights and the land that's 10:25:44
leased and other things that we don't normally see. 10:25:46
By the time it gets to us, we just get an overall 10:25:48
boundary and say stay within sight of this. But 10:25:51

Page 77

then the micro siting is the actual location of each 10:25:54
turbine within the project, so -- then even when 10:25:57
there's a certain grid system, it may be that 10:25:59
there's an obstruction on the sea floor and 10:26:02
a particular turbine needs to move 10 metres in 10:26:05
a certain direction to avoid that. But those type 10:26:08
of issues are -- are very common and normal. 10:26:11
Q. And those types of micro -- 10:26:13
A. And I'm sorry. Yeah, they -- and 10:26:15
that -- that type of issue would not be completed 10:26:15
until much later in the design. 10:26:17
That site information would have to be 10:26:21
gathered. You would have completed at least the 65 10:26:22
to 70 percent design of the foundations to better 10:26:25
understand the type of issues you're trying to site 10:26:28
around. 10:26:31
Q. Okay. You'll recall that 10:26:32
Ms. Squires asked you questions about 10:26:34
judging lakebed sediment and how that would impact 10:26:35
foundation installation. 10:26:39
I'd like to give you the opportunity 10:26:42
to expand, if you'd like on how judging issues are 10:26:43
typically handled in the normal course of foundation 10:26:47
installation? 10:26:49
A. Yeah, so the -- the -- you know, 10:26:50

Page 78

first of all, our design was based on one and a half 10:26:53
metres of loose surface sediments. And it may be 10:26:56
necessary to excavate additional sediment, if that 10:27:00
is loose sediment, but the -- the geologic history 10:27:03
of Lake Ontario, and especially in that area, is 10:27:08
competent sediments. So if they're loose nature, 10:27:11
they may need to be excavated. If they're more 10:27:16
competent sediments, they could even remain in 10:27:19
place. 10:27:22
That characterisation that would be 10:27:23
done, again, with further levels of development that 10:27:24
Windstream had not progressed to, but the other 10:27:29
thing to remember too, is that that dredging, that's 10:27:31
a normal process that's done in the Great Lakes. 10:27:34
It's the same type of operation that is done in 10:27:36
marinas, in navigation channels. It's 10:27:38
a well-understood process. It is not a time and 10:27:41
labour intensive process and if there were risks and 10:27:45
sudden additional volumes which -- those volumes 10:27:48
would be calculated and confirmed before you got to 10:27:52
construction, but if there were more, it would be 10:27:54
a matter of bringing in another dredger, and that's 10:27:57
certainly not a vessel with -- with limited 10:27:59
availability. They're commonly available. 10:28:01
MS. SEERS: Okay, let me just have 10:28:03

Page 79

a moment. I think my colleagues have found the 10:28:05
answer in question -- or the question, I'll just 10:28:07
confer with them for one moment, with your 10:28:09
indulgence? 10:28:11
PRESIDENT: Yes, of course. 10:28:12
[Counsel confer] 10:28:33
BY MS. SEERS: 10:29:34
Q. So, this will actually be simply 10:29:34
a point of clarification for the record regarding 10:29:37
Exhibit C-0514, which is Tab 6 of your binder, 10:29:40
Mr. Cooper. 10:29:46
I appreciate you say you didn't recall 10:29:47
looking at this document, and so this is simply to 10:29:49
clarify the record. Perhaps we can request Donnie's 10:29:50
assistance in pulling up page 2 of C-0514. 10:29:56
You will recall, Mr. Cooper, that 10:30:10
Ms. Squires asked you questions about this document 10:30:12
and suggested that the cable in question was not -- 10:30:15
or that the work in question had not been done in 10:30:19
connection with the project area. And I'll simply, 10:30:23
for the -- for the record -- 10:30:25
MS. SQUIRES: Sorry, Ms. Seers, 10:30:30
I don't mean to interrupt, but I was talking about 10:30:31
the previous at Tab 5 was the one that covered only. 10:30:33
So it is C-015, not C-0514. 10:30:37

Page 80

MS. SEERS: Okay. 10:30:44
MS. SQUIRES: So this -- the one that 10:30:46
you have in your hand is the one that I referred to 10:30:47
as the offshore wind farm and cable route survey, 10:30:49
but Tab 5 is simply the cable route survey. 10:30:49
MS. SEERS: I see. So this -- so for 10:30:54
the record then, I would simply note that this later 10:30:54
document, Tab 6, C-0514, says that -- in the first 10:30:57
paragraph that it was conducted to provide conduct 10:31:02
a geophysical survey for the proposed wind farm over 10:31:06
the Wolfe Island Shoals. Sorry if there was 10:31:11
confusion about that. 10:31:15
QUESTIONS BY THE TRIBUNAL: 10:31:16
PRESIDENT: Okay. Thank you, 10:31:16
Ms. Seers. 10:31:17
The Tribunal maybe has a couple of 10:31:18
questions. 10:31:23
If I could go back to your 10:31:23
presentation, Page 5, where you list some of your 10:31:24
prior design -- foundation design experience in 10:31:31
Europe starting with Vindeby. Can you tell us what 10:31:35
the -- in terms, what the water depth was in these 10:31:47
prior projects and the sediment depth, as well as 10:31:52
the slope and what kind of challenges you had? 10:32:02
THE WITNESS: I can tell you in some. 10:32:04

Page 81

You know, these are corporate knowledge. I've had 10:32:05
involvement with a few of these, but not -- 10:32:10
certainly not all -- 10:32:12
PRESIDENT: The ones that you know 10:32:13
about directly. 10:32:14
THE WITNESS: In terms of water depth, 10:32:14
I know that Nysted and Rodsand were -- were fairly 10:32:18
shallow. They were generally 3 to 12, maybe 10:32:22
15 metres. The Wikinger and Merkur I'm not sure of. 10:32:24
Thornton Bank was done in up to 27 10:32:31
metres. I know the surficial sediments, the 10:32:33
excavation was low, but there was some. I don't 10:32:35
know the actual -- the actual amount. 10:32:36
The most interesting response to that, 10:32:37
though, is the London Array project and the 10:32:39
monopile. There's actually a phenomenon there 10:32:42
called sand waves, and it's basically offshore dunes 10:32:46
that migrate due to the wave energy. 10:32:51
So they actually have to endure 10:32:54
a phenomenon where the seabed level might change by 10:32:56
as much as 3 metres as these sand waves migrate 10:32:59
across the project site. 10:33:03
That was a particularly challenging 10:33:05
design. 10:33:06
PRESIDENT: And the sediment depth? 10:33:07

Page 82

THE WITNESS: Well, the sediment 10:33:09
depth, I mean, that's sand that's -- I don't know 10:33:11
the number. I'm sorry. 10:33:12
PRESIDENT: Okay. 10:33:15
DR. CREMADES: Probably you are not 10:33:23
the person to answer that and that's the reason why 10:33:25
I put to you the question. Most of the projects we 10:33:28
see in your page 7, especially, and in your page 6, 10:33:32
are not dealing with drinking water. 10:33:37
I mean, what is the impact of the 10:33:43
construction you are projecting into the sediments 10:33:49
which might have an impact into the drinking water, 10:33:52
who was the reason for the moratorium officially? 10:33:57
THE WITNESS: There's only -- I have 10:33:59
to admit this is a little bit out of my comfort 10:34:01
zone, but I -- I can offer one piece of testimony to 10:34:05
that. Specifically with the -- well, two. 10:34:08
The New York Power Authority 10:34:11
Freshwater Winds project was located in Lake Erie, 10:34:13
and that was just offshore of Buffalo, and that 10:34:16
issue did not come up. 10:34:21
That issue it come up with the LEEDCo 10:34:22
project. That project is located within a few miles 10:34:24
of the major water intake for the City of Cleveland. 10:34:27
I have not studied those reports in 10:34:31

Page 83

detail, but my understanding that what's come out of 10:34:33
them is the amount of construction impacts. And 10:34:36
LEEDCo involved significantly more bottom 10:34:40
preparation because they have far more challenging 10:34:42
soil conditions than Windstream does. But what 10:34:46
I was told and what I got out of that report was 10:34:48
that the amount of bottom disturbance and sediment, 10:34:50
suspension in the water was less than an average 10:34:54
autumn thunderstorm. 10:34:57
DR. CREMADES: Thank you. 10:35:01
PRESIDENT: Thank you very much, 10:35:03
Mr. Cooper. That concludes your examination. Thank 10:35:04
you for your time. 10:35:06
THE WITNESS: Thank you. 10:35:08
I suggest we have the morning break 10:35:11
now and continue at 10:50. Thank you. 10:35:13
--- Recess taken at 10:35 a.m. 10:35:17
--- Upon resuming at 10:54 a m. 10:35:18
PRESIDENT: All set from the Claimant 10:54:15
side and also the Respondent? Good morning, 10:54:16
Mr. Palmer. 10:54:21
THE WITNESS: Good morning. 10:54:21
PRESIDENT: Could I please ask you to 10:54:22
state your full name for the record and then read 10:54:22
the -- the expert declaration that you have over 10:54:22

Page 84

there on the table in front of you? 10:54:22
THE WITNESS: My name is Richard Paul 10:54:37
Palmer. I solemnly declare upon my honour and 10:54:37
conscience that my evidence and my opinions will be 10:54:37
in accordance with my sincere belief. 10:54:39
AFFIRMED: RICHARD PAUL PALMER 10:54:41
PRESIDENT: Thank you very much, 10:54:47
Mr. Palmer. We understand you are the person 10:54:47
responsible or at least the person to defend the 10:54:52
May 2014 report submitted in this arbitration by 10:54:56
Weeks Marine, Inc. 10:55:01
THE WITNESS: That's correct. 10:55:07
PRESIDENT: And I have learned my 10:55:08
lesson. I understand the annex or Appendix 3 to the 10:55:09
Sgurr report is also considered a separate report 10:55:13
that you will defend also. 10:55:15
THE WITNESS: I'm unfamiliar what it's 10:55:17
called in the Sgurr report, but if it's this little 10:55:19
few pages here, yes, that's true. 10:55:22
PRESIDENT: Appendix 3, which is 10:55:23
called Weeks McNally Marine Summary Report. 10:55:24
THE WITNESS: That's correct. 10:55:28
PRESIDENT: Okay. Very good. The way 10:55:29
it will work now -- well, that's the question. 10:55:31
Do you have any questions on direct in 10:55:34

Page 85

addition to the presentation? 10:55:35
MS SEERS: I will have one question 10:55:37
in direct after the presentation 10:55:38
PRESIDENT: After the presentation 10:55:43
MS SEERS: You set the pattern 10:55:44
PRESIDENT: Very good 10:55:45
So I understand that you have prepared 10:55:46
a presentation for us 10:55:47
THE WITNESS: That's correct 10:55:48
PRESIDENT: So please go ahead, 10:55:50
Mr Palmer 10:55:52
PRESENTATION BY RICHARD PAUL PALMER, WEEKS MARINE, 10:55:52
INC 10:55:52
THE WITNESS: Okay, my name is Richard 10:55:54
P Palmer I am vice-president of Weeks Marine 10:55:55
I've been the vice-president of Weeks Marine since 10:55:59
2009 10:56:01
I am the offshore wind and marine 10:56 02
renewable energy lead for Weeks Marine's 10:56:05
construction division I've acted in that capacity 10:56:08
since 2008 10:56:11
I have 27 years of domestic and 10:56:12
international experience in project management and 10:56:15
engineering, and including more 23 years in the 10:56:19
marine construction industry 10:56:22

Page 86

I started my career with Healy 10:56:24
Tibbitts Builders, one of the Weeks Marine's 10:56:25
subsidiaries out in Hawaii in 1992. 10:56:27
I have a BS in Agricultural 10:56:29
Engineering from Cornell University, 1985, and 10:56:32
a Masters of Science and Civil Engineering from 10:56:34
Texas A & M University in 1988. 10:56:38
I'm currently the project director and 10:56:42
the on-site project manager of the foundation 10:56:44
installation contract for Weeks Marine and Manson 10:56:46
Construction to install the jacket foundations at 10:56:51
Deepwater Winds, Block Island offshore wind farm. 10:56:54
That was work that we did this past year, 2015, off 10:56:58
the coast of Rhode Island. 10:57:03
Previous to that, for almost the 10:57:05
entirety of 2013 and 2014, I was the project 10:57:07
director of the offshore installation contract that 10:57:09
was awarded to Weeks Marine and Manson Construction 10:57:13
for the Cape Wind offshore project in an Nantucket 10:57:16
Sound, Massachusetts. I worked full time on that, 10:57:18
living up in Boston, helping to finish the 10:57:23
development of that project. 10:57:25
In addition to Block Island and Cape 10:57:27
Wind, I've spent a lot of effort helping, assisting 10:57:28
the development of offshore wind and construction in 10:57:34

Page 87

the United States and Canada since 2003. 10:57:36
I've spent a significant amount of 10:57:39
effort on the Fishermans' Energy Atlantic City 10:57:41
Offshore Wind Project. Also assisted in NYPA's 10:57:45
Great Lakes Offshore Wind RFP, LEEDCo's Ice Breaker 10:57:48
Project and the previous iterations of that project 10:57:52
in Cleveland, Ohio. I assisted VOWTAP, the Dominion 10:57:55
Project off the coast of Virginia, US Wind off of 10:57:58
Maryland, Bluewater Wind in New Jersey and Delaware, 10:58:00
Duke Energy down in Pamlico Sound, North 10:58:03
Carolina. Also worked with Gamesa when they were 10:58:05
attempting to install a test turbine off of Cape 10:58:09
Charles, Virginia. 10:58:12
I've done an awful lot of work in 10:58:14
offshore wind over the past decade. 10:58:17
Weeks Marine, the company that I work 10:58:19
for, is a private family-owned company. It was 10:58:20
founded in 1919 in the port of New York. 10:58:23
In 2015 we were ranked 108th on the 10:58:26
ENR "Top 400 Contractors" list with move than 10:58:30
$600 million, U.S. dollars in annual revenue. And 10:58:34
Weeks Marine is considered one of the largest and 10:58:38
most diversified marine contractors in North 10:58:40
America. 10:58:44
We're composed of three divisions: 10:58:45

Page 88

Construction, dredging and marine services. 10:58:48
Both construction and dredging really 10:58:53
are the backbone of our companies. We like dredging 10:58:54
quite a bit, in addition to construction. 10:58:57
We also have two wholly-owned 10:58:59
subsidiaries. One is McNally International or 10:59:01
sometimes it's referred to McNally Construction. 10:59:03
That's based in Hamilton, Ontario, right here just 10:59:07
down the lake, and also Healy Tibbitts Builders, 10:59:09
which is based in Honolulu, Hawaii. 10:59:12
We work all over the place North and 10:59:17
even South America and out into the south Pacific. 10:59:20
Our McNally subsidiary has done a lot 10:59:23
of work in Ontario and other provinces in 10:59:25
Canada, including extensive work here on Lake 10:59:28
Ontario. 10:59:30
Our construction division builds 10:59:34
marine projects of all kind, including offshore wind 10:59:36
turbine foundations, tunnels. We are currently 10:59:39
involved in a very large concrete tunnel project 10:59:41
town in Norfolk, Virginia. We do bridges. We do 10:59:44
LNG and petroleum terminals. We do wharfs, piers, 10:59:49
marine pipeline, all standard marine construction 10:59:54
work. 10:59:56
Our dredging division performs 10:59:56

Page 89

maintenance and new work dredging for ports and 10:59:56
harbours, coastland and inland waterways, land 11:00:03
reclamation, wetland reclamation, beach 11:00:06
renourishment. 11:00:10
We are the largest dredgers in North 11:00:12
America. We have an extensive fleet of dredging 11:00:14
equipment. So this is just one of the many things 11:00:17
that we do. 11:00:19
Our marine services division does some 11:00:20
pretty unique stuff. Heavy lifts, we -- people need 11:00:22
a space shuttle picked up, we pick up a space 11:00:25
shuttle. We do stevedoring. We do towing. We do 11:00:29
some very specialized marine transportation at 11:00:30
times, and we have a lot of equipment we have 11:00:36
available for charter. 11:00:38
McNally International, our subsidiary 11:00:40
that we own here that's based in Ontario, was 11:00:41
established in 1949 and was wholly-owned by 11:00:43
Weeks Marine since 2011. 11:00:46
It specializes in tunnelling and 11:00:48
marine construction and has completed multiple 11:00:50
marine projects in Ontario, including, I believe, 11:00:55
back in 2008, the Wolfe Island on-shore wind project 11:00:57
cabling crossing and structures in Kingston, 11:01:01
Ontario. We were involved in that project. 11:01:03

Page 90

Just here off of Toronto, they 11:01:05
installed the Enwave cooling water intake to allow 11:01:07
cool water to be brought into Toronto to help 11:01:11
air-condition the city. 11:01:14
They've done a lot of dredging. 11:01:15
Including Burlington ship channel in Hamilton, 11:01:18
Ontario, and have done put in some additional water 11:01:21
intakes, like the Ajax raw water intake in Ajax 11:01:22
Ontario. 11:01:26
McNally also has some very unique and 11:01:26
significant experience casting and installing large 11:01:27
floating concrete caissons for wharfing and pier 11:01:32
structures here in Canada, and these caissons are 11:01:35
similar in material, certainly, and size to the 11:01:39
gravity-based foundation that would be used on the 11:01:44
offshore -- Wolfe Island's wind offshore project. 11:01:45
Weeks Marine Group companies in total 11:01:52
has more than 1,500 employees in U.S. and Canada. 11:01:52
We work for private developers, federal, state and 11:01:55
local agencies and industrial clients. 11:01:58
We specialize in EPC, design build and 11:01:59
bid/build contracting. The majority of our projects 11:02:03
are lump-sum, fixed price contracts where we take 11:02:08
the entirety of the construction risk. 11:02:11
Our inventory of marine construction 11:02:14

Page 91

and dredging vessels is one of the largest in North 11:02:15
America and we currently own numbers over 500 barges 11:02:18
and boats. 11:02:22
We often seek out beneficial 11:02:22
partnerships. As I already explained, we are 11:02:24
working with Manson Construction on the Block Island 11:02:27
wind farm in Rhode Island. We worked with them on 11:02:29
Cape Wind, but we also -- for other large 11:02:31
infrastructure projects, we seek out partners. 11:02:35
We're currently completing a 1.5 billion dollar 11:02:37
midtown tunnel project with Skanska and Kiewit in 11:02:37
Norfolk, Virginia, and we're working on a $1 billion 11:02:44
Goethals Bridge project that's in Elizabeth, New 11:02:46
Jersey over the Staten Island with Kiewit and 11:02:46
Massman Construction. 11:02:48
Now, the Wolfe Island Shoals wind 11:02:51
project, our association with that project, my 11:02:56
specific association with that project began in 11:02:59
2010, very shortly after the -- I think the first 11:03:01
press release came out in April of 2010 saying that 11:03:05
the Wolfe Island Shoals have been awarded a FIT 11:03:07
contract by the Province of Ontario. We had 11:03:11
preliminary discussions with Windstream in that 11:03:14
summer, July and August of 2010 and we met 11:03:16
face-to-face with Ian Baines and others at ORTECH in 11:03:20

Page 92

September of 2010 to discuss the project and the potential assistant that Weeks and our partners in offshore wind at that time which were Kiewit Construction and GOC, which was a European offshore wind contractor, the assistance that we can provide for pre-construction planning and development assistance. 11:03:26 11:03:29 11:03:33 11:03:34 11:03:40 11:03:42 11:03:45

In that meeting, I recall we talked a bit about local content because that was a concern at the time. We also felt that because of the nature of the project and what we knew about Lake Ontario and the eastern end of Lake Ontario, we thought that concrete foundations would actually be a very viable type of foundation to pursue for the project. 11:03:46 11:03:47 11:03:50 11:03:54 11:03:56 11:03:58 11:04:00 11:04:03

We also strongly believed that the Wolfe Island Shoals project would be the first offshore wind project constructed in North America. It would be ahead of Cape Wind, which we were also working and on, and other projects in the U.S. because of the revenue certainty that was guaranteed by the FIT contract. Revenue certainty is a big topic in offshore wind, and we saw the FIT contract in giving Windstream and the Wolfe Island Shoals project a leg up on every other project that was there in the 11:04:04 11:04:06 11:04:08 11:04:11 11:04:14 11:04:16 11:04:19 11:04:22 11:04:25 11:04:27

Page 93

market at that time. 11:04:29

We began, actually, the design of a specialized jack-up barge in late 2010, specifically adapted to transit the St. Lawrence canal -- or St. Lawrence Seaway, I apologize, the St. Lawrence Seaway, with a vessel width at 23.8 metres or 70 feet. That vessel was later named the following year the R.D. McDonald. 11:04:32 11:04:34 11:04:38 11:04:41 11:04:43 11:04:46 11:04:50

The hull was constructed and launched in June of 2012 out of BAE Shipyards in Jacksonville Florida. 11:04:53 11:04:55 11:05:00

And honestly, we began the construction of the R.D. McDonald specifically thinking about the Wolfe Island Shoals project. 11:05:01 11:05:03 11:05:07

It was critical in our decision-making to say, let's proceed with building a jack-up vessel for the burgeoning and glowing offshore wind market in North America. 11:05:11 11:05:13 11:05:16 11:05:20

Now, in 2013, we obviously knew about the moratorium that was placed in February of 2011 which certainly changed the plans for how things would progress with Wolfe Island Shoals, but we continued in working in offshore wind, still a big market here to work on, but in the fall of 2013 we were approached and requested to review the 11:05:23 11:05:25 11:05:28 11:05:31 11:05:33 11:05:37 11:05:39

Page 94

feasibility and the schedule for construction of a Wolfe Island Shoals project based on a plan using 130 gravity-based foundation and Siemens 2.3 megawatts turbines. We were to assume that the project was restarted almost immediately in 2011, after the wind moratorium would have been lifted, and so as I think you've already heard, we worked with COWI and SgurrEnergy to develop the construction methodology. 11:05:42 11:05:45 11:05:48 11:05:55 11:05:58 11:05:59 11:06:02 11:06:05 11:06:08

We prepared our plan following our standard process that would be used many. Many times of analysing each required work activity in detail that was going to be needed for the construction of the project and basing our construction schedule on the production rates derived from that analysis. 11:06:09 11:06:12 11:06:15 11:06:17 11:06:20 11:06:21 11:06:24

Our analysis was prepared with the same care and the risk assumptions that we've used and have used for multiple other offshore wind projects over the past decade. 11:06:26 11:06:28 11:06:33 11:06:35

What we found was that the offshore marine construction portion of the work is imminently feasible and we felt it would require and believe it would acquire just two construction seasons in the water to complete. 11:06:39 11:06:41 11:06:44 11:06:46 11:06:47

Page 95

We did not assume that marine work would occur on the project site between mid-November and the end of March. Working on Lake Ontario in the winter is nothing that we really want to sign up for, although we did expect that if our work over the first season had to -- had issues, had delays, that we could probably extend into December without any issue, that ice would not be a major concern and we could push ourselves into December to make up and recapture some of the float we needed in our the schedule. 11:06:49 11:06:51 11:06:55 11:06:58 11:07:00 11:07:04 11:07:08 11:07:11 11:07:14 11:07:16 11:07:18

And we see that the key to achieving that the project schedule is to mobilise a fleet of vessels to construct the project, and to be working at several foundation locations at any one given time with that fleet of vessels. 11:07:19 11:07:21 11:07:24 11:07:27 11:07:30

In many of our construction projects the availability of the equipment fleet is critical to reducing the risk on the project. 11:07:32 11:07:34 11:07:37

If you have a lot of tools in your tool bag, it's much easier to get a project done because you're not counting on just one specific piece of equipment to complete the project. 11:07:39 11:07:40 11:07:43 11:07:46

And what we found here, you know, the advantage of this foundation design of this system 11:07:48 11:07:51

Page 96

that was being proposed is that almost every work activity that was needed to install these foundations could be completed with kind of standard, typical marine construction vessels and barges that already existed in the Canadian market and existed in the US market, that didn't require a specialized heavy lift vessel, that didn't require unique vessels that would potentially be difficult to procure and bring to the project. 11:07:54 11:07:57 11:07:59 11:08:01 11:08:05 11:08:07 11:08:12 11:08:15 11:08:20

You know, the vessels that would be required here were the vessels that we already have in our fleet. 11:08:23 11:08:25 11:08:28

Now, certainly with any marine project, the weather and the -- the sea conditions, sea state conditions have a large impact on the productivity that can be achieved. We reviewed the wave data. We looked at buoy data that's publicly available. We examined the conditions that we expected. We talked with McNally and said, how is it working in Lake Ontario? And the expected conditions at the project site are certainly much more benign than we needed to take into account on our other offshore wind projects that are out in the Atlantic. 11:08:29 11:08:32 11:08:35 11:08:37 11:08:39 11:08:44 11:08:48 11:08:51 11:08:53 11:08:56 11:09:00 11:09:03

Even so, we conservative assume that 11:09:04

Page 97

our operations during our construction season would be shut down 25 percent of the time due to weather between April 1st and November 10th. We built that into our construction the project schedule to say, yeah, we know weather event happen, we know we're going to be stopped, but we're going to take that into account. 11:09:08 11:09:09 11:09:12 11:09:15 11:09:17 11:09:22 11:09:24

Equipment availability, again, always a concern, but what we saw is because of the design of the foundations and the semi-buoyant gravity-based foundation that had been proposed, we saw that in reality to -- to install that, the supplemental flotation barges that were required to support those foundations during transport and lowering were actually pretty simple barges. Nothing exotic about those. They're relatively small in size and they could be easily designed and fabricated and brought into Lake Ontario. 11:09:25 11:09:26 11:09:30 11:09:33 11:09:36 11:09:39 11:09:42 11:09:45 11:09:47 11:09:51 11:09:53

To aid the project schedule, we planned to utilise four sets of these barges to allow the foundation structures to be transported and placed at a rate of every two and a half days. And getting redundancy, in case there are issues, we always had a lot of these barges in the mix so we could be at various stages of the installation. 11:09:55 11:09:57 11:10:00 11:10:03 11:10:06 11:10:09 11:10:12

Page 98

Also, certainly following the foundation installation, the wind turbine generators have to be erected utilising a stable crane on a jack-up or a pinned installation vessel. 11:10:15 11:10:17 11:10:21 11:10:23

This is just a -- almost a given right now in the offshore wind industry. I am unaware of any -- any project that has been -- had the wind turbines erected from a floating vessel. And so it's well known that you need a very stable crane to be able to accurately assemble the turbine components. 11:10:26 11:10:28 11:10:31 11:10:34 11:10:36 11:10:39 11:10:43

As we -- I had already mentioned, we had started the construction of the R.D. McDonald jack-up in 2010, you know, started the design, and the fabrication was -- steel was being bought in February of 2011 for this vessel. We felt the R.D. McDonald would have been a very suitable vessel to install the wind turbines. 11:10:45 11:10:46 11:10:50 11:10:52 11:10:55 11:11:01 11:11:04

There's also many other vessels, not an extensive list, but certainly existing. There are existing turbine installation vessels and other jack-ups that are capable of reaching Lake Ontario that have a beam less than 23.8 metres, and those existing vessels would also be a first choice to use on the project. But they are not the only option 11:11:05 11:11:08 11:11:10 11:11:14 11:11:15 11:11:19 11:11:22

Page 99

available. 11:11:25

We almost always intend to use existing vessels, particularly when we're pricing work. We always like to think we're pricing the work using an actual viable method. We don't want to have be dreaming, making pie in the sky assumptions, saying hey, they way we can build this is this unique way. No. We want to use something that's real. We want to make sure that we have tried and proven ways to build a project and to price out a project, because that's the only way we can guarantee that we minimise our risk. 11:11:26 11:11:27 11:11:31 11:11:34 11:11:38 11:11:41 11:11:42 11:11:45 11:11:48 11:11:51 11:11:53

But, you know, for here, these vessels are obviously a concern, but, you know, if the vessels can't be found or constructed or contracted or unsuitable for the project for various reasons, in those situations, Weeks Marine typically does not hesitate to construct the appropriate equipment or vessel. And what you can see, we had already started construction on the R.D. McDonald and as an example, for the Cape Wind project, for that project, we needed two additional wind turbine component transport vessels to comply with the Johns Act requirements of the Cape Wind project. 11:11:55 11:11:57 11:12:00 11:12:03 11:12:06 11:12:12 11:12:14 11:12:15 11:12:18 11:12:21 11:12:23 11:12:27

We started the construction of those 11:12:29

Page 100

two barges in the summer of 2014, months before Cape Wind had ever expected to reach financial close. We went ahead -- in addition to continuing our work on the R.D. McDonald, we went ahead and got two additional jack-up hulls into fabrication at Conrad Industries so that we could have the vessels we needed to build the Cape Wind project. So it's nothing that's out of -- out of -- you know, it's nothing that's uncommon for us to build vessels. 11:12:31 11:12:35 11:12:38 11:12:40 11:12:43 11:12:48 11:12:50 11:12:53 11:12:55

So in conclusion I just want to say that we clearly recognise the risk that offshore construction imposes on a project. And availability of appropriate vessels is a critical aspect for any marine project, and Weeks Marine has built over 30 new vessels in the past ten years as part of our effort to ensure that we always have the right vessels available for our work. 11:13:02 11:13:03 11:13:06 11:13:08 11:13:12 11:13:15 11:13:17 11:13:18

In addition to new builds, we also retrofit and reconfigure existing vessels to meet the needs for particular projects. It's just how we do business. That's how what we to have to do. 11:13:21 11:13:23 11:13:26 11:13:29

The Wolfe Island Shoals project, as proposed with the gravity-based foundation, we feel it would have been able to capitalise on the currently available Canadian and U.S. vessel fleet 11:13:32 11:13:34 11:13:36 11:13:38

Page 101

to provide a stepping stone to a market that could not otherwise be achieved. That's certainly one of the -- the biggest hindrances we have in North America is that we do not have the vessel fleet that Europeans have. And this project gave us the opportunity to use vessels that currently exist on the market to construct the foundations. My perspective, that is an incredible advantage that this project had. 11:13:41 11:13:45 11:13:47 11:13:49 11:13:55 11:13:57 11:13:57 11:14:01 11:14:03

This project -- I just said that, I guess. 11:14:05 11:14:05

This project, un-like many European offshore wind energy projects can be built using equipment that's available, can be readily procured, purposely constructed for the task. 11:14:07 11:14:09 11:14:12 11:14:15

My opinion, in our opinion, based on our construction experience in the marine environment, the time-line we set out in the project schedule is imminently achievable. There's nothing a stretch here. We have the equipment, the vessels are available. It absolutely could be built. 11:14:17 11:14:20 11:14:22 11:14:24 11:14:27 11:14:31

Thank you. 11:14:34

PRESIDENT: Thank you, Mr. Palmer. Ms. Seers. 11:14:35 11:14:36

MS. SEERS: I believe Mr. Palmer 11:14:38

Page 102

answered my question just now, so I don't need to ask him. 11:14:40 11:14:43

PRESIDENT: Okay, good. 11:14:44

Shall we move straight to cross-examination. 11:14:45 11:14:47

MS. SQUIRES: I just need one minute. 11:14:49

PRESIDENT: Sure. 11:14:50

CROSS-EXAMINATION BY MS. SQUIRES: 11:14:52

Q. Good morning, Mr. Palmer. 11:16:10

A. Hi. 11:16:10

Q. You probably have the advantage of hearing the cross-examination of Mr. Cooper, but for the sake of -- just for clarity, we'll run through some housekeeping rules first. We'll do them fairly quickly. 11:16:12 11:16:13 11:16:15 11:16:18 11:16:22

As you know, my name is Heather Squires and I'm counsel for the Government of Canada in these proceedings. 11:16:23 11:16:25 11:16:27

I'm going to ask you a few questions about your report, so I can understand the conclusions that you've submitted on behalf of the Claimant. And I have to note, I am very interested to learn about how you lift a spaceship, but perhaps we'll have to save that for another time. 11:16:28 11:16:30 11:16:32 11:16:35 11:16:37 11:16:41

Now, if you don't understand 11:16:43

Page 103

a question I've asked, I'll be happy to rephrase it for you. Just let me know and I can do that. 11:16:45 11:16:47

It's also important that to the extent my question has a "yes" or "no" at the start of your answer, to provide that for the record and then you can give the appropriate context that you feel is necessary. 11:16:51 11:16:53 11:16:55 11:16:57 11:16:59

As you know, the binders in front of you -- and I'll be referring to the tab numbers -- and we've done the same thing here that we did with the COWI reports and provided both of your reports at Tabs 3 and 4, just to make it easier for reference. 11:17:00 11:17:02 11:17:04 11:17:07 11:17:10 11:17:13

We may need to go into confidential session at some point during this. I'll let you know. You don't need to concern yourself with it, but there might be a time that we will have to break the feed. So I will let you know. 11:17:13 11:17:15 11:17:17 11:17:20 11:17:22

A. Okay. 11:17:24

Q. Now, you've confirmed before that you've submitted two reports or two documents in support of the Sgurr report in this arbitration; correct? 11:17:25 11:17:27 11:17:30 11:17:34

A. That is correct. 11:17:35

Q. And if we look at Page 7 of your 11:17:35

Page 104

first report, which is at Tab 3 in your binder -- 11:17:37
MR. BISHOP: Oh, same binder? 11:17:52
MS. SQUIRES: Same binder as before. 11:17:54
MR. BISHOP: Page -- 11:17:55
MS. SQUIRES: Page 7. Tab 3, page 7. 11:17:55
BY MS. SQUIRES: 11:18:00
Q. And I would like to have a look at 11:18:00
the paragraph right before the mobilization heading. 11:18:08
It starts with: 11:18:11
"SgurrEnergy has selected..." [As 11:18:13
read] 11:18:14
And you note there that you were. 11:18:14
".. retained by SgurrEnergy to 11:18:15
develop the offshore means and 11:18:16
methods plans for the WWIS 11:18:20
project." [As read] 11:18:21
Do you see that? 11:18:25
A. Yes. 11:18:25
Q. Now, you mentioned in your 11:18:26
presentation that you had discussions with 11:18:27
Windstream back in September of 2010, but you 11:18:29
weren't retained to work with them until 2014; 11:18:31
correct? 11:18:34
A. 2013. Yes. 11:18:36
Q. 2013. Okay. So then you were 11:18:37

Page 105

retained then for the purposes of this arbitration, 11:18:42
not to actually work on the project? 11:18:44
A. That's correct. 11:18:46
Q. Okay. Now, we'll turn to page 24 11:18:47
of your first report there at Tab 3. It's the last 11:18:50
page of your report, if that makes it easier. And 11:18:59
you note there that: 11:19:01
"The means and methods provided in 11:19:02
your report describe a viable and 11:19:04
comprehensive solution for the 11:19:09
installation of the WWIS as 11:19:11
currently scoped." [As read] 11:19:13
That's correct? 11:19:16
A. Yes. 11:19:16
Q. And "currently scoped" here then 11:19:16
refers to the use of the semi-floating gravity-based 11:19:17
foundation that I discussed with Mr. Cooper earlier 11:19:20
this morning, correct? 11:19:24
A. That's correct. 11:19:24
Q. Now, you've heard Mr. Cooper and 11:19:25
I discuss the possibility that other foundation 11:19:26
types may be required as the design and development 11:19:30
process continues. But you have not provided in 11:19:33
your report any means and methods of how those 11:19:35
foundations would be installed; correct? 11:19:38

Page 106

A. As I understand it, those 11:19:40
foundations weren't defined, so we did not provide 11:19:41
any means or methods to install those. 11:19:44
Q. Okay. So, let's have a look at 11:19:46
what you did provide then for those semi-floating 11:19:49
gravity-based foundation. 11:19:52
Now, we've already -- as I talked 11:19:54
about already with Mr. Cooper, that this method of 11:19:58
installation is to float them out as opposed to 11:20:00
lifting them onto something and lowering them into 11:20:03
the water; correct? 11:20:06
A. That's right. 11:20:07
Q. And the installation method that 11:20:08
you chose then in the plan to use the semi-floating 11:20:10
foundations was chosen largely because you agree 11:20:12
that those vessels needed to install regular 11:20:15
gravity-based foundation of a non-semi-floating 11:20:19
variety, have limited access in the Great Lakes; 11:20:21
correct? 11:20:23
A. Yeah, the types of vessels, like 11:20:24
the Rambiz which was used for Thornton Bank, is 11:20:26
a very large catamaran style "stiff leg." [phon.] 11:20:29
That vessel that could not be 11:20:34
transported through the seaway. We looked at stiff 11:20:36
legs also for the NYPA project over in Lake 11:20:40

Page 107

Erie and we found that that vessel didn't exist to 11:20:40
install large concrete foundations in Lake Erie and 11:20:44
it would would've had to have been constructed. 11:20:47
That was the benefit of the 11:20:49
semi-floating gravity -- the semi-buoyant prop 11:20:51
foundation is that you could install it with very 11:20:53
minimal marine equipment. 11:20:57
Q. So, you would agree with me then 11:20:59
to the extent that the foundations might change, 11:21:00
there could be an issue with obtaining the required 11:21:02
vessels to do that installation; correct? 11:21:05
A. There certainly potential would be 11:21:07
changes to the vessels required. Whether there 11:21:08
would be any difficulty to obtain them, I think we 11:21:11
would have been pushing to always have the vessel 11:21:14
needed to install to be a capable vessel that could 11:21:18
be brought into Lake Ontario. 11:21:22
Q. Right. Let's turn to the 11:21:27
foundation installation, the rate that you provided 11:21:29
in the schedule. And I want to turn to your first 11:21:34
report, so we'll stay at Tab 3 there and we're going 11:21:36
to turn to Page 17 in your binder. We're going to 11:21:39
look at the section there, we are discussing the 11:21:43
gravity-based foundation installation cycle plan; do 11:21:46
you follow where I am there? 11:21:50

Page 108

A. The table? Yeah. 11:21:51
Q. Yeah. In the last row of the 11:21:52
table there you noted: "Installation cycle of 11:21:55
approximately 6 days"; correct? 11:21:58
A. Correct. 11:22:00
Q. And if we go back to page 8 in 11:22:01
your report, and we look under the heading 11:22:03
"Supplemental flotation barges," you note that 11:22:13
the -- that the SBFs or the supplemental flotation 11:22:17
barges will consist of two sets of four specialized 11:22:20
sectional barges; do you see that? 11:22:22
It is under the heading "Supplemental 11:22:26
flotation barge." 11:22:29
A. Yes, I see where it says the SBF 11:22:30
will consist of two set of four specialized 11:22:33
sectional barges. 11:22:34
Q. Now, you alluded to this in your 11:22:38
presentation, but just for the sake of clarity, when 11:22:40
you make one of these specialized barges, you hook 11:22:42
together four smaller barges to make one barge; 11:22:46
correct? 11:22:49
A. That's correct. 11:22:50
Q. So when you say "Two sets of four 11:22:50
specialized barges," overall, you mean you have two 11:22:53
different installation barges that can be used? 11:22:56

Page 109

A. Quite honestly and I apologize for 11:22:59
this, but I believe this is a misstatement in this 11:23:00
particular section. I didn't realize it only said 11:23:04
two sets in this paragraph, but our intent was to 11:23:07
have four sets to install, not two sets. 11:23:09
Q. Okay. So -- all right. So the 11:23:11
first report says two sets even though the intention 11:23:13
was for -- you would agree with me then when URS did 11:23:16
their reply report to the report you provided and 11:23:21
they noted a problem with the two sets, that was 11:23:24
just -- that was referring to a typo and not 11:23:26
an error that URS themselves then made? 11:23:29
A. I can remember that. I don't know 11:23:34
what URS' response to this was, but if that was what 11:23:36
they said, I can agree. 11:23:40
Q. So, if we turn to page 60 of your 11:23:42
second report, which is at Tab 4. So we're -- 11:23:49
again, I'm referring to the SgurrEnergy numbering 11:23:57
here, but it's page 60. And I want to look at the 11:24:01
response to the URS report, Paragraphs 343 to 345. 11:24:04
That's discussion the foundation installation rate. 11:24:05
So you note there that with the four 11:24:13
installation barges in rotation and a 35 percent 11:24:14
weather and mechanical contingency, that's how you 11:24:16
get to the one installed every 2.5 days; correct? 11:24:18

Page 110

A. That's correct. 11:24:22
Q. Okay. Now, okay. Now, you 11:24:26
remember earlier in your report we discussed the 11:24:37
project as it was currently scoped; correct? 11:24:40
A. Yes. 11:24:44
Q. And as currently scoped for this 11:24:45
project, means relying on the use of the St. Mary's 11:24:47
cement facility in Bowmanville as the project 11:24:50
staging and fabrication site; correct? 11:24:56
A. That's correct. 11:24:58
Q. And if we look back at page 17 of 11:24:58
your first report at Tab 3, it's that table, again, 11:25:01
I believe. You note in that second column that 11:25:13
assumption of Bowmanville being used; correct? 11:25:17
A. Correct. 11:25:20
Q. And you note that it is 132 miles 11:25:21
from the project location? 11:25:23
A. That's what the table says. 11:25:23
Q. And with an average speed of 2 11:25:25
knots, this indicates that the tow to the project 11:25:27
site would take 58 hours; correct? 11:25:29
A. Yeah. 11:25:33
Q. Now, we've already -- we've 11:25:33
discussed and I've discussed this with Mr. Cooper. 11:25:35
Mr. Cooper has mentioned, sorry, in response to 11:25:38

Page 111

Ms. Seers' question, that the Bowmanville site 11:25:41
merely represents a representative gas facility, 11:25:45
and there are other locations on the Great Lakes 11:25:47
that can be explored; do you remember that? 11:25:49
A. Absolutely. 11:25:52
Q. If we turn to page 29 of the 11:25:53
second SgurrEnergy report. I don't know if you have 11:25:55
a copy in front of you but my assistant for the day, 11:25:57
Mr. Neufeld, will hand it up to you. 11:25:59
A. Page 29? 11:26:06
Q. We're going to go to page 29. 11:26:07
A. Okay. 11:26:16
Q. Now, they note on this page other 11:26:16
possible locations for that on-shore manufacturing 11:26:19
facility. They note them as: Oakville, Toronto, 11:26:22
Pickering, Oshawa, the list continues; do you see 11:26:26
where I am there? 11:26:31
A. Yes, I do. 11:26:32
Q. And if we go ahead to page 166 -- 11:26:33
A. Okay. 11:26:51
Q. -- and they identify there further 11:26:52
locations such as the Port of Hamilton; correct? 11:26:53
I believe Hamilton may be on the next page, on the 11:26:57
top of the next page, perhaps. 11:27:02
A. Yes, I see that. 11:27:07

Page 112

Q. All right. 11:27:08
MS. SQUIRES: Now, we're going to go 11:27:08
into confidential session for a bit. I'm just going 11:27:10
to ask Melissa or Darian, if you can confirm that 11:27:13
C-0552 is confidential? 11:27:18
MS. SEERS: Yes. 11:27:25
MS. SQUIRES: Okay. So we're going to 11:27:26
go into confidential session for a minute. 11:27:28
--- Confidential transcript begins 11:27:32
BY MS. SQUIRES 11:27:35
Q. You can turn to tab 19 in the 11:27:35
meantime. 11:27:39
A. Tab -- 11:27:40
Q. In your binder. 11:27:43
A. Tab 19. 11:27:44
Q. Yes. It's for all our Sunday 11:27:44
morning viewers out there. I'm going to cut them 11:27:53
off. 11:27:56
A. Okay. 11:27:56
Q. All right. So this is Exhibit 11:28:00
C-0552 for the record, and it's a document prepared 11:28:02
by Ortech entitled "Project description, Wolfe 11:28:06
Island Shoals offshore wind farm." 11:28:09
Do you see that? 11:28:12
A. Yes. 11:28:13

Page 113

Q. And if we turn to page 12, and we 11:28:13
look at Figure 1, you can see there some of the 11:28:15
locations that I just mentioned on this map? 11:28:19
A. Okay. 11:28:26
Q. Now, some of these locations are 11:28:27
much farther from the project site than Bowmanville 11:28:29
itself; correct? 11:28:32
A. Let's see, we've got -- 11:28:41
Q. So if we look, for example, at 11:28:46
Toronto or Hamilton, they're further away? 11:28:48
A. Yep. 11:28:50
Q. So to the extent some of these 11:28:51
locations are moved, then it will take more time to 11:28:52
move a foundation from the facility to the project 11:28:56
location; correct? 11:29:00
A. Yes. 11:29:00
Q. And some of these are substantial 11:29:01
distance away. The Port of Hamilton looks to be 11:29:03
double the distance? 11:29:06
A. Uh-hmm. 11:29:07
Q. So to the extent you use one of 11:29:08
these locations that are further away, assuming we 11:29:11
still have the four installation vessels, it will 11:29:14
take you longer to install the foundations; correct? 11:29:16
A. With your assumption that only 11:29:19

Page 114

four vessels would be used, yes, I would say you're 11:29:20
correct. I would have to say in our context that if 11:29:22
we had to come from a longer distance, we would just 11:29:25
add more barges to the fleet. 11:29:28
Q. Okay. So more resources, higher 11:29:30
cost. You would get it done in the same amount of 11:29:32
time? 11:29:34
A. I mean it would just -- obviously 11:29:34
a longer tow, more barges, it does add something to 11:29:36
the cost, but the key is getting the work done on 11:29:41
schedule on the project site and so you do what you 11:29:43
have to do to make sure you have the materials. 11:29:46
Q. Let's turn to page 19 of your 11:29:51
first report at Tab 3 in your binder. 11:29:53
A. Page 19? 11:30:06
Q. Page 19. Now, you note here that 11:30:07
the turbines will be installed using the 11:30:13
Weeks Marine R.D. McDonald jack-up vessel? 11:30:16
A. That's correct. 11:30:20
Q. And that's the only vessel 11:30:20
indicated in your first report; correct? 11:30:21
A. Yeah, the way the first report was 11:30:24
written, it only indicated the R.D. McDonald. 11:30:25
MS. SQUIRES: Now, we're going to come 11:30:28
out of confidential. 11:30:29

Page 115

--- Confidential transcript ends 11:30:31
BY MS. SQUIRES 11:30:44
Q. Let's turn to page 210 of the 11:30:44
second SgurrEnergy report, so that's the report that 11:30:46
was handed to you a minute ago by Mr. Neufeld. 11:30:48
A. Page 210? 11:30:52
Q. Page 210. We're going to look at 11:30:54
the Section there that deals were the response to 11:31:05
your paragraph 278 and SgurrEnergy notes there: 11:31:07
"The project execution strategy 11:31:13
and project schedule has always 11:31:14
assumed that a minimum of two 11:31:16
installation vessels will be 11:31:18
employed." [As read] 11:31:20
Do you see that? 11:31:21
A. Yes. 11:31:21
Q. So, even though in your first 11:31:23
report you only mention the one installation vessel 11:31:24
and URS prepared their report based on that, in 11:31:28
reality as SgurrEnergy mentioned, a second one was 11:31:31
supposed to be used? 11:31:34
A. Yeah, and I have to say that 11:31:35
I think in the context of how we wrote the first 11:31:37
report we were basically trying to identify the type 11:31:39
of barge that would be used to perform the work. 11:31:44

Page 116

I honestly believe that there was some additional schedules, at least, that may not have ever made it in, but I honestly can't remember. But we certainly -- when we built our construction the project schedule to erect the project, we made the assumption that at least two units would be provided to erect the turbines. 11:31:48 11:31:50 11:31:53 11:31:57 11:32:01 11:32:03 11:32:05

And so I don't disagree that maybe as it got read when it got read that URS may have been led to believe that only one turbine installation vessel was used. 11:32:07 11:32:11 11:32:15 11:32:18

Q. So, further work in the background, it was actually intended to be two, and a that's the position that's maintained now in the latest SgurrEnergy report? 11:32:19 11:32:20 11:32:22 11:32:26

A. Our arrangement in that first report was basically to say here is a method. It wasn't necessarily to go into the full detail of exactly how many individual barges and everything. 11:32:28 11:32:29 11:32:32 11:32:34

I think we used the 571 for every operation that we were doing out there, which is obviously not how the actual project had to be constructed. But, again, we identify the type of vessel that would be used for each of the operations. 11:32:37 11:32:40 11:32:42 11:32:44 11:32:47 11:32:49

Page 117

Q. So, it replicated a preliminary approach as to how you would do this eventually? 11:32:49 11:32:51

A. Yes. 11:32:54

Q. Now, let's turn to page 61 of your second report, so that's at Tab 4 of the binder. We're going to have a look at the last paragraph of that page. 11:32:55 11:32:59 11:33:11 11:33:13

And here you note that: 11:33:14

"The St. Lawrence Seaway locks pose a challenge to bring the majority of turbine installation vessels that operate in Europe into the project area." 11:33:16 11:33:19 11:33:20 11:33:21 11:33:25

Do you see that? 11:33:26

A. That's correct. 11:33:27

Q. There are at least 16 jack-up or pinup vessels that could fit in through those locks; correct? 11:33:28 11:33:30 11:33:35

A. That's correct. 11:33:35

Q. And as of the date of the deferral on February 11, 2011, to your knowledge, Windstream had not secured any of those vessels; correct? 11:33:35 11:33:36 11:33:39

A. That's correct. There would have been no reason to secure them at that point in time, but that's correct. 11:33:42 11:33:42 11:33:44

Page 118

Q. Now, I want to turn to this SgurrEnergy schedule that they had with their second report, and I'm going to ask if Ms. Seers can again hand up that giant piece of paper. 11:33:49 11:33:51 11:33:54 11:33:58

MS. SEERS: I believe that -- 11:34:00

MS. SQUIRES: There is one still there. 11:34:02 11:34:03

MS. SEERS: -- the witness is -- 11:34:04

MS. SQUIRES: Thank you. 11:34:05

MS. SEERS: This will be the witness schedule. 11:34:06 11:34:08

MS. SQUIRES: Perfect. Don't leave notes then. 11:34:08 11:34:11

BY MS. SQUIRES 11:34:12

Q. We are going to look at line 389. Now, if we look at that line, 389, it indicates that installation of the turbines occurs within a single season starting on April 6th, 2015, and finishing on November 10th, 2015. 11:34:12 11:34:32 11:34:36 11:34:39 11:34:43

Do you follow where I am there? 11:34:44

A. Yeah. 11:34:47

Q. Now you built a 10 percent mechanical contingency into the project schedule; is that correct? 11:34:47 11:34:51 11:34:54

A. That's correct. 11:34:54

Page 119

Q. And if my math is right, April 6th to November 10, 2015 is about 218 days. 11:34:54 11:34:57

Does that sound about right, take my word for it? 11:35:01 11:35:03

A. I'll take your word for it. 11:35:04

Q. We can correct the record later if I'm wrong. 11:35:05 11:35:07

So you have about 22 days of contingency there, so 10 percent of 218? 11:35:08 11:35:11

A. There's weather built in there, as well. You said 10 percent mechanical, which is part of it, and then there was 25 percent weather, I believe, on top of that and possibly even more. But I honestly don't remember precisely how we developed that. 11:35:15 11:35:17 11:35:19 11:35:22 11:35:25 11:35:28

Q. So right now I want to focus on the mechanical contingency of that 10 percent but I do realize that you have the weather contingency built in there, as well. 11:35:29 11:35:30 11:35:34 11:35:36

So my question though, there was 22 days of contingency then of 10 percent of 218 days gives us 22 days; correct, roughly? 11:35:38 11:35:39 11:35:43

A. Yes. 11:35:46

Q. And if further contingency was required but construction was to still finish by 11:35:47 11:35:51

Page 120

December 2015 because of the winter months, you would have an extra 20 days to work with at the end; correct? You have between November 10th, 2015 to the start of December? 11:35:54 11:35:56 11:35:59 11:36:01

A. Yeah, or possibly even into December, yeah. 11:36:03 11:36:05

Q. Now, if one of the two vessels being used suffered a mechanical failure of significant length, there could be a problem with the project schedule; correct? If they went down longer than those 42 days? 11:36:06 11:36:08 11:36:11 11:36:13 11:36:16

A. That's correct. 11:36:18

Q. Now, if we look at -- if -- let's go to page 216 of the second SgurrEnergy report. So that's the coiled report there that Mr. Neufeld handed to you. 11:36:20 11:36:24 11:36:27 11:36:30

A. Which page again, I apologize? 11:36:30

Q. We're going to 216. 11:36:36

A. Okay. 11:36:42

Q. And we're going to look under SgurrEnergy's response to URS, paragraph 444. And there they're -- they are discussing the time for the turbine installation vessel to come from Europe to the Great Lakes; correct? 11:36:42 11:36:45 11:36:49 11:36:51 11:36:55

A. That's correct. 11:36:56

Page 121

Q. And they note 20 to 25 days; correct? 11:36:56 11:36:59

A. I see that they note that it takes 20 to 25 days to bring a vessel from Europe at least. That's an approximation, but to say that it adds to project cost, I would say that it doesn't add to project cost. 11:37:26 11:37:29 11:37:33 11:37:35 11:37:38

Q. Okay. If we just talk about the days, the 20 to 25 days. 11:37:39 11:37:40

If one of the vessels did go down for mechanical failure and you were to require that third vessel, assuming you've secured it in advance, that travel time would eat up your entire contingency; correct? 11:37:42 11:37:44 11:37:46 11:37:49 11:37:53

A. If we -- at that moment said the only way we could proceed forward was to actually bring in another vessel and the only place that vessel was available was Europe, then I would agree with you. 11:37:54 11:37:56 11:38:00 11:38:03 11:38:07

But my expectation is that the reality is there would be other ways that we could mitigate that risk without having to potentially say we need to bring another vessel from Europe. 11:38:07 11:38:09 11:38:12 11:38:15

To be honest with you, we went through this scenario on the Cape Wind project because on 11:38:16 11:38:19

Page 122

the Cape Wind project we had 101 3.6 megawatt turbines. We had two installation vessels. Very similar to this project used to -- planned to install those turbines. 11:38:20 11:38:21 11:38:25 11:38:26

But what we found was even if one of those installation vessels went down, we could still install the entirety of the project turbines with that one remaining vessel. It wasn't necessarily an issue. 11:38:27 11:38:31 11:38:33 11:38:37 11:38:40

When turbine erection is going well, these turbines could go up in a day and you can move right on. So it's just -- we didn't -- at Cape Wind we didn't realize -- we didn't see that that was a significant risk, and here I don't think at the stage that we were in our analysis, we don't see it as a significant risk. 11:38:41 11:38:43 11:38:47 11:38:51 11:38:53 11:38:56 11:38:59

Q. Two questions then on Cape Wind. 11:39:02

The first: Cape Wind wasn't under the same time constraints that Windstream would have been under with five years; correct? 11:39:02 11:39:05 11:39:07

A. It had some very serious time constraints. 11:39:09 11:39:11

Q. Do you recall how fast those were? 11:39:12

A. We had to finish that job, if it had gotten financed, we had to finish it. 11:39:14 11:39:16

Page 123

Q. That brings me to my next question then: The Cape Wind project is not being built; correct? 11:39:19 11:39:20 11:39:23

A. That is correct. 11:39:24

Q. Now, a few minutes ago we noted that there are six jack-up vessels that in theory could do the job, based on what you said? 11:39:24 11:39:27 11:39:30

A. The six that were identified on that list, yes. 11:39:32 11:39:34

Q. Now, if we turn to page 212 of the second SgurrEnergy report, the one in front of you there, those six vessels are identified here; correct? 11:39:35 11:39:38 11:39:41 11:39:48

A. That's correct. 11:39:48

Q. Now, as a point of clarity, the Weeks 751 which you spoke about earlier, that's not a turbine installation vessel; correct? 11:39:49 11:39:53 11:39:56

A. That's correct. It is not a turbine installation vessel, yes. 11:39:59 11:40:00

Q. So in reality that list should be shortened by one? 11:40:02 11:40:04

A. That's correct. 11:40:05

Q. Now, I want to take you to paragraph 412 of the second URS report which I don't believe we've -- I'll call on Mr. Neufeld's 11:40:05 11:40:06 11:40:10

Page 124

assistance again. 11:40:16
I -- it's paragraph 412. Sorry, not 11:40:17
page. 11:40:20
A. Tell me the page again? 11:40:24
Q. It is paragraph 412. 11:40:26
A. Paragraph 412. 11:40:28
11:40:29
Q. Apologies. There are a lot of 11:40:30
paragraphs and page numbers and tab numbers going 11:40:32
on. 11:40:35
PRESIDENT: Sorry, which document are 11:40:35
we looking as now? 11:40:37
MS. SQUIRES: The second URS report. 11:40:39
BY MS. SQUIRES: 11:40:41
A. It is page 81. 11:40:49
Q. All right. Now, in that paragraph 11:41:08
URS lists the same vessels; correct? 11:41:12
A. Correct. 11:41:15
Q. And they note that of those 11:41:15
vessels that were identified, none of them were 11:41:18
available in 2015; correct? 11:41:20
A. On this table it says there 11:41:23
they're certainly not available. I mean there is 11:41:25
a big disconnect here between a hypothetical project 11:41:27
that's being planned and saying what vessels could 11:41:30

Page 125

potentially could have been be available in 2013 or 11:41:33
'14 and then going back and saying, "In the real 11:41:34
world when we look at what actually happened, those 11:41:39
vessels were not available." I would have to say 11:41:42
that's absolutely incorrect. I mean, you just can't 11:41:44
look at it that way. If this project was a real 11:41:45
project, real vessels would have been contracted. 11:41:48
The R.D. MacDonald would have been 11:41:50
finished. We would have had vessels available and 11:41:53
quite possibly the A2Sea vessels could have been 11:41:55
contracted or any of these other vessels if they 11:42:00
were in the market, could have been contracted. 11:42:03
So, I would have to say, no, I 11:42:05
disagree this table accurately reflects vessel 11:42:07
availability. 11:42:10
Q. So, again, your conclusion from 11:42:11
that then is because in your report you're just 11:42:12
looking at Windstream as a hypothetical project and 11:42:17
that it's not real and if it was real, they would 11:42:20
have been able to secure these vessels. You haven't 11:42:23
really gone through an analysis to determine what 11:42:25
vessels would have been available for the project? 11:42:27
MS. SEERS: If I could, perhaps, 11:42:29
interject and ask that Ms. Squires poses one 11:42:30
question to the witness at a time. 11:42:35

Page 126

MS. SQUIRES: I believe that was one 11:42:37
question but... 11:42:38
PRESIDENT: I was able to follow it, 11:42:39
but whether the witness was able to... 11:42:40
THE WITNESS: Could you say it, again, 11:42:42
though. I apologize. 11:42:43
BY MS. SQUIRES: 11:42:45
Q. I guess I'm trying to establish 11:42:45
that in your first report you didn't look into the 11:42:47
availability of vessels because, to use your words, 11:42:49
the project was hypothetical and if it had have 11:42:53
become a real project, that's when you would have 11:42:56
looked into vessel availability? 11:42:58
A. Yes, we would have been looking at 11:43:00
vessel availability, probably as early -- obviously 11:43:02
as early as 2011 or early 2012, to firm up our 11:43:04
actual pricing for the project at that time. We 11:43:08
would have been contacting vessel owners and saying 11:43:10
"Do you have vessels available? What do we need to 11:43:13
do." And if the vessels weren't available, we would 11:43:16
have gone ahead and as alluded to in my 11:43:20
presentation, we potentially would have constructed 11:43:23
additional vessels. 11:43:25
I do know, again, going to Cape Wind, 11:43:26
on Cape Wind we had issues with vessel availability. 11:43:29

Page 127

We contacted A2 Sea and the Sea Power, and this is 11:43:32
in 2014, we contacted them about the possibilities 11:43:37
of using the Sea Power on the Cape Wind project in 11:43:39
2015 and they said, no issues, we can probably make 11:43:45
it work. 11:43:48
Q. So, a possibility is there, but 11:43:49
nothing contracted at this point or at the point at 11:43:50
February '11. 11:43:53
A. That's right. 11:43:54
Q. One final series of questions for 11:43:55
you about the idea of building a new jack-up vessel 11:43:56
and if we turn to 211 of the second Sgurr Energy 11:44:01
report, so you can put away that URS one -- 11:44:06
A. Okay. 11:44:15
Q. We are going to page 211. If you 11:44:15
look under sub paragraph (d) they indicate that. 11:44:17
"... a new turbine installation 11:44:19
vessel... can be designed and 11:44:20
fabricated in about 30 months." 11:44:22
Do you see that? 11:44:24
A. Yes. 11:44:25
Q. Now, turbine installation starts 11:44:25
for Windstream as we discussed on April 6th, 2015 11:44:27
and finishes on November 10th, 2015. 11:44:30
So, if a vessel went down for 11:44:34

Page 128

mechanical issues, you couldn't, in fact, replace it with a new build in order to meet the current schedule; correct? 11:44:36 11:44:40 11:44:42

A. Yeah, if we had already started construction, we would not have been able to complete a new -- build a new vessel in time to stay on that schedule to finish the project. 11:44:43 11:44:46 11:44:48 11:44:51

Q. Now, if Windstream had to commission and build a new vessel, the rough price would be USD $150 million? 11:44:56 11:44:58 11:45:05

A. I disagree. 11:45:07

Q. Well, I want to take you to an exhibit in your binder. We're going to turn to tab 20 and we're going to look at page 5. 11:45:08 11:45:11 11:45:13

So we will come back to the first page there for a moment. So, this is Exhibit R-0655 and it's a presentation called "Build it and they will come," given by you on December 6th, 2012? 11:45:36 11:45:38 11:45:42 11:45:45

A. That's correct. 11:45:48

Q. And if we turn to page 5, in the second slide, it notes there: How much do we need. Build 150 million plus jack-up vessel? So, is your testimony then that this is incorrect, that it doesn't cost $150 million? 11:45:48 11:45:51 11:45:56 11:46:02 11:46:04

A. For a vessel to construct the 11:46:06

Page 129

Wolfe Island Shoals project, I would say we're down at the third bullet which is "Build a lower cost functional jack-up with minimal features," not the 150 million, which I did -- in this specific report I'm saying you don't need to build a $150 million vessel. That's exactly what I'm saying, this $150 million vessel is a NG9000, Gusto MCS design, the self propelled turbine installation vessels that actually cannot even come down the Seaway. It wouldn't be able to be used on the Wolfe Island project. You needs something that could actually fit through the Seaway, and would be the lowest possible cost to give you the functionality you need to erect the turbines. 11:46:08 11:46:10 11:46:13 11:46:16 11:46:18 11:46:21 11:46:23 11:46:29 11:46:34 11:46:36 11:46:39 11:46:41 11:46:44 11:46:47

Q. So, we're looking at a vessel then that has, as you've said it, the lowest possible cost with the functionality for it to work, but you note there in the presentation that there could be certain constraints with those types of vessels, one being if the turbines get bigger. 11:46:48 11:46:50 11:46:53 11:46:56 11:46:59 11:47:02

So, again this conclusion on whether or not that vessel would be appropriate for the project is, again, preliminary; correct? 11:47:03 11:47:04 11:47:06

A. I believe the vessel that R.D. MacDonald certainly appropriate for the Wolfe Island 11:47:12 11:47:14

Page 130

Shoals project, even if the Wolfe Island Shoals project had used larger turbines than what we planned on, vessels smaller than the R.D. MacDonald were very appropriate if 2.3 megawatts turbines were going to be used. 11:47:16 11:47:18 11:47:23 11:47:26 11:47:31

Q. As of right now there's nothing in your report to discuss the building or the utilization, how those vessels would be modified; correct? Your report doesn't speak to that issue. 11:47:31 11:47:33 11:47:35 11:47:39

A. I don't believe so. 11:47:41

Q. Just give me one moment. 11:47:43

[Counsel confer] 11:47:44

MS. SQUIRES: Those are all my questions, Mr. Palmer. Thank you. 11:48:22 11:48:23

PRESIDENT: Thank you, Ms. Squires. 11:48:25

Do you need to gather your thoughts or can you go on immediately? 11:48:26 11:48:30

MS. SEERS: We can go on immediately. 11:48:33

PRESIDENT: Okay, please. 11:48:35

RE-EXAMINATION BY MS. SEERS: 11:49:00

Q. Good morning, Mr. Palmer, Ms. Squires, you will recall, asked you questions about whether there were timing constraints on the Cape Wind project that you were involved with. 11:49:03 11:49:05 11:49:10 11:49:11

You answered that there were 11:49:16

Page 131

significant time constraints associated with that project and that you had to get -- I think your words were, "You had to get the project done on time." 11:49:16 11:49:16 11:49:17 11:49:20

In your experience, how are project completion deadlines managed in the marine construction environment? 11:49:20 11:49:23 11:49:25

A. Typically the developer or the owner will ask us to sign a contract and in the case of Cape Wind, that is also in the case of the Block Island project, we've signed contracts that have significant liquidated damages that are linked to very specific schedule dates. 11:49:28 11:49:30 11:49:33 11:49:36 11:49:39 11:49:43

And those are the stick that they use to ensure that we actually finish projects on time because if we do not finish on time, we have to pay a significant sum of money immediately back to them to manage that risk on their side. 11:49:44 11:49:48 11:49:52 11:49:54 11:49:58

So, I can -- I believe I can very truthfully say that in the case of this project, knowing how it was potentially would go to an EPC fully-wrapped type of installation contract, I could believe that there would have been liquidated damages built into this contract, and we have been held to those liquidated damages. 11:50:01 11:50:04 11:50:06 11:50:09 11:50:14 11:50:16 11:50:21

Page 132

Q. And which party would bear the 11:50:23
risk of contingencies occurring or other things, if 11:50:24
the project -- to ensure that the project would be 11:50:27
built by the deadline? 11:50:32
A. The construction risk would have 11:50:33
been carried by the construction contractor. 11:50:34
Q. Ms. Squires asked you questions 11:50:41
about whether a further contingency would be 11:50:43
required if there was a mechanical failure; you will 11:50:45
recall? 11:50:48
A. Uh-hmm. 11:50:49
Q. And you will recall that you 11:50:50
answered -- you gave an answer regarding the 11:50:51
possibility of a third vessel from Europe being 11:50:54
required. 11:50:57
Could you comment on whether the 11:50:59
10 percent contingency for mechanical failure is 11:51:00
more likely than not sufficient, in your opinion, to 11:51:03
deal with the possibility of mechanical failure? 11:51:06
A. In our experience, we often use 11:51:09
the 10 percent number, based on our actual 11:51:12
experience with mechanical downtime. 11:51:16
I actually -- and 10 percent is 11:51:19
actually a conservative number. I would say our 11:51:22
actual mechanical downtime is less. 11:51:25

Page 133

Q. And you recall that Ms. Squires 11:51:28
asked you about the possibility of a vessel 11:51:32
experiencing mechanical failure during construction 11:51:33
and the possible requirement to build a new vessel 11:51:38
during construction. And you gave an answer 11:51:41
regarding that possibility and the impact, if that 11:51:44
possibility were to materialize on the project 11:51:46
schedule. 11:51:48
Could you comment, in your opinion, as 11:51:50
to the likelihood of that scenario that was put to 11:51:53
you, materializing? 11:51:56
A. I think the likelihood that the 11:51:58
turbine installation vessel or one of the other 11:52:02
vessels failed to such an extent, that it was no 11:52:05
longer a viable resource on the project, is remote. 11:52:10
But certainly it would have been part 11:52:13
of our planning, and we would have had additional 11:52:17
plans to how we could potentially mitigate that 11:52:22
contingency. 11:52:25
As I mentioned on Cape Wind we had 11:52:26
analyzed the schedule and found that we actually 11:52:28
could complete the turbine installation, albeit it 11:52:31
was going to take longer, we were going to get into 11:52:33
liquidated damages, but we could complete the 11:52:36
turbine installation with a single installation 11:52:38

Page 134

vessel. 11:52:41
Q. You will recall that Ms. Squires 11:52:42
asked you questions about whether your first report 11:52:44
represented a preliminary approach, in her words, to 11:52:47
the ways and means for construction, and you 11:52:52
answered that it did. 11:52:57
Had the moratorium not occurred and 11:52:59
the project been permitted to proceed, could you 11:53:01
comment on when, in the project development cycle 11:53:03
a more detailed construction ways and means plan 11:53:06
would have been developed? 11:53:10
A. Based on our real world 11:53:12
experience, we would have constantly been updating 11:53:14
the construction means and methods as we worked with 11:53:19
the client to develop the project and the engineer. 11:53:22
As changes were made to the foundation 11:53:26
design, if any were required, we would have brought 11:53:28
that into our construction methodology. It would 11:53:31
have been an ongoing process. We would have been 11:53:33
re-estimating, re-scheduling, re-working this 11:53:37
constantly from the time we got involved in the 11:53:41
project, all the way through. 11:53:43
That has been our experience for all 11:53:44
of the offshore wind projects, and also many other 11:53:47
marine projects that we've been involved in. The 11:53:50

Page 135

work does not stop. We don't just have a single 11:53:53
point in time and say that's exactly how we're doing 11:53:54
it. We continually update our plans and our methods 11:53:57
and even after the contract is fully firm and the 11:54:01
design is fully complete, even going into 11:54:03
construction we continue to improve and optimize our 11:54:05
plan. 11:54:09
Q. You will recall Ms. Squires asked 11:54:13
you questions that she characterized as, again, the 11:54:14
possibility of chartering certain particular vessels 11:54:18
for this project. And you will recall that you 11:54:21
answered that, absent the moratorium it would have 11:54:25
been possible to charter vessels or construct them. 11:54:28
Can you comment on whether it would 11:54:32
have been likely as opposed to possible? 11:54:33
A. I believe it was highly likely. 11:54:35
Based on our actual experience in the 11:54:37
market and the offshore wind market for projects on 11:54:40
the east coast during that same timeframe in 2012, 11:54:44
2013, there was a significant amount of interest by 11:54:48
European vessel owners to be able to provide vessels 11:54:51
to the US, market, particularly vessels such as the 11:54:55
A2 Sea, Sea Power, the A2 Sea Energy, that were too 11:55:00
small at that time to actually work efficiently in 11:55:05
the European market. Those vessels -- they were 11:55:09

Page 136

looking for places to put those vessels. 11:55:12
Q. If you will turn back to tab 19, 11:55:15
please, Mr. Palmer, this is an Ortech report that 11:55:18
Ms. Squires took you to. 11:55:22
I'll get you the -- for the record 11:55:24
it's C-0552. 11:55:27
Okay, I don't think the page -- let me 11:55:37
just -- give me a moment to check whether the 11:55:40
page I'm taking him to -- I don't believe there's 11:55:42
any confidential information, so I don't think you 11:55:45
need to cut the feed for this page. 11:55:47
There is, but we won't pull it up on 11:55:56
the screen. Page 12, Mr. Palmer, please. This is 11:55:58
a map showing various potential fabrication 11:56:07
facilities, as I understand it, for the foundations. 11:56:13
A. Correct. 11:56:18
Q. And you will recall that 11:56:20
Ms. Squires asked you questions about the fact that 11:56:21
certain potential foundation fabrication facilities 11:56:23
were located further away from the project area than 11:56:26
the St. Mary's Cement, Bowmanville facility and she 11:56:29
asked you some questions about the impact on the 11:56:34
project schedule about that. 11:56:36
If you go back to the map, can you 11:56:40
comment as to the various facilities that were 11:56:44

Page 137

available and their relative proximity to the 11:56:46
project location? 11:56:49
MR. NEUFELD: Before you answer, sorry 11:56:53
to interrupt, just a point of clarification here. 11:56:55
Everything on this page you've designated as 11:56:57
"confidential" so I'd like for you to either express 11:56:59
that you are waiving the confidentiality 11:57:01
designations on the page or proceed to... 11:57:02
MS. SEERS: Let me confer with my 11:57:06
client about that then. I don't know that there's 11:57:08
a particular issue. 11:57:10
PRESIDENT: We can also read the map, 11:57:11
so I'm not sure we're going to find it necessary to 11:57:12
go there. 11:57:16
MS. SEERS: I doubt that it's 11:57:17
particularly confidential, but, okay, my client says 11:57:18
it's fine. 11:57:21
THE WITNESS: Certainly what I see on 11:57:21
the map and this is the first time I've actually 11:57:24
seen this map in this context, but there were 11:57:27
multiple potential fabrication sites that were 11:57:31
closer to the project site than the St. Mary's 11:57:35
facility and I have to say that the -- those other 11:57:38
sites would actually be beneficial. 11:57:40
We, as a contractor, if we had been 11:57:43

Page 138

given the scope to say you also have to fabricate 11:57:45
the foundation units, we would be looking for the 11:57:48
closest possible site that was feasible for the 11:57:51
project, just because it helps reduce our risk. 11:57:54
BY MS. SEERS: 11:57:56
Q. So, you gave an answer to 11:57:56
Ms. Squires about the impact on the project schedule 11:57:58
if a site further away from the project area than 11:58:00
the Bowmanville facility had been selected. 11:58:02
Could you comment on the impact on the 11:58:04
project schedule, if a site closer than the 11:58:06
Bowmanville facility had been selected? 11:58:08
A. I think the project, the 11:58:12
installation schedule would still have been met. We 11:58:14
would have sized and constructed the number of 11:58:16
installation vessels, appropriate for wherever that 11:58:19
facility was located. 11:58:23
Q. Okay. You will recall that 11:58:24
Ms. Squires asked you questions about whether your 11:58:26
report speaks to the modification of vessels. And 11:58:29
you noted that it does not. When, in the design or 11:58:33
development of the project process, absent the 11:58:37
moratorium, would detail of that nature been 11:58:41
developed? 11:58:45
A. It would have developed right -- 11:58:47

Page 139

as soon as we recognized that vessels would have 11:58:49
needed to be modified to -- or vessels that maybe we 11:58:51
already had in our fleet, could be used on 11:58:53
the project if they were modified, we would have 11:58:56
anticipated that right from the start. 11:59:00
To say exactly what time it would have 11:59:03
been, but in the initial estimate, if we had 11:59:05
recognized we had a vessel that could work if we 11:59:07
modified it, we would have been thinking about that 11:59:09
modification from the very beginning. 11:59:12
MS. SEERS: I'll just confer with my 11:59:14
colleagues for one moment. Thank you, Mr. Palmer. 11:59:15
Those are our questions. 11:59:27
THE WITNESS: You're welcome. 11:59:28
PRESIDENT: Thank you, Ms. Seers. 11:59:32
There will be questions from the Tribunal, as well. 11:59:33
QUESTIONS FROM THE TRIBUNAL: 11:59:35
MR. BISHOP: Yes, I have a question 11:59:39
about the Cape Wind project. You said that that 11:59:40
wasn't built. Why wasn't it built? 11:59:42
THE WITNESS: I believe I can only 11:59:46
probably share information that's been made 11:59:47
available publicly, and as I believe though what had 11:59:50
publicly stated was that they were unable to secure 11:59:55
all of their financing for the project. 11:59:59

Page 140

They were certainly way, well on their way to having all of their financing in place, but there was still portions of the financing that were not available. At the end of 2014, there was a clause in their power purchase agreements that effectively cancelled their power purchase agreements, and so at the end of 2014 they lost their power purchase agreements. 12:00:02 12:00:04 12:00:09 12:00:11 12:00:19 12:00:22 12:00:26 12:00:28

There were steps, I think, that had been put out in the news that said they could have potentially had petitioned for a longer period of time for the power purchase agreements to remain in effect, but ultimately because of other factors they elected not to do that. 12:00:30 12:00:32 12:00:35 12:00:40 12:00:42 12:00:45

MR. BISHOP: The other factors being the financing? 12:00:46 12:00:48

THE WITNESS: Other factors, as I think they felt and I think that Jim Gordon had come out publicly to say that they really felt they had a force majeure case here to build because of all the litigation that the project had been put through by the opposition. And they felt that their ability to reach the deadlines that were mandated by the power purchase agreement were negatively effected because of all the litigation opposition, 12:00:49 12:00:50 12:00:54 12:00:58 12:01:01 12:01:04 12:01:08 12:01:12 12:01:18

Page 141

so they felt the force majeure were gone. 12:01:21

MR. BISHOP: Do you know why they were unable to obtain the financing? 12:01:25 12:01:25

THE WITNESS: Ultimately, I think it -- ultimately it came down to just the timing of the project, the schedule and when power had to be delivered, and that's maybe a broad answer and I apologize, but I don't think I can get into more detail than that. 12:01:28 12:01:30 12:01:37 12:01:46 12:01:48 12:01:50

MR. BISHOP: What I took out of it was that it related to the schedule of finishing the project, as it related to the deadlines in the power purchase agreement. 12:01:52 12:01:52 12:01:56 12:01:59

THE WITNESS: That's correct. 12:02:00

MR. BISHOP: That's what you were referring to? 12:02:01 12:02:02

THE WITNESS: That's how I've under stood it, yes. 12:02:02 12:02:03

MR. BISHOP: Were there technical issues on that project that were -- that would have been insurmountable? 12:02:05 12:02:07 12:02:11

THE WITNESS: No, we felt, technically, that we had an excellent plan to construct the project, and to erect the project and the turbines they had selected, the Siemens turbines 12:02:13 12:02:14 12:02:18 12:02:21

Page 142

were quite erectible without any issues for that project site. 12:02:24 12:02:28

That project had a lot of similarities in a way, to the Wolfe Island Shoals project. It was inside Nantucket Sound, a very -- much more protected area of water, where you did not get the same swell conditions, the same sea conditions that you have, let's say, off of Block Island or along the eastern seaboard. 12:02:29 12:02:32 12:02:34 12:02:38 12:02:41 12:02:44 12:02:48

So, they had the advantage of having a protected site that was in relatively shallow water. The deepest water was about 20 metres, and the technical challenges were all easily surmountable. 12:02:49 12:02:51 12:02:55 12:02:58 12:03:00

MR. BISHOP: How big was that project? 12:03:02

THE WITNESS: The overall -- it was permitted for 468 megawatts. 12:03:04 12:03:05

The first phasing had sold 77 percent of the power, and they were going to initially construct 101 turbines in the first phase. 12:03:08 12:03:11 12:03:13

MR. BISHOP: Did they actually get into construction of that project? 12:03:17 12:03:18

THE WITNESS: No, they got all the way through, they have all the BOEM approvals. They got all the facility design report, the 12:03:19 12:03:22 12:03:26

Page 143

fabrication installation report done. Effectively, the only thing they did not achieve was financial close. 12:03:30 12:03:32 12:03:36

MR. BISHOP: What was the schedule for that project, start to finish? 12:03:37 12:03:38

THE WITNESS: At the end it was going to be -- it was going to be built in two seasons, 2015, 2016. There has been -- there were multiple other schedules for the project but ultimately at the end, it was still a two-season project. 12:03:40 12:03:41 12:03:45 12:03:50 12:03:53

MR. BISHOP: Could the project have been built within that schedule, assuming that the other factors you mentioned -- 12:03:56 12:03:57 12:04:03

THE WITNESS: If they -- I would say, the project suffered a one-year delay, which is public knowledge. It was initially scheduled to be 2014, 2015. They had some concerns and it got pushed into 2015, 2016. 12:04:05 12:04:06 12:04:10 12:04:13 12:04:17

If the -- if -- when they made that one-year slide, if the -- some of the dates for financing had been achieved, the project was absolutely constructable. 12:04:19 12:04:24 12:04:27 12:04:30

MR. BISHOP: Okay. Thank you. 12:04:32

PRESIDENT: I understand this project, the Windstream project, would have been held by your 12:04:40 12:04:42

Page 144

construction division? 12:04:44
THE WITNESS: That's correct. In 12:04:48
conjunction with our partners at the time, Kiewit 12:04:50
and GOC. 12:04:50
PRESIDENT: Generally, in your 12:04:55
projects, do you contract? What is the contracting 12:04:56
structure? Do you contract directly with the owner 12:05:00
or the project manager or somebody else? 12:05:03
THE WITNESS: We've -- for many 12:05:06
contracts, we've contracted directly with the owner. 12:05:08
Historically, in offshore wind, we are 12:05:10
contracting directly with the owner. That's how 12:05:13
Cape Wind was. We contracted directly with Cape 12:05:16
Wind. On Block Island we contracted directly with 12:05:19
Deep Water Wind. 12:05:22
Other projects that have 12:05:23
a construction manager in the middle, we also 12:05:24
contracted that way, but in offshore wind we haven't 12:05:27
gone to a construction manager. 12:05:30
PRESIDENT: So, what's -- based on 12:05:32
your experience, what would be the typical 12:05:34
construction project structure, contracting 12:05:36
structure in an offshore -- in a wind project? 12:05:40
THE WITNESS: I would say both the 12:05:44
Cape Wind project and the Block Island project, at 12:05:46

Page 145

one point they were both looking for a fully wrapped 12:05:50
EPC contractor to step in and maybe handle 12:05:53
everything, but they -- they moved away from that to 12:05:56
more of a multi-contract approach where the 12:05:59
developer themself sat in the middle between many 12:06:01
other contractors. 12:06:03
We had a very well-defined scope for 12:06:04
marine installation at Cape Wind. We were at risk 12:06:07
for everything that was within our scope, but there 12:06:14
were other risks on the project that were carried by 12:06:17
the developer. They put themselves in that position 12:06:19
to potentially lower cost for the project. 12:06:22
PRESIDENT: I understand you did some 12:06:25
work, you had some contact with Windstream back in 12:06:26
2010. 12:06:31
Did you discuss the potential contract 12:06:31
structure for -- 12:06:35
THE WITNESS: I recall in 2010, we 12:06:37
absolutely discussed the contract structure in that 12:06:39
meeting, and at the time we were -- with Kiewit and 12:06:41
GOC. We were absolutely willing to entertain 12:06:46
an EPC-type of contracting mechanism if that's what 12:06:50
they wanted. 12:06:55
In 2010 when Cape Wind came back out 12:06:55
in the market, we had been working with them since 12:07:01

Page 146

2003. But in 2010, Cape Wind was absolutely looking 12:07:04
for a full turnkey, fully wrapped EPC contract that 12:07:07
would bring the turbine supply and everything under 12:07:10
one contractor. 12:07:13
And so in 2010, that was what was in 12:07:13
our head was that people wanted these projects as 12:07:17
EPCs. 12:07:19
PRESIDENT: So, your understanding was 12:07:21
at the time that it would have been an EPC directly 12:07:23
with the owner? 12:07:27
THE WITNESS: Potentially, yeah. 12:07:28
I can say it certainly didn't get developed very 12:07:29
far, it was just talked about. But it wasn't 12:07:33
something that we with we were opposed to. 12:07:36
PRESIDENT: Okay. Thank you very 12:07:38
much. 12:07:39
THE WITNESS: You're welcome. 12:07:39
PRESIDENT: Do the questions from the 12:07:41
Tribunal give rise to any questions from counsel? 12:07:42
MS. SEERS: Let me just have a moment 12:07:46
to confer. 12:07:47
MR. SPELLISCY: We should probably go 12:09:26
first. 12:09:27
MS. SEERS: I apologize. 12:09:32
PRESIDENT: Okay, Respondent first. 12:09:34

Page 147

Ms. Squires. 12:09:35
MS. SEERS: Sorry. 12:09:38
MS. SQUIRES: It's okay. 12:09:38
FURTHER CROSS-EXAMINATION BY MS. SQUIRES: 12:09:39
Q. Mr. Palmer, I just have one 12:09:47
question for you. Mr. Bishop asked quite a number 12:09:48
of questions about the Cape Wind project, and you 12:09:52
mentioned that it was similar because of the shallow 12:09:54
water, similar to Windstream project because it was 12:09:58
in a protected area in shallower with water. 12:10:02
I don't want you to reveal any 12:10:04
confidential information of your clients in 12:10:06
answering this question, but I know it's been 12:10:08
publicly reported, so maybe you can still answer: 12:10:09
What were the capital costs of that project? 12:10:10
A. I'd say for the Cape Wind project, 12:10:15
it was -- I'm not sure -- honestly, I do not know. 12:10:17
Maybe you can tell me what's been publicly reported? 12:10:22
Q. I don't have the number in front 12:10:25
of me either. That's fine. 12:10:26
A. I truly don't know but it is 12:10:27
measured in billions of dollars but it's -- I think 12:10:30
it's probably around $2 billion, something like 12:10:32
that. That's what I believe has been publicly 12:10:36
talked. 12:10:39

Page 148

MS. SQUIRES: And just one second. 12:10:40
That's it. Thank you. 12:10:42
PRESIDENT: Thank you, Ms. Squires. 12:10:45
And Ms. Seers. 12:10:47
MS. SEERS: I waited my turn. 12:10:48
RE-EXAMINATION BY MS. SEERS: 12:10:50
Q. Mr. Palmer, Mr. Bishop asked you 12:10:58
questions about the Cape Wind project and why it was 12:11:00
not built, and you gave answers about the 12:11:03
financability of the project and the issues 12:11:06
regarding its power purchase agreement. 12:11:10
Could you comment on the nature, as 12:11:12
far as you're aware of course, of those power 12:11:15
purchase agreements and how they compare, if you're 12:11:19
aware, to the FIT contract that Windstream had? 12:11:23
A. I honestly cannot offer any 12:11:28
understanding of the power purchase agreements, 12:11:30
which are -- at least one of them is public record. 12:11:31
You can find on it the Internet, and you can read 12:11:34
through it all. 12:11:36
Certainly, from our perspective, my 12:11:37
perspective, the FIT contract was a better mechanism 12:11:39
than the power purchase agreements that Cape Wind 12:11:43
had for financing. 12:11:48
Q. And can you -- 12:11:50

Page 149

A. At the time -- I mean, I say 12:11:50
not after February of 2011, but prior to 12:11:51
February 2011, we thought it gave a lot of financial 12:11:56
strength to the project. 12:11:59
As I already said, we thought that was 12:12:00
going to be a key factor in actually letting that 12:12:02
project start first, rather than be a later project. 12:12:04
MS. SEERS: Okay. Thank you. And 12:12:09
I appreciate we've reached the edge of your 12:12:10
expertise as a marine contractor, but we appreciate 12:12:12
your insight. Thank you. 12:12:16
THE WITNESS: You're welcome. 12:12:18
PRESIDENT: Okay, thank you very much, 12:12:22
Mr. Palmer. 12:12:23
THE WITNESS: You're welcome. 12:12:24
PRESIDENT: So that concludes your 12:12:25
examination. We have still some time, so I suggest 12:12:27
we have the presentation of the next experts or 12:12:32
expert. I understand it will be Mr. Irvine. 12:12:37
And do we need a short logistical 12:12:46
break of five minutes? Let's do that. We will 12:12:49
continue at 12:17. 12:12:52
--- Recess taken at 12:13 p m. 12:19:59
--- Upon resuming at 12:21 p m. 12:19:59
PRESIDENT: Good afternoon, 12:21:14

Page 150

Mr. Irvine. 12:21:15
THE WITNESS: Good afternoon. 12:21:16
PRESIDENT: You have been here before 12:21:17
so you know-how it works. 12:21:18
Can you please state your name for the 12:21:20
record, and then read the declaration for expert 12:21:22
witnesses? 12:21:25
THE WITNESS: Certainly. My name is 12:21:30
Ian Adam Irvine. My name is Ian Adam Irvine and 12:21:31
I solemnly declare upon my honour and conscience 12:21:36
that my evidence and my opinions will be in 12:21:40
accordance with my sincere belief. 12:21:42
AFFIRMED: IAN ADAM IRVINE 12:21:44
PRESIDENT: Thank you very much. Now, 12:21:45
I understand you are here to defend the -- both of 12:21:52
the Sgurr reports, although you were not involved in 12:21:55
the preparation of the first one; is that correct? 12:21:58
THE WITNESS: That's correct. 12:22:01
PRESIDENT: And you are familiar with 12:22:01
the first report and your -- 12:22:03
THE WITNESS: Yes, I am familiar with 12:22:06
both reports. 12:22:07
PRESIDENT: Okay, very good. So, we 12:22:08
understand it's the usual process, so there'll be 12:22:12
a presentation. Thank you for the slides which we 12:22:14

Page 151

have already received Will there be any direct 12:22:18
examination by counsel? 12:22:23
MS SEERS: There may be 12:22:24
PRESIDENT: There may be Okay, let's 12:22:25
see 12:22:26
So, Mr Irvine, please go ahead 12:22:26
PRESENTATION BY IAN ADAM IRVINE, SGURR ENERGY 12:22:26
THE WITNESS: Thank you for the 12:22:33
opportunity to speak today 12:22:34
Here is the agenda that I intend to 12:22:37
run through, and I'll tell you a bit about myself, 12:22:38
a bit about SgurrEnergy, give you a summary of my 12:22:42
opinion, and discuss something about offshore wind 12:22:45
component and why we do not believe their components 12:22:52
are novel, a little bit about the schedule, and 12:22:56
I will conclude with a little discussion about the 12:22:59
wind resource 12:23:05
So, a little bit about myself I am 12:23:08
a mechanical engineer I've been involved in 12:23:10
renewable energy since 1985, since I graduated, so 12:23:14
over 30 years of experience in the renewable energy 12:23:17
sector 12:23:21
I've over a decade of experience 12:23:24
working with an electricity utility, Scottish Power, 12:23:26
supporting its multi-national wind farm 12:23:31

Page 152

developments. 12:23:34
I formed SgurrEnergy in 2002 to focus 12:23:35
on renewable energy globally. 12:23:39
I've been involved in the first 12:23:42
project financed offshore wind farm, Q7-2006. 12:23:43
I support the government initiatives 12:23:50
to look at the opportunities for wind farm 12:23:52
development offshore in China. 12:23:55
I'm a fellow of the Institute of 12:23:58
Mechanical Engineers, a visiting professor of 12:24:00
University of Strathclyde and currently helping the 12:24:03
UK Foreign and Commonwealth Office with a joint 12:24:06
initiative to help reduce the cost of offshore wind 12:24:09
for deployment in China. 12:24:16
That's a quick summary of SgurrEnergy, 12:24:18
what our business has achieved. We have consulted 12:24:21
in over 160 gigawatts of renewable energy projects 12:24:25
since 2002. 12:24:29
We actually have 280 staff worldwide 12:24:30
supporting the development of a variety of renewable 12:24:35
energy projects. 12:24:38
That is a summary of our global 12:24:41
offices. We offer services all over the world and 12:24:45
are well-established here in North America. 12:24:49
Importantly, we are now part of an 12:24:54

Page 153

offshore energy services company, Wood Group, that 12:24:59
is some 32,000 people, and at any one time over 12:25:02
2,000 personnel working in the offshore environment. 12:25:07
SgurrEnergy's experience in offshore 12:25:14
wind is significant and considerable. These are the 12:25:16
key roles that we get involved in, lender's 12:25:19
engineer, right through to a very important aspect 12:25:23
of offshore wind development, which is risk analysis 12:25:26
and project de-risking. 12:25:32
We are currently working on 14 live 12:25:36
lenders technical advisor assignments, equal 12:25:40
equivalent to 4 gigawatts project in Europe. We 12:25:45
have a very strong record in Germany and the UK, the 12:25:49
world's biggest offshore wind markets. 12:25:54
And we have conducted significant work 12:25:55
with regard to the assessment of the wind resource, 12:25:59
including current groundbreaking assessment using 12:26:02
remote sensing technologies such as LiDAR. 12:26:03
Here's a list of lender engineer's 12:26:14
assignments we have undertaken for offshore wind 12:26:18
farms. I'm not going to go through every point, 12:26:18
just highlight the extensive coverage we have in 12:26:21
that regard. 12:26:24
Another list of projects where we have 12:26:25
provided independent engineering acquisition, due 12:26:27

Page 154

diligence support. 12:26:31
Some details on projects such as the 12:26:33
assessment of floating wind, undertaking 12:26:38
construction reviews for potential offshore wind 12:26:42
developments. And interestingly, we also supported 12:26:45
Cape Wind's development in the US. 12:26:53
We have undertaken numerous technical 12:26:55
feasibility studies for clients ranging from Japan 12:26:58
through to looking at operation maintenance 12:27:00
strategies for large offshore wind developments in 12:27:03
the UK, such as Inch Cape and Moray Firth. 12:27:07
We have undertaken extensive 12:27:14
assessment of the offshore resource looking at 12:27:17
issues like wind turbine power curve responses in 12:27:21
the offshore wind environment, deploying LiDAR on a 12:27:24
platform off of Hong Kong. 12:27:29
We currently do shore-to-sea 12:27:31
assessments in wind resource such in places such as 12:27:33
Texas and South Korea. 12:27:38
This is a very important aspect of 12:27:41
what we offer to our clients, which is risk analysis 12:27:42
and project re-risking. I cannot emphasize 12:27:49
sufficiently how much importance we have to place in 12:27:53
these activities with respect to creating 12:27:56
a successful offshore wind project where we identify 12:28:03

Page 155

potential risks and appropriate mitigation of these 12:28:08
risks, and continue that right through the project 12:28:11
cycle. 12:28:13
From our perspective, we would 12:28:15
typically see 30 or more iterations of a project 12:28:17
schedule by the time we got to the financial close 12:28:20
position. 12:28:23
So, this gives a summary of my 12:28:26
opinion, and that is based upon our extensive 12:28:29
experience. 12:28:32
We consider the Wolfe Shore Island 12:28:34
offshore wind project to be technically feasible, 12:28:38
and more likely than not, it would have been 12:28:43
developed and built within the guidelines of the FIT 12:28:47
contract. 12:28:48
And we reach this conclusion for the 12:28:48
following reasons: It uses proven technologies, it 12:28:50
uses technologies which capitalise on the extensive 12:28:54
supply chain, and its experience specifically in the 12:28:58
Great Lakes system. We view the project schedule as 12:29:02
reasonable and achievable. 12:29:05
It has a robust and bankable wind 12:29:08
resource supporting reports. We consider the 12:29:11
project participants are sufficiently experienced 12:29:14
and able to take risks for their relevant areas of 12:29:19

Page 156

expertise. 12:29:25
This is highlighting that we don't 12:29:28
consider that project to be novel. The components 12:29:30
proposed for this project have been used in many 12:29:36
other applications, as the previous witnesses have 12:29:38
explained. 12:29:42
There is over 9 gigawatts of offshore 12:29:45
wind, 370 gigawatts of wind installed worldwide, 12:29:48
giving an extensive pull of experience to draw from. 12:29:52
And there are also projects that are 12:29:57
very, very similar to this proposition for Lake 12:30:00
Ontario, based in both the Baltic Sea and on a lake 12:30:03
in Sweden. 12:30:09
So taking a look at the project 12:30:11
schedule, this is looking at 63 months for 12:30:13
undertaking all the associated activities, from 12:30:18
start to finish to get the project online, which we 12:30:21
consider adequate. 12:30:26
It has been developed by COWI, 12:30:28
Weeks Marine, ourselves, WSP and Baird. And as 12:30:33
I said previously, the project schedule we start 12:30:36
with is one of many iterations we would expect to 12:30:41
see as the project is developed. 12:30:44
And those iterations would drop on 12:30:48
further site investigation work to better understand 12:30:51

Page 157

the conditions that we have to operate in, the 12:30:55
conditions that we have to construct in. Each time 12:30:58
we get more information we develop the schedule and 12:31:02
so it goes on. 12:31:06
So we believe that there's appropriate 12:31:07
consideration that has been given to weather 12:31:09
downtime, the ice season, which this year we see has 12:31:12
not occurred. And I'm happy to conclude and 12:31:17
confident to conclude based on our review and 12:31:24
assessment of over 39 offshore wind projects, that 12:31:26
we believe the 63-month project development and 12:31:29
construction schedule is reasonable. 12:31:33
This is a very critical slide because 12:31:38
it highlights the scheduling advantages we have with 12:31:40
regards to construction of an offshore wind farm on 12:31:45
Lake Ontario. We have a benign marine environment 12:31:49
compared to the majority of the offshore wind farm 12:31:54
projects that have been constructed in the North 12:31:57
Sea. 12:31:58
There is no requirement to bury the 12:32:00
array or export cables which allows us to accelerate 12:32:04
that part of the development. 12:32:08
The intention is to use an onshore, 12:32:11
rather than an offshore substation. That's 12:32:14
referenced as offshore, but the intention is to 12:32:16

Page 158

locate that on an island location. 12:32:19
There is electrically available 12:32:26
facilities and materials for contract in the 12:32:28
foundations and turbines. 12:32:30
We have a relatively short export 12:32:31
cable, only 28 kilometres, compared to what we see 12:32:34
in some European examples, 60, 70, 80 kilometres. 12:32:37
We are in close proximity to the shore 12:32:42
with regards to staging and the offshore 12:32:46
construction activities. That is a major advantage 12:32:49
compared to those projects being developed in the 12:32:52
North Sea. 12:32:54
There is no requirement for 12:32:57
a custom-built European installation vessel. We can 12:32:58
get such technology locally. The intention is to 12:33:02
use well understood and tested turbine technology, 12:33:07
in the Siemens 2.3 megawatts turbine. 12:33:12
We have well categorized geotechnical 12:33:15
conditions, and we believe that there is a very 12:33:18
robust grid connection-point with the intention to 12:33:21
connect into one of the arteries of the main Ontario 12:33:26
power transmission system. 12:33:30
We consider that the project uses 12:33:38
standard procurement practices and our assessment 12:33:40
that we can deliver turbines in 14 months is 12:33:43

Page 159

considered a very reasonable timeframe. 12:33:46
That's supported by recent examples of 12:33:50
very similar number of turbines and similar size 12:33:53
projects in North America. Kay Wind project, for 12:33:58
example, is a 14-month delivery of 130 turbines, 12:34:02
Siemens 2.3 megawatts turbines. 12:34:13
Similarly, there's a project in North 12:34:16
Dakota 200 megawatts, and again, it's got a similar 12:34:17
scheduling requirement with regards to the 14 months 12:34:17
that we claim. 12:34:24
The manufacturer of wind turbines, 12:34:26
specifically the Siemens 2.3 turbine, is 12:34:27
a straightforward and well understood process. 12:34:31
Siemens can make a nacelle in one to two days. It 12:34:35
is a production turbine. 12:34:41
So we disagree with URS conclusion 12:34:42
that 24 months would be required for turbine 12:34:45
procurement. 12:34:48
Every project is unique and an average 12:34:49
turbine delivery time is not something that we would 12:34:56
use as a guide for project turbine supply. 12:34:58
And we expect that the turbine 12:35:04
manufacturers, with an interest in capturing 12:35:06
a market like this, would be happy to work to help 12:35:08
secure turbines to be delivered to beat the 12:35:12

Page 160

developer's timelines. 12:35:20
As noted by Weeks, they began to build 12:35:22
a vessel in anticipation of this market opening up. 12:35:28
That is something I have seen on many occasions 12:35:31
whereby a potential contractor will construct 12:35:35
equipment with a view to capture a first mover 12:35:41
advantage in the regular market. 12:35:43
And it is also standard practice to 12:35:50
procure major pieces of equipment to begin the 12:35:52
procurement process, to begin the design of, for 12:35:54
example, a turbine transformer so we can move more 12:35:57
rapidly when the funds become available to purchase. 12:36:02
And the last point, there is, yes, 12:36:06
it's typical for turbines to be paid for at 12:36:09
financial close, but not necessarily on each 12:36:14
occasion. 12:36:17
It comes down to the appetite for risk 12:36:18
of a developer and the financial strength of 12:36:20
a developer. 12:36:24
I'd like to comment on Siemens 12:36:27
2.3 megawatts turbine. This is a workhorse of the 12:36:29
industry. It's been deployed in many locations in 12:36:34
the offshore environment. 12:36:37
Indeed, there are examples of that 12:36:39
turbine sitting on Wolfe Island right adjacent to 12:36:41

Page 161

the project site. 12:36:44
An activity that's proven the concept 12:36:48
of being able to bring this turbine into the Ontario 12:36:50
lake system, and indeed that project also purchased 12:36:55
the concept for connecting to the grid via 12:36:57
an undersea cable. 12:37:01
So thousands of Siemens 2.3 megawatts 12:37:04
turbines operating onshore and offshore globally. 12:37:07
There is no material difference between the onshore 12:37:13
and offshore versions. And the freshwater 12:37:16
environment that we are deploying, means that we are 12:37:19
exposed to less risk. For example, we do not need 12:37:23
the paint systems that are required to cope with the 12:37:28
saltwater environment. 12:37:30
I don't need to dwell on this as one 12:37:37
of my colleagues has already discussed in detail, 12:37:40
the foundation design and deployment. Only to say 12:37:43
that this is a standard way of constructing concrete 12:37:48
structures in the offshore end environment. 12:37:54
The electrical system design, while we 12:37:58
have many examples of cables being deployed in the 12:38:04
Great Lakes system, including Lake Ontario, it's 12:38:08
a well-understood activity and commonly executed. 12:38:12
And this ability to connect on to what 12:38:16
I said earlier was an artery of the transmission 12:38:20

Page 162

system, is a major advantage to this project, 12:38:24
particularly, given as it has been proven with the 12:38:30
Wolfe Island deployment. 12:38:34
Finally, on the wind resource of our 12:38:39
as assessment of the wind data, the reports that 12:38:44
have been prepared by others, lead us to conclude 12:38:47
that it is a bankable energy unit for the site. 12:38:53
When I look at the Long Point met 12:38:57
mast, it's 11 kilometres from the site. It exhibits 12:39:01
characteristics of being offshore, despite it being 12:39:06
located on a small island. 12:39:11
This is because the island is small, 12:39:16
it does not have many features to destroy the wind 12:39:18
and the mast itself is located on a point, on 12:39:22
a split which has very little impact on the 12:39:23
measurements being conducted. 12:39:25
So when I say exhibits offshore 12:39:28
characteristics, I mean we can see low wind sheer 12:39:32
and wind turbulence consistent with what we would 12:39:35
expect to see in the offshore environment. 12:39:39
There's a sufficient amount of robust 12:39:43
data that has been collected over a very long period 12:39:45
to give us confidence in the energy or protection of 12:39:47
this site. 12:39:56
And I would also like to note there 12:39:57

Page 163

are many sites in the German sector where they are 12:39:59
using government-funded met mass of 100 metres 12:40:03
height called FIN01. And that is used to underpin 12:40:06
the energy or prediction for sites that are being 12:40:11
built tens of kilometres away from the measurement 12:40:17
location. 12:40:19
So I am very confident that we have 12:40:19
sufficient data of sufficient quality to create 12:40:22
a bankable wind energy yield prediction for this 12:40:25
site. And that is the end of my presentation. 12:40:29
PRESIDENT: Thank you very much. 12:40:39
Anything further? 12:40:39
MS. SEERS: No, no questions. Thank 12:40:40
you. 12:40:41
PRESIDENT: Thank you very much. 12:40:42
I suggest we break now for an hour and continue at 12:40:42
1:40. And I would ask you, Mr. Irvine, not to speak 12:40:46
with anybody about your testimony. 12:40:50
We have reserved a room for you where 12:40:53
you can have your lunch. Thank you. 12:40:58
THE WITNESS: Thank you. 12:41:00
--- Lunch recess taken at 12:41 p m. 12:41:08
--- Upon resuming at 1:43 p m. 12:41:08
PRESIDENT: Okay, we'll go on, and it 13:42:57
will be Ms. Squires. 13:42:58

Page 164

MS. SQUIRES: For better or worse 13:43:14
you're going to hear from me again. 13:43:15
CROSS-EXAMINATION BY MS. SQUIRES: 13:43:17
Q. Good afternoon, Mr. Irvine. 13:43:25
A. Good afternoon. 13:43:34
Q. Now, you've certainly had the 13:43:35
advantage of sitting through my opening spiel 13:43:37
a couple of times this morning so just, again, very 13:43:39
briefly. 13:43:42
There's a binder in front of you with 13:43:42
the tabs for the documents I'll refer to. To the 13:43:44
extent the answer to my question is a "yes" or "no," 13:43:48
please state that for the record, but feel free to 13:43:52
provide any relevant context that you might think is 13:43:55
necessary to answer your question completely. 13:43:57
A. Okay. 13:44:00
Q. We may go into confidential 13:44:00
session at some point as well, so we'll do the same 13:44:02
as we did this morning and cut the feed as 13:44:04
necessary. 13:44:07
Now, you filed two expert reports in 13:44:12
this arbitration, correct, one in August 2014 and 13:44:14
one in June 2015; is that right? 13:44:17
A. Yes, I've got them here. 13:44:19
Q. Now, you were not retained by 13:44:21

Page 165

Windstream prior to February 12011; correct? 13:44:23
A. Personally or my company? 13:44:28
Q. Your company. 13:44:30
A. That's correct. 13:44:31
Q. Now, both of the reports that you 13:44:32
filed, they opine on the technical feasibility of 13:44:34
the project; correct? 13:44:37
A. That's correct, based on the 13:44:40
information that was made available. 13:44:41
Q. Now, but SgurrEnergy, in general 13:44:43
as part of their business model, it conducts 13:44:46
bankability analysis of different offshore projects; 13:44:49
correct? 13:44:53
A. In effect, that is what we offer. 13:44:53
We undertake an assessment of the risks in a 13:44:55
project, and get it to a position where the risk 13:45:00
level could be appropriate to receive bank debt. 13:45:02
Q. Okay. Now, for the purposes of 13:45:08
this arbitration, then, you didn't provide any cost 13:45:10
estimates for Windstream; correct? 13:45:12
A. That's correct. This was only on 13:45:15
the basis of a technical assessment of a theoretical 13:45:17
project which could have been built at the site, 13:45:21
based on the information that was available at the 13:45:24
time. 13:45:27

Page 166

Q. Now, you mentioned in your report 13:45:31
and earlier in your presentation that SgurrEnergy 13:45:32
was involved in the Cape Wind product; is that 13:45:34
correct? 13:45:39
A. That's correct. My Portland 13:45:39
office personnel were involved in that project. 13:45:41
Q. You've heard Mr. Palmer say that 13:45:44
based on the best of his knowledge he has from 13:45:46
public information, the capital costs were 13:45:48
2 billion. 13:45:50
Can you confirm whether or not that 13:45:51
was correct or provide us with some clarity on that? 13:45:53
A. I cannot provide you with any 13:45:56
clarity on the capital costs associated with 13:45:57
Cape Wind because I was not personally involved in 13:46:00
that project. 13:46:02
Q. Okay. So you have -- based on the 13:46:02
knowledge of SgurrEnergy in general, you have no 13:46:05
further information on the capital cost of -- 13:46:08
A. I have no knowledge of the capital 13:46:11
cost on the Cape Wind project. That was executed 13:46:13
from our Portland office in Maine. 13:46:16
Q. I want to take you to your first 13:46:19
report then, and we'll look at page 112. In that 13:46:22
second paragraph there, you refer to the schedule 13:46:31

Page 167

reviewed by SgurrEnergy; do you see that, in the 13:46:33
second paragraph? 13:46:45
A. Yes, I see that. 13:46:47
Q. And at the very bottom, you note 13:46:52
that the project schedule, based on the award of the 13:46:53
FIT contract was included in your report as appendix 13:46:57
B; correct? 13:46:59
A. Could you just explain that again, 13:47:03
please? 13:47:04
Q. So I'm just -- the schedule then 13:47:05
that you are referring to there is the one that you 13:47:07
attached as appendix B to your report; is that 13:47:09
correct? 13:47:12
A. I would say that that's -- I'd 13:47:12
just like to look at the -- 13:47:17
Q. Take your time. 13:47:20
A. Appendix 3 you say? 13:47:21
Q. Appendix B. If it helps you, 13:47:24
we've also included it as Tab 1 in your binder. 13:47:26
A. Because appendix B is a blank 13:47:30
page. 13:47:32
Q. So it's page 12 in your binder; 13:47:33
we've included a copy -- or Tab 12, sorry. 13:47:36
A. Okay. 13:47:45
Q. It notes there at the top in very 13:47:48

Page 168

small writing that this is the overall project development schedule highlights, revised February 17th, 2011; do you see that? 13:47:50 13:47:52 13:47:55

A. Yes. I can see that. 13:47:57

Q. Okay. Now, if you can keep that one out of the binder if it's easier, but we'll turn to Tab 10. This is Exhibit R-138 for the record. 13:47:59 13:48:01 13:48:05

This appears to be the same schedule just an earlier version, correct? It's dated August 12, 2011? 13:48:29 13:48:31 13:48:33

A. I don't know if I'm looking at the correct page here. Tab 9? 13:48:35 13:48:36

Q. So, it starts on page 9 there in Tab 10. 13:48:57 13:49:01

A. They certainly look similar. 13:49:08

Q. The earlier one we looked at looks like an updated version or at least a similar version of that one you have in your hand, correct, of the R-138? 13:49:15 13:49:19 13:49:21 13:49:23

A. Yep, they look similar but I couldn't really -- deduce anything from either of these. 13:49:26 13:49:28 13:49:33

Q. Okay. But on their face they look quite similar? 13:49:34 13:49:37

A. Pictorially, yes. 13:49:38

Page 169

Q. Okay. If we just turn back to the first page of that document at Tab 10, I just want to look at the date there. 13:49:39 13:49:44 13:49:46

It's dated August 30th, 2010; correct? 13:49:47

A. Yes, I can read that. 13:50:03

Q. This is the schedule -- are you aware that FIT signed Windstream signed its FIT contract on August 20, 2010? 13:50:04 13:50:06 13:50:10

A. Yes, I'm aware of that. 13:50:12

Q. So this would be the schedule that would be in their hands ten days after that; correct? 13:50:13 13:50:14 13:50:17

A. I can only assume so. 13:50:17

Q. Now we're going to turn to Tab 4 in your binder. 13:50:19 13:50:21

This, again, is the same type of Excel schedule. This one says that it's dated October 28th, 2010, and it is Exhibit C-0375. 13:50:33 13:50:35 13:50:38

So that one, again, same format, all different Excel schedules; correct? 13:50:42 13:50:46

A. It says "Revised August 1, 2014" on this. 13:50:49 13:50:52

Q. Give me one second. We're looking at Tab 4. I think you might be in Tab 3, possibly. If not, I can provide you with a corrected exhibit 13:50:52 13:51:01 13:51:22 13:51:26

Page 170

that should be there. 13:51:29

PRESIDENT: Where do we have the date? 13:51:36

MS. SQUIRES: It's on the very top of the schedule there in very small writing. It says "Overall project development, scheduled highlights, August 28th, 2010," Exhibit C-057. 13:51:38 13:51:39 13:51:42 13:51:45

THE WITNESS: Mine's got a hole where it would say... 13:51:50 13:51:51

BY MS. SQUIRES: 13:51:52

Q. So we'll look at the one up here on the screen. I'm getting nowhere with this clearly. It says on the screen there, "October 28th, 2010"? 13:51:52 13:51:53 13:51:57 13:51:58

PRESIDENT: For the record, I was asking for the same reason. 13:52:00 13:52:01

(LAUGHTER) 13:52:04

BY MS. SQUIRES: 13:52:04

Q. We're getting sneaky with this one. All right. So, generally then, all these are the same in terms of their method of preparation. 13:52:04 13:52:07 13:52:11

They're all different schedules derived from the Excel program; correct? 13:52:13 13:52:16

A. As far as I can see, yes. 13:52:19

Q. Now, to the best of your knowledge, April 28th, 2010 schedule, the one that 13:52:21 13:52:24

Page 171

you have there in front of you, that's the only one Windstream would have had available on February 11, 2011; is that correct? 13:52:27 13:52:30 13:52:37

A. Yes, I believe that would be appropriate for a project in this stage of its development. 13:52:38 13:52:40 13:52:42

Q. Okay. Let's to go your second report and look at the second paragraph on page 78. 13:52:43 13:52:44

And if we're in that second paragraph there on page 78, you criticised URS reliance on this type of schedule in their first report noting that was not intended or provided for use as a detailed project schedule, and that accordingly, project schedule assumings drawn from this document would invariably lead to inaccurate conclusions; do you see that? 13:52:51 13:53:15 13:53:20 13:53:24 13:53:26 13:53:28 13:53:32 13:53:35

A. Yes, I can see that. 13:53:35

Q. So, if I understand correctly then, the conclusion we can draw from this is that given Windstream itself was relying on this schedule when it signed the FIT contract, they never should have, and it would have led to inaccurate conclusion on the part of Windstream as well? 13:53:37 13:53:38 13:53:42 13:53:44 13:53:48 13:53:51

A. Well, I believe that the schedule would have been developed based on the legislation 13:53:52 13:53:56

Page 172

associated with the FIT contract, and that assumes 13:54:01
five-year development window with an overlap of 13:54:03
about 18 months or thereabouts. 13:54:08
So I would think it's perfectly 13:54:11
reasonable for the developer to have a schedule that 13:54:13
fits around that based upon the information that 13:54:18
they had available to themselves at that time. 13:54:20
I would further expect that a schedule 13:54:26
like this is developed as we progress through the 13:54:28
project. 13:54:31
As I said in my presentation, I would 13:54:34
expect 20, 30, 40 revisions of this as we progress 13:54:35
through the development collecting more information 13:54:43
about the sea state, about the sea bed to show -- 13:54:45
that is what I conclude from this. 13:54:52
Q. Okay. So your report though does 13:54:55
indicate that reliance on that type of schedule 13:54:57
would lead to inaccurate assumptions. 13:54:59
We agreed there; correct? 13:55:01
A. A degree of uncertainty in this, 13:55:03
based upon the information that's available at the 13:55:06
time. 13:55:09
Q. Okay. 13:55:10
A. So the only information available 13:55:10
at the time was the information around which the FIT 13:55:12

Page 173

contract or offshore wind development was designed, 13:55:16
which presumably was based on the best available 13:55:20
information that was held by the offerer of the FIT 13:55:25
contract. 13:55:31
Q. Okay. Well, given that you had -- 13:55:32
you had raised issues with that as a preliminary 13:55:36
type schedule or as you mentioned, it's not -- at 13:55:39
least inaccurate assumptions. 13:55:43
You for your second report developed 13:55:46
the type of schedule that you just raised there 13:55:48
using MS project; correct? 13:55:50
A. Yes, that's correct. 13:55:53
Q. And you commenced that this is the 13:55:54
type of schedule that you would have had had if 13:55:56
a deferral was lifted, for example? 13:55:59
A. This is the type of schedule that 13:56:01
we would have begun to develop if there was no 13:56:02
moratorium. 13:56:07
Q. Now, this new schedule does not 13:56:09
allow any time though to go from that Excel schedule 13:56:11
to this new schedule; correct? 13:56:15
A. It assumes on February 11, 2011 13:56:18
that that's the schedule you had in your hands. 13:56:21
This is based upon an assumption that we'd begin 13:56:23
work on the project on February 11. 13:56:30

Page 174

Q. Okay. 13:56:34
A. It's a hypothetical situation, 13:56:34
based on a hypothetical development. 13:56:39
Q. Right, and I understand that's how 13:56:41
you present it in your report, but my question then 13:56:42
pertained to this schedule itself and the 13:56:45
conclusions that you've drawn from that schedule. 13:56:48
But, so this is the schedule you are 13:56:50
going to use on February 11th, 2011, and you would 13:56:52
agree that the people that were retained to input 13:56:55
into this schedule, so COWI, Weeks, Baird, none of 13:56:58
those were retained as of that date; correct? 13:57:03
A. I believe there was an engagement 13:57:06
with Weeks as was discussed earlier, but why would 13:57:08
you retain anyone if there was a moratorium on the 13:57:11
development of the project? 13:57:14
Q. Well, let's say as of 13:57:17
February 10th, 2011, before there was a deferral, 13:57:18
none of those individuals were retained; correct? 13:57:21
A. That's correct, but they could 13:57:23
have been retained on February 11th. 13:57:24
Q. All right. Now, I want to discuss 13:57:28
a few of the activities then that you have in that 13:57:30
hypothetical schedule as you put it. And let's turn 13:57:32
to line 29. 13:57:36

Page 175

This line is discussed -- 13:57:44
MR. BISHOP: Sorry, which documents 13:57:48
are we looking at? 13:57:49
BY MS. SQUIRES: 13:57:51
Q. Oh, sorry. The giant schedule. 13:57:51
It's taken on a new nickname of the giant schedule. 13:57:52
We're on line 29. All right. Now, 13:57:59
line 29, it's discussing bat field surveys; do you 13:58:21
see that? 13:58:24
THE WITNESS: I can see that, yes. 13:58:24
BY MS. SQUIRES: 13:58:25
Q. And it indicates that they start 13:58:25
on February 11th, 2011; correct? 13:58:27
A. I can see that also, but I would 13:58:29
like to say that I have no knowledge of bat field 13:58:31
surveys. This is an area of expertise which was 13:58:35
subcontracted to WSP. This is not my area of 13:58:40
knowledge. 13:58:45
Q. Okay, but this is a schedule that 13:58:45
you developed; correct? 13:58:47
A. In association with WSP. This is 13:58:48
their input into this schedule. And I have no 13:58:50
reason to doubt their beliefs and what can be 13:58:54
achieved with regards to the whole of the permitting 13:58:58
activity. They are a local consultant with 13:59:02

Page 176

experience in Canada, and my experience of project development is that you recruit local environmental consultants, with local experience. 13:59:06 13:59:10 13:59:14

So, I'm relying upon WSP with regards to its knowledge and experience locally. 13:59:18 13:59:20

Q. All right. So to the extent -- so you've relied entirely on WSP's opinion for all permitting aspects of this schedule? 13:59:25 13:59:27 13:59:31

A. All permitting aspects, yes, that's correct. They are the experts in their field in this area, and that's what I would do if I was involved in any project anywhere in the world. I would rely upon a local environmental specialist that has the appropriate understanding of local legislation. 13:59:33 13:59:35 13:59:37 13:59:41 13:59:43 13:59:48 13:59:51

Q. Okay. 13:59:52

MS. SEERS: If I may interject, I just -- perhaps it could assist. The schedule, as you'll see at the top, indicates, and I believe it's explained both in the reply memorial and in the Sgurr report that it was prepared in conjunction collaboratively by Sgurr, Baird, WSP, COWI and Weeks, and so each of them contributed within their respective areas of expertise. 13:59:53 13:59:54 13:59:57 14:00:00 14:00:06 14:00:10 14:00:13 14:00:16

BY MS. SQUIRES: 14:00:18

Page 177

Q. Yeah, so my questions pertain to, as Mr. Irvine is the individual who developed this schedule with that input, I just have questions on the timing of certain activities. 14:00:18 14:00:20 14:00:23 14:00:25

If you don't -- if you -- I understand that you might have relied on WSP's expertise for those certain events, but I just wanted to more so acknowledge that certain events happened on certain days, not whether or not it was appropriate to have that data on that day for now. 14:00:27 14:00:28 14:00:33 14:00:36 14:00:38 14:00:40

MS. SEERS: Well, and just to further clarify, if I can assist, the actual dates were provided by Mr. Roberts and so, yes, it's true to say that Sgurr held the pen or the keyboard, so to speak, in terms of inputting that data into the schedule, but the actual dates were provided by WSP in the -- with respect to those activities. And so Mr. Irvine is not in a position to -- unless your question -- unless Ms. Squires' question is about mechanically inputting data from another consultant into the program, we're outside of Mr. Irvine's scope of expertise here. 14:00:43 14:00:45 14:00:47 14:00:51 14:00:55 14:00:57 14:01:02 14:01:05 14:01:10 14:01:13 14:01:18 14:01:20

PRESIDENT: Well, it is appropriate to explore the precise role of the expert in terms of coordinating the input from the various sources, so 14:01:22 14:01:24 14:01:28

Page 178

that's fine. 14:01:32

MS. SEERS: And certainly, Mr. President, Mr. Irvine can speak to that coordinating aspect if not the content. 14:01:34 14:01:34 14:01:37

Pardon me, by microphone was off. Certainly Mr. Irvine can speak to the coordination aspect of this, but not to the content of the areas outside the scope of his expertise. 14:01:41 14:01:44 14:01:46 14:01:49

THE WITNESS: Just for clarity, I run quite a lot of business and I don't personally have expertise in Microsoft Project. I rely on individuals to take that information and put it into a program that I would then encourage to be stress-tested and compared against the real world. That's my role in all this. It's not down at the detail level and putting data into this project. 14:01:52 14:01:54 14:01:57 14:02:02 14:02:05 14:02:09 14:02:13 14:02:16

BY MS. SQUIRES: 14:02:21

Q. To confirm, then, you didn't do any independent checking of the information that WSP provided for the permitting, is the conclusion I'm taking. 14:02:21 14:02:23 14:02:27 14:02:29

A. I did independent checking inasmuch as I have personally compared the duration shown on this schedule with my knowledge and our database of project developments elsewhere. And 14:02:30 14:02:31 14:02:35 14:02:39

Page 179

that is why I have been able to conclude that this is a reasonable schedule. 14:02:42 14:02:45

Q. Okay, so you have done some overall comparison of times? 14:02:47 14:02:49

A. Personally, I have done that, yes. 14:02:50

Q. Okay, let's look at line 143. It indicates there that the activity surrounding the on-shore foundation fabrication facility commenced on December 11th, 2011; do you see that? 14:02:53 14:03:06 14:03:09 14:03:12

A. Yes. I can see that. 14:03:17

Q. And this more technical work is within the realm of your report; correct? Your report comments on -- 14:03:19 14:03:22 14:03:26

A. Yes, based on information supplied to us by COWI, who is the expert in this area. 14:03:27 14:03:29

Q. Okay, now, to your knowledge, no site had been secured as of February 11th, 2011; correct? 14:03:32 14:03:36 14:03:39

A. That's correct. I think that's a reasonable position given the state of development of the project. 14:03:40 14:03:43 14:03:46

Q. Okay, so, you would agree with me then that you would need to build some time into the schedule in order to negotiate with someone to obtain access to such facility; correct? 14:03:47 14:03:50 14:03:54 14:03:56

Page 180

A. Well, we have MNR land use permit, 14:04:15
fabrication facility on line 44. Underneath that we 14:04:19
have "Repair application to fabrication" on 14:04:23
line 145, which looks like it's kicking in August or 14:04:27
thereabouts, so one would expect there is time to 14:04:33
discuss with those associated with land ownership. 14:04:38
Q. Sorry, can you indicate to me what 14:04:44
lines you are referring to? 14:04:46
A. Line 145. 14:04:47
Q. Okay, so the MNR land use permit? 14:04:54
A. 146, 147. 14:04:57
Q. Uh-hmm. 14:04:59
A. So it looks to me like there is 14:05:04
a period of discussion and opportunity. 14:05:06
Q. So, this appears to be discussion, 14:05:12
as you've mentioned, with MNR, which is the Ministry 14:05:14
of Natural Resources, but there is nothing in the 14:05:16
schedule to include for discussion with the owner of 14:05:19
the facility in terms of commercial negotiation, 14:05:21
say? 14:05:24
A. Well, this says "Program," which 14:05:25
is about a hypothetical situation. This does not 14:05:31
include anything with regards to negotiating of 14:05:34
a particular area of land, nor does it include 14:05:39
anything with regards to project financing, for 14:05:42

Page 181

example, as I would expect that these activities 14:05:46
would be undertaken by the project developer, this 14:05:49
is a technical schedule to try and establish whether 14:05:52
it would be technically feasible to achieve the 14:05:55
commercial operation date that has been specified. 14:05:59
Q. Okay, so this is an early stage 14:06:01
project schedule used to identify the technical 14:06:05
feasibility of the project? 14:06:08
A. That's correct. It's early stage, 14:06:10
and we would continue to develop this throughout the 14:06:11
duration of the project. 14:06:15
Q. All right. Let's stay on that 14:06:18
schedule there, and I want to look at line 7. And 14:06:23
line 7 indicates that indicates that the project 14:06:25
would receive financial close on December 11, 2014; 14:06:35
correct? 14:06:39
A. It states that, yes, that's 14:06:39
correct. 14:06:40
Q. And if we go to line 9, it 14:06:41
indicates that the renewable energy process -- so 14:06:43
the environmental permitting commences on 14:06:47
February 11th, 2011, and ends with a REA appeal 14:06:49
period on August 12th, 2013. Do you see that? 14:06:53
A. REA appeal period. I can't see 14:07:01
that, sorry. 14:07:06

Page 182

Q. So that might be in the just -- 14:07:07
when we get further. Just give me one minute, I'll 14:07:09
find you the exact line. 14:07:17
A. I can see it now. 14:07:20
Q. Are you there? Maybe you can 14:07:25
remind me which line it is. Okay, so line 678 says: 14:07:27
"The REA approval period -- appeal 14:07:37
period ends on August 12th, 2013." 14:07:40
What follows after that on line 69 is 14:07:51
an additional six months for the Environmental 14:07:54
Review Tribunal; correct? 14:07:56
A. That is what has been indicated by 14:07:58
the schedule, but can I repeat that I am reliant 14:08:01
upon a local consultant to feed into this 14:08:05
information. I do not fully understand the detail 14:08:08
of the process with regards to permitting. 14:08:13
Q. Okay -- 14:08:18
A. That is why WSP is involved in 14:08:19
this development. 14:08:22
Q. Yes, and I understand that those 14:08:24
inputs came from them but I'm merely asking you to 14:08:25
confirm the time periods that are incorporated into 14:08:28
the schedule. So we have 30 months for the 14:08:34
renewable energy renewable energy approval and then 14:08:37
six months for the Environmental Review Tribunal; 14:08:38

Page 183

correct? 14:08:44
A. Yes, that is what is written in 14:08:44
the schedule. 14:08:51
Q. Now, last week we heard some 14:08:52
testimony from Ms. Sarah Powell, and she confirmed 14:08:52
that, based on her experience, the typical time to 14:08:54
receive a renewable energy approval is 36 months, 14:08:56
and then there's an additional 6 months beyond that 14:08:59
for the Environmental Review Tribunal, so the total 14:09:02
being 42 months. 14:09:05
So if we rely on this testimony then, 14:09:05
the renewable energy approval would occur on 14:09:08
February 11, 2014; is that correct, six months 14:09:12
later? 14:09:15
MS. SEERS: Again, Mr. Chair, this is 14:09:16
a scope that's been covered by both Ms. Powell and 14:09:17
Mr. Roberts and is outside the scope of Mr. Irvine's 14:09:22
expertise, and I'm not certain that we need Mr. 14:09:24
Irvine to tell us what the dates would be if the 14:09:27
schedule was moved by six months. 14:09:32
BY MS. SQUIRES: 14:09:33
Q. I apologize. I'm not asking 14:09:33
Mr. Irvine to comment on the appropriateness of 14:09:36
those dates but merely when they occur in the 14:09:38
schedule, and if we were to take the evidence of 14:09:40

Page 184

Ms. Powell, what impact that would have on the schedule. 14:09:42 14:09:44

PRESIDENT: Yes, it's fine to ask questions about what the impact would be on the schedules. 14:09:45 14:09:47 14:09:48

BY MS. SQUIRES: 14:09:52

Q. So if the renewable energy approval, then, was pushed back six months from August 2013, the renewable energy approval would arrive on February 11th, 2014; correct? 14:09:52 14:09:54 14:09:57 14:09:59

A. That is correct. But looking at the context of this, I am reliant on WSP. I'm not aware of Ms. Powell's testimony or what context that was spoken in. I'm reliant upon WSP as an expert in the field -- 14:10:04 14:10:08 14:10:13 14:10:16 14:10:21

Q. Yes. 14:10:23

A. -- to give me the numbers appropriate here. 14:10:23 14:10:24

Q. I understand that that's where your numbers came from, but you would agree with me, if Ms. Powell is right, who was also one of the claimants' experts, your schedule would shift by six months? 14:10:26 14:10:27 14:10:30 14:10:33 14:10:36

A. By arithmetic, that is correct. 14:10:38

Q. Okay, so that means, then, based 14:10:41

Page 185

on your schedule, that there's another six months of Environmental Review Tribunal, so that would occur on August 11th, 2014, and financial close would happen on that date instead, based on her opinion? 14:10:43 14:10:48 14:10:50 14:10:53

A. That is a possibility that I consider unlikely based on the information that I have received from a competent environmental consultant. 14:10:57 14:11:00 14:11:02 14:11:05

Q. Okay, so, if we -- taking what Ms. Powell said -- and, again, I'm just trying to understand the consequence of what that would have for the schedule if her testimony is right. The consequence would be that you would lose six months in the construction schedule; correct? Instead of starting on February, you're now starting in August? 14:11:06 14:11:11 14:11:14 14:11:16 14:11:19 14:11:21 14:11:25

A. Well, it's arithmetic correct, but I'm reliant upon WSP's information and a detailed breakdown of the components that feed in to being able to get the relevant permits. I have not seen or heard Ms. Powell's testimony. I don't know how much reliance one can place on that. This is a local environmental consultant who has broken down the permitting process into its constituent parts and put them in an order that I am comfortable with. And I would take precedence on this information over 14:11:27 14:11:30 14:11:36 14:11:41 14:11:45 14:11:47 14:11:51 14:11:58 14:12:02 14:12:06

Page 186

information that perhaps does not have the same level of detail and that I also have not seen, unfortunately. 14:12:10 14:12:13 14:12:17

Q. Okay, well, you mentioned that the schedule doesn't include any line items for negotiation with lenders; correct? 14:12:18 14:12:21 14:12:25

A. That's correct, it is a technical schedule. 14:12:27 14:12:29

Q. Now, in the claimants' opening arguments in this arbitration, they noted that the six months between the renewable energy approval and the Environmental Review Tribunal, that's when negotiations would take place; are you aware of that? 14:12:30 14:12:34 14:12:36 14:12:39 14:12:43 14:12:46

A. I'm not aware of that, unfortunately. 14:12:46 14:12:47

Q. Okay, so I wanted to look at tab 20 in your binder. And this is Exhibit C-1907 for the record. If we look at the flow chart there about halfway down the page, this is for the Dudgeon -- and correct me if I am entirely saying that wrong, but I -- 14:12:48 14:12:50 14:13:10 14:13:17 14:13:19 14:13:25

A. Dudgeon. 14:13:25

Q. Oh, there we go, Dudgeon. 14:13:26

It indicates there on the second part 14:13:26

Page 187

of the flow chart that consents were authorized in July 2012; do you see that? 14:13:28 14:13:31

A. I can see that, yes. 14:13:33

Q. And if we move ahead on the flow chart it says financing was secured in July of 2014; can you see that? 14:13:34 14:13:37 14:13:41

A. I can see that also. 14:13:42

Q. So for this chart, they have -- or for this project at least, there was a two-year period between permitting and financial close; correct? 14:13:43 14:13:44 14:13:46 14:13:50

A. I think it's correct. It's interesting, but I don't think its relevant for this specific project. This is a different environment subject to different regulatory regimes, subject to different permitting regime. So I'm not sure what conclusions one can draw from this information in relation to the proposed project here. 14:13:50 14:13:52 14:13:55 14:13:58 14:14:03 14:14:11 14:14:14

Q. So I'm looking for the -- if you leave the permitting regime aside, if we are looking at the date, once the permitting has been obtained, so all delays relating to permitting would be dealt with at that point, they had two years before they reached financial close; correct? 14:14:17 14:14:19 14:14:22 14:14:26 14:14:29 14:14:31

A. In this specific project, that 14:14:33

Page 188

would appear to be correct. 14:14:34
Q. And if we turn to the next tab, 14:14:36
Tab 21 -- 14:14:37
MS. SEERS: Again, Mr. Chair, this 14:14:40
witness is not an expert in financing or financial 14:14:41
close. We have other experts that are experts in 14:14:44
that area. As you'll have noted, there are a lot of 14:14:46
experts who contributed to this schedule because it 14:14:49
spans a lot of ground and so, again, I would ask 14:14:51
that only questions relevant to Mr. Irvine's direct 14:14:54
expertise be posed to him. And, of course, the 14:14:59
mechanics of how the schedule operates. 14:15:03
PRESIDENT: Well, it's fine to explore 14:15:05
the limits of what his role was in putting together 14:15:07
the overall schedule. How useful it is, it's for 14:15:10
you to determine, then, and it's for you to put the 14:15:13
questions in such a way that the information will be 14:15:17
useful for the Tribunal. 14:15:18
But it is about exploring the limits 14:15:20
of his role in the -- in putting together the 14:15:24
overall schedule. 14:15:28
BY MS. SQUIRES: 14:15:31
Q. So, on that note, let's turn to 14:15:32
Tab 21. And again, I'm just asking for confirmation 14:15:35
on the dates here. This is Exhibit C-1908 and this 14:15:38

Page 189

is the same kind of representation, but for the 14:15:44
Gemini project; correct? 14:15:46
A. I can see pictorially it is the 14:15:47
same. But I'm -- this information is 14:15:50
project-specific and only applies to this project. 14:15:55
One could go and choose, cherry pick other projects 14:15:58
that showed different durations, shorter durations. 14:16:02
Q. Okay, so I guess the point then to 14:16:06
take from what you're saying is that you have chosen 14:16:08
six months but in some circumstances that can be 14:16:11
less; in other circumstances that could be more -- 14:16:13
or someone has chosen six months for you, and in 14:16:15
some circumstances that's less, some circumstance it 14:16:18
could be more? 14:16:20
MS. SEERS: Again, Mr. Chair, 14:16:21
something is being put to the witness that we've 14:16:22
already indicated is not his input, and so we 14:16:24
maintain the objection that only questions relevant 14:16:28
to Mr. Irvine's specific input into this schedule 14:16:32
should be put to him, and we object to propositions 14:16:36
like the one Ms. Squires just put to him about 14:16:39
whether six months was inserted by him or by 14:16:44
somebody else. 14:16:47
PRESIDENT: Well, we are following the 14:16:48
questioning and we take note of the answers. 14:16:51

Page 190

Again, it is for the Respondent to put 14:16:54
the questions in such a way that the information 14:16:57
extracted from the witness is useful for the 14:16:59
Tribunal. 14:17:02
It's fine, again, to explore the 14:17:04
limits of his role, but try to keep it on that 14:17:06
limit. He won't be able to comment on issues that 14:17:09
go outside his area of expertise. 14:17:12
BY MS. SQUIRES: 14:17:14
Q. Sure. Perhaps then one very small 14:17:14
question on this then: On the schedule itself you 14:17:17
noted that there was input from SgurrEnergy, Baird, 14:17:21
WSP, COWI and Weeks Marine. Can you tell me which 14:17:24
one of those five individuals, questions on 14:17:28
financing should have been addressed to? 14:17:32
A. From my knowledge, none of these 14:17:45
companies have got a detailed working knowledge of 14:17:46
the financing process. 14:17:49
PRESIDENT: Maybe I'll put the 14:17:50
question then in these terms: You didn't look at 14:17:51
financing because financing is not part of the 14:17:55
technical -- it's not in the critical path of the 14:17:57
technical project? 14:18:00
THE WITNESS: That's correct. We were 14:18:01
looking at the technical feasibility as to whether 14:18:02

Page 191

a hypothetical project could be constructed. We 14:18:05
were not looking at the feasibility with regards to 14:18:08
whether it could be financed. 14:18:12
MS. SEERS: And if I may assist, 14:18:14
Mr. Chair, the relevant witness to put questions of 14:18:16
that nature to are the Deloitte witnesses. 14:18:20
PRESIDENT: The issue though here is 14:18:23
something different. It's a question of whether 14:18:24
arrangements for financing would have been -- or 14:18:26
should have been part of the schedule. Maybe the 14:18:28
question should be in terms of whether it was 14:18:31
appropriate to exclude financing from this schedule. 14:18:32
MS. SQUIRES: Okay, I think that's 14:18:37
clear to us now on who to ask those questions to. 14:18:38
MS. SEERS: And, of course, in 14:18:42
addition, the developers themselves would have that 14:18:43
information. So, Mr. Baines, Mr. Mars, rather. 14:18:46
PRESIDENT: Yes, although the issue 14:18:50
with the financial experts would be about the timing 14:18:54
of obtaining financing and the program -- the steps 14:18:57
to be taken for financing, whereas here we are 14:19:00
exploring whether there is any relevant interface 14:19:02
between the technical program and the arrangements 14:19:05
for financing, which is a legitimate -- legitimate 14:19:07
subject to explore, but I understand your answer is 14:19:12

Page 192

that there is no -- there is no connection in terms 14:19:15
of -- in terms of the technical program. It's not 14:19:19
part of financing, arranging for financing is not 14:19:23
part of the technical process. 14:19:28
THE WITNESS: That's correct. 14:19:30
PRESIDENT: So I think we can move 14:19:30
on to another subject. 14:19:31
MS. SQUIRES: All right, well, we'll 14:19:36
move on to something else. 14:19:37
BY MS. SQUIRES: 14:19:39
Q. Let's look at line 69 of your 14:19:39
schedule. 14:19:46
Again, I'm merely asking to confirm 14:19:47
that a certain event takes place on a certain day 14:19:48
but I'm not going to look into the accuracy of that 14:19:51
event. 14:19:53
It says there that the Environment 14:19:54
Review Tribunal will be done as of February 11th, 14:19:58
2014; is that correct? 14:20:01
A. I can see that, yes. 14:20:02
Q. And if we look at line 8, we see 14:20:03
there that you have indicated a commercial operation 14:20:11
date of May 23rd, 2016; correct? 14:20:13
A. I can see that also. 14:20:16
Q. So this project has gone from 14:20:18

Page 193

receiving its permitting to commercial operation in 14:20:19
approximately 27 months; correct? 14:20:24
MS. SEERS: Just to -- I apologize, 14:20:27
I don't mean to continuously interject, but I would 14:20:28
request that Ms. Squires state the questions 14:20:32
accurately. 14:20:34
The permitting would have been 14:20:35
received six months before the conclusion of the ERT 14:20:37
proceeding according to this schedule. 14:20:40
MR. SPELLISCY: I'm sorry, that -- 14:20:50
seemed to be testimony from Ms. Seers. 14:20:50
PRESIDENT: Well, these are the kinds 14:20:50
of questions you can raise in the redirect. 14:20:50
BY MS. SQUIRES: 14:20:55
Q. I'll ask my question again then, 14:20:55
from the Environment Review Tribunal to operation, 14:20:57
that's 27 months; correct? 14:21:00
A. Numerically, that would appear to 14:21:02
be correct. 14:21:04
Q. And are you aware that no other 14:21:05
offshore wind project in the 200 to 400 megawatt 14:21:07
range has gone from permitting to commercial 14:21:11
operation in 27 months, and, in fact, Windstream's 14:21:13
project would be un-precedented in this regard? 14:21:16
A. Again, I'm reliant on the local 14:21:19

Page 194

knowledge from WSP, with regards to what it believes 14:21:21
can be achieved regarding permitting. 14:21:26
I'm also assuming that there was some 14:21:29
appetite from the Canadian government with regards 14:21:32
to stimulating and developing offshore wind. 14:21:35
There would have been some 14:21:38
encouragement, but for putting these projects into 14:21:39
moratorium. Presumably at some time it had a desire 14:21:44
to see offshore wind built, and, therefore, one 14:21:49
would expect there would be an encouragement to put 14:21:51
the necessary components in place to facilitate the 14:21:55
development achieved, the desired financial close, 14:22:03
and the desired operational date. 14:22:06
Q. Okay, so, in comparison to other 14:22:08
examples of projects that have been developed, your 14:22:12
conclusion is that Windstream would have gone from 14:22:15
permitting to commercial operation in -- faster than 14:22:20
any other project because of the situation that they 14:22:23
were in? 14:22:25
A. Well, when one is comparing what 14:22:27
is happening in Canada to the regime elsewhere, they 14:22:30
are not comparable. So that's -- it's fast. I can 14:22:33
only assume that my colleagues in WSP believe that 14:22:38
they can progress this project through the 14:22:42
permitting process at that pace. 14:22:45

Page 195

Q. My questions pertain though to 14:22:49
after the permitting to commercial operation, so 14:22:50
it's not related to the permitting process itself 14:22:54
but after that. 14:22:56
Your testimony is that Windstream 14:22:58
would have done that process in an unprecedented 14:22:59
pace, in a new market? 14:23:03
A. You mean constructing the 14:23:05
development? 14:23:06
Q. So, from the time that you have 14:23:08
your permitting to the time you reach commercial 14:23:10
operations, you have your consents in hand? 14:23:12
A. I don't think it is unprecedented 14:23:15
based on the analysis I have done. It's within the 14:23:17
range of projects that I have seen developed, all of 14:23:19
the constituent components are sufficiently in that 14:23:23
range that I can believe the schedule is believable 14:23:28
and accurate. 14:23:32
Q. Okay, well, we can walk through 14:23:33
some examples then, perhaps to show the other time 14:23:37
periods for different projects. So let's turn to 14:23:40
tab 14 in your binder. 14:23:49
And we'll look at the first 14:23:51
page there. This is Exhibit R-0645, and this is the 14:24:02
key project dates for the Greater Gabbard project 14:24:06

Page 196

from the 4C database; can you see that? 14:24:11
A. Yes I can see that. But I'm not 14:24:14
sure how -- what use comparing Greater Gabbard, for 14:24:16
example, which is known to have had serious 14:24:20
technician problems because they sourced their 14:24:22
towers from China, which were of very, very poor 14:24:28
quality. They sourced steels towers from China, 14:24:29
they had various issues with this development, and 14:24:34
pretty much everything that could go wrong, did go 14:24:34
wrong. 14:24:38
Q. Okay, so issues arose with that 14:24:38
project and that's what leads to approximately 78 14:24:41
months for that period for that project; correct? 14:24:44
A. Yes, because of issues that were 14:24:46
specific for this project in the north sea, not 14:24:49
a project in Lake Ontario. 14:24:53
Q. Right, so -- 14:24:55
A. It's not exposed to the same 14:24:55
risks. And I listed the reasons why that is less 14:24:57
risk, if I can say, on a spectrum of risk with 14:25:03
regards to projects, I view this one being at the 14:25:07
low end because of where it is being built, because 14:25:11
of the sea state, because of the proximity that it 14:25:16
is to the coastline. 14:25:21
It's not fair, in my opinion, to 14:25:23

Page 197

compare north sea projects and the issues that they 14:25:26
suffer, with this development which has got 14:25:29
a completely different risk profile. 14:25:34
Q. Okay, so to confirm your testimony 14:25:36
is that the Windstream project would have -- again, 14:25:40
been unprecedented in time. We can agree there that 14:25:45
this is faster than any other project? 14:25:48
A. I don't agree that is the case. 14:25:50
My analysis would suggest that it's in the zone for 14:25:52
what can be achieved for offshore wind development. 14:25:55
(Simultaneous speakers - unclear) 14:26:00
Q. And have you provided any 14:26:01
documents or examples to support that time frame in 14:26:01
your report? 14:26:04
A. I have not. I have done my own 14:26:05
personal assessment of projects that are in our 14:26:07
database and compared them with what is being 14:26:13
claimed in our schedule to make me happy that this 14:26:17
schedule is achievable. 14:26:20
Q. And are you aware that URS has 14:26:24
done that type of analysis for projects between 200 14:26:29
and 400 megawatts and have not been able to come 14:26:31
close to that number? 14:26:36
A. I am sure I could go and cherry 14:26:39
pick projects that had issues and paint a very black 14:26:41

Page 198

picture of the possible. 14:26:45
So we have to remember that those 14:26:47
various issues that have caused project delays in 14:26:49
the North Sea. There is the whole TenneT issue with 14:26:52
regard to the German grid, where it was responsible 14:26:59
for building the infrastructure required to evacuate 14:27:03
power from a lot of these projects, and it failed in 14:27:09
its mission to do that which caused very lengthy 14:27:14
delays for many of the projects in the German 14:27:18
sector. 14:27:22
The same sort of thing could be seen 14:27:23
where novel techniques are being deployed in the 14:27:25
offshore environment to bury both the inter-turbine 14:27:28
cables and the cable that runs from the turbines to 14:27:34
the on-shore location grid, where the plows have 14:27:38
failed, there's been mechanical failure. This will 14:27:44
not happen on Lake Ontario because the cables are 14:27:47
laid directly on the surface. 14:27:50
So I do not think that it's reasonable 14:27:52
to compare projects that are ongoing, that are being 14:27:54
built in the North Sea to projects on Lake Ontario. 14:28:00
It's two completely different environments. It's 14:28:03
not comparing apples with apples. 14:28:08
Q. Okay, well, we heard from 14:28:10
Mr. Cooper and Mr. Palmer this morning that there 14:28:11

Page 199

could be certain issues with the schedule as it 14:28:14
pertains to the floating of the turbines, the 14:28:19
manufacturing, that sort of thing. 14:28:21
And to the extent that those risks 14:28:23
exist, your view is still that this project could be 14:28:24
completed in that amount of time? 14:28:27
A. Yes, that is my contention. 14:28:29
I don't know if you are aware in 1944, there were 14:28:31
over 400 concrete caissons sat on the bottom of the 14:28:36
sea around the UK, which were filled with air, 14:28:41
refloated, and towed to the Normandy beaches in 14:28:44
order to make artificial harbours to facilitate the 14:28:50
D-Day invasions. 14:28:56
The concepts that we've been talking 14:28:58
about here have been tried and tested. 14:29:00
And 70 years ago, a first-of-a-kind 14:29:02
development managed to support the Allied invasion 14:29:05
of northern Europe. 14:29:06
Q. Right, Mr. Irvine but I guess 14:29:10
my -- 14:29:12
A. So I am totally behind the 14:29:13
commentary I have made with regards to the ability 14:29:14
for this project to be constructed on the schedule 14:29:19
as presented. 14:29:22
Q. Okay, well, let's move on to 14:29:23

Page 200

a different topic then. 14:29:25
You are aware as you mentioned in your 14:29:30
presentation that Windstream has signed a binding 14:29:32
turbine sales agreement with Siemens for the supply 14:29:34
of its turbines; correct? 14:29:36
A. I do not believe that that is 14:29:39
a binding sales agreement. It's stated in our 14:29:40
report that that is subject to re-negotiation. 14:29:43
Q. You're aware that it is a signed 14:29:45
agreement though; correct? 14:29:47
A. A signed -- a signed agreement 14:29:47
which is subject to re-negotiation. 14:29:50
Q. And is -- and is -- it being 14:29:52
subject to renegotiation, is that -- is that your 14:29:55
own personal knowledge or have you been informed 14:30:01
that that's the case by the Claimant? 14:30:03
A. That is what is stated in our 14:30:05
report. 14:30:07
Q. Okay, well, let's have a look at 14:30:09
that -- some parts of that turbine sales agreement 14:30:10
and we're going to go in a confidential session. 14:30:13
--- Confidential transcript begins 14:30:16
BY MS. SQUIRES: 14:30:26
Q. And we're going to start with your 14:30:26
schedule and we're going to look at line 367. 14:30:29

Page 201

[redacted]
14:32:19

Page 202

[redacted]
14:33:18

Page 203

[redacted]
14:34:19

Page 204

[redacted] 14:34:35
MS. SQUIRES: Okay, I think we can 14:34:37
come out of the confidential session. 14:34:40
--- Confidential transcript ends 14:34:42
BY MS. SQUIRES 14:34:57
Q. Before we leave our discussion on 14:34:57
major equipment, I want to discuss the elevator 14:34:57
platform for a minute. 14:35:01
And if we can go to your schedule 14:35:03
again and we turn to 273. This line discusses the 14:35:05
procurement of the elevator platform; are you with 14:35:14
me there? 14:35:21
A. Yes, I see that. 14:35:22
Q. Line 273. And it indicates 14:35:24
a start date of December 5th, 2012 and an end date 14:35:24
of April 2nd, 2014; correct? 14:35:28
A. I can see that also. 14:35:32
Q. And the next line, line 274, then 14:35:34
indicates two months for installation of that 14:35:37
elevator platform; correct? 14:35:40
A. I can see that also. 14:35:42

Page 205

Q. So, that's about 18 months, in 14:35:43
total, I believe, if my math is correct. 14:35:46
A. Okay, I'll agree with you on that. 14:35:51
Q. All right. Now, you don't provide 14:35:53
a quote or any industry evidence to support your 14:35:55
conclusion in that regard; is that correct? It's 14:35:58
based on your own knowledge? 14:36:01
A. No, it's not based on my own 14:36:03
knowledge. It is based on the knowledge of COWI 14:36:05
because they are the expert in this space. I can't 14:36:07
claim to have any knowledge of the procurement or 14:36:10
delivery or installation times of an elevator 14:36:14
platform. That sits with COWI and they explained 14:36:16
that this morning in some detail, I believe. So 14:36:21
I have it rely on experts to furnish me with 14:36:25
information to go into this program. 14:36:30
Q. Let's look at line 379 then. And 14:36:32
it notes there that installation of the 14:36:34
gravity-based foundation is to begin on June 4th, 14:36:46
2014; correct? So five days after the elevator 14:36:50
platform is installed. June 11th, sorry -- no, 14:36:53
June 6th. 14:37:02
A. Yes, I can see that. 14:37:04
Q. So you've only allowed yourself 14:37:05
a five-day buffer then between the time the elevator 14:37:07

Page 206

platform goes in and the time that the foundation 14:37:10
installation starts. 14:37:13
Actually, I'm looking at the schedule. 14:37:15
I believe we you have an 11-day. We may have read 14:37:17
this one wrong. Just give me one second. 14:37:20
MS. SEERS: Again, Mr. Chair, I really 14:37:24
don't mean to keep interjecting but these are 14:37:26
matters that Mr. Cooper testified about this morning 14:37:29
and this is within his field of expertise. 14:37:31
PRESIDENT: This is a different issue. 14:37:33
This is an interface between his area of expertise 14:37:35
and the expertise of other experts, so it's fine to 14:37:36
explore this. 14:37:40
MS. SEERS: Well if I may -- okay. 14:37:41
I would just like to explain for the record, though, 14:37:42
that, while Sgurr definitely inputted the data that 14:37:45
was prepared or provided by these various experts, 14:37:49
the various experts are responsible for the accuracy 14:37:53
of that data. And so if there's a question about 14:37:58
the length of time that certain things take, that's 14:37:59
an appropriate question for Mr. Cooper in his area 14:38:01
of expertise. 14:38:04
If the matter is whether the data was 14:38:05
correctly inputted into Microsoft project, then 14:38:06
perhaps that's something that Mr. Irvine can speak 14:38:09

Page 207

to. 14:38:12
MR. SPELLISCY: And I would suggest 14:38:13
that the proper person to be providing that 14:38:14
explanation is actually the witness whose testimony 14:38:15
is -- who are here. 14:38:18
PRESIDENT: The expert is not only 14:38:21
somebody who put together this information; he's 14:38:22
also an expert on scheduling. So it's fine to 14:38:24
explore whether the input that he has received from 14:38:27
other experts is something that is consistent with 14:38:30
his experience in other projects, whether it's 14:38:32
something that is reasonable, whether it's 14:38:34
acceptable, whether he tested this information. 14:38:36
I think this is a fully legitimate area of -- and 14:38:38
the witness is doing fine. 14:38:42
MS. SEERS: Thank you, Mr. Chair. 14:38:44
PRESIDENT: And the Tribunal 14:38:46
appreciates this information. 14:38:47
THE WITNESS: I have tested all of the 14:38:49
individual components for the schedule. I've tested 14:38:50
it against relevant projects in Europe, not ones 14:38:53
that are not comparable. I've tried to compare 14:38:58
apples with apples and I'm comfortable with the 14:39:01
detail in the schedule and that it has been achieved 14:39:03
in other locations that are similar to Lake Ontario. 14:39:07

Page 208

BY MS. SQUIRES: 14:39:30
Q. Okay, so, I want to go back then 14:39:31
to what I was just talking about and that there's 14:39:36
a five-day period between the time the 14:39:38
foundations -- between the time that the elevator 14:39:39
platform is installed and the time that the 14:39:42
gravity-based foundations start going in the water; 14:39:45
is that right? 14:39:48
A. I will trust your opinion on that 14:39:50
number. 14:39:52
Q. And based on your opinion with 14:39:54
scheduling then, any lead time longer than that, any 14:39:56
delays would lead to a delay in the project in 14:39:59
getting the foundations in the water; correct? 14:40:03
A. On the hypothetical project, based 14:40:06
on this scenario, yes, that's possible, but I keep 14:40:09
stressing that building a project is about multiple 14:40:14
iterations of the program. This is just one. That 14:40:19
when you're building a project, you introduce risks. 14:40:22
You introduce stresses. You find out where the 14:40:26
weaknesses are in the program, and you build 14:40:29
an appropriate mitigation. 14:40:32
So to try and pick holes and do all of 14:40:33
this and say "Therefore, the project would wander 14:40:38
into the sunset," I don't think is reflective of 14:40:42

Page 209

what actually happens in the development of 14:40:45
an offshore wind project or any project for that 14:40:48
matter. It's all about risk identification and 14:40:52
mitigation. It's about getting more information to 14:40:57
come into the project and better inform those that 14:41:02
are involved in its delivery. 14:41:04
Q. Okay, I'll just ask you to give me 14:41:07
one second then. 14:41:09
[Counsel confers] 14:41:13
Mr. Irvine, so I can understand a bit 14:42:20
more about the scope so I don't ask you questions 14:42:22
about topics that you have not provided any sort of 14:42:25
opinion on. The inclusion of the offshore 14:42:28
substation in the schedule, is that something in 14:42:31
your purview or is that another expert? 14:42:33
A. I'm happy to take questions on 14:42:39
that. 14:42:40
Q. So let's go to page 98 of your 14:42:42
first report. 14:42:46
You will see there toward the bottom 14:43:03
of the page there is a Section entitled "Offshore 14:43:04
substation"? 14:43:07
A. Yes, I can see that. 14:43:08
Q. So you note there that the project 14:43:09
substation will be located at the offshore site and 14:43:10

Page 210

will start to collect the 35 kilovolts power 14:43:13
generated by the individual turbines, and then that 14:43:17
will then step the voltage up to 230 kilovolts for 14:43:19
the cable; correct? 14:43:24
A. Yes. 14:43:26
Q. So it is my understanding that the 14:43:27
offshore substation is a 35 kilovolt offshore 14:43:28
substation; is that right -- or sorry, 230-kilovolt 14:43:32
offshore substation; correct? 14:43:36
A. Yes. 14:43:38
Q. Now, in your presentation you 14:43:40
mentioned that one of the scheduling advantages for 14:43:42
Windstream was the use of an on-shore, rather than 14:43:45
a offshore substation; correct? 14:43:47
A. That's correct, in the 14:43:49
hypothetical scenario we looked at and were tasked 14:43:50
with assessing. 14:43:52
Q. And are you aware that Windstream 14:43:56
was not able to use Pigeon Island, the location of 14:43:58
the proposed offshore substation, they were not 14:44:01
allowed to use that to build an -- a MET tower; are 14:44:04
you aware of that? 14:44:09
A. I don't see the relevance of that 14:44:12
with the schedule we were tasked to develop. We 14:44:13
were given that was the situation that would present 14:44:17

Page 211

itself, i.e. we had an island on which we would 14:44:19
develop a substation and associated electrical 14:44:22
infrastructure. That's the scenario that we 14:44:26
developed this program schedule, and if we were 14:44:28
given a different scenario we would have developed 14:44:32
a different schedule. 14:44:34
Q. Okay, so when you were told that 14:44:35
an offshore substation could be developed on that 14:44:37
island, you were not made aware that they were 14:44:39
refused access to that island for a smaller MET 14:44:42
tower; correct? 14:44:45
A. I was asked to develop a schedule 14:44:46
based upon that island being utilized. If I was 14:44:48
given a different scenario, I would have come up 14:44:53
with a different schedule? 14:44:56
In the UK right now, there is what is 14:44:58
called the renewables obligation, and we are working 14:44:59
for a client who is trying to get a wind farm built 14:45:03
in the offshore environment before the time runs out 14:45:07
with regards to its ability to receive a subsidiary 14:45:13
for that development. So it has started with an end 14:45:16
date, and we work back and we developed a schedule 14:45:19
that is robust enough to receive finance, for 14:45:22
example, we stress tested. We check it. We make 14:45:27
sure that the schedule is sufficiently robust. So 14:45:30

Page 212

we are basing this upon a scenario that we were given, and that was Pigeon Island would be available to install an offshore substation on. 14:45:35 14:45:40 14:45:42

Q. So, correct me if I'm wrong then, you didn't do a scheduling, or you didn't input into the schedule the possibility of having a substation that's not on Pigeon Island, so a floating substation, a gravity-based foundation substation? 14:45:49 14:45:51 14:45:53 14:45:55 14:45:58

A. That was not considered in that scenario. If we were to look at multiple scenarios, then, yes, I've said repeatedly what the process of project development is about, and it's about understanding the possible, if things don't go to your original plan you come up with a Plan B. You continually input into the program and find solutions that will help you get to your end date. 14:46:03 14:46:04 14:46:07 14:46:11 14:46:15 14:46:18 14:46:22 14:46:25

Q. All right. I want to look at your schedule, then, at line 345. 14:46:35 14:46:36

Is the offshore substation that you are referring to here, then, is that the one on Pigeon Island? 14:46:51 14:46:52 14:46:55

Is that the only one that you've -- 14:46:55

A. That is the only one that I've been made aware of. That's my understanding. 14:46:58 14:47:00

Q. So to the extent an offshore 14:47:02

Page 213

substation is required, there is nothing in the schedule that speaks to that -- sorry, an offshore substation not on Pigeon Island, there is nothing that speaks to that? 14:47:04 14:47:05 14:47:08 14:47:11

A. That's correct. That would be another scenario, and we could develop another schedule around that. We can manufacture all our gravity base. You can get the appropriate equipment to come in and install the transformer on -- there are many scenarios one could have here. We could relocate to Wolfe Island, for example. We could have an offshore collector station where you just assemble the electrical cables and run them to another location where would you have a substation. 14:47:12 14:47:13 14:47:16 14:47:22 14:47:25 14:47:29 14:47:32 14:47:34 14:47:37 14:47:42

There are multiple scenarios that one could build into a project program. This one assumes that we will build on Pigeon Island. 14:47:48 14:47:50 14:47:53

Q. Okay, under the FIT contract, barring any event of force majeure occurring, Windstream had five years to develop its project; correct? 14:47:56 14:48:02 14:48:04 14:48:07

A. That's my understanding, but I'm not an expert in the details behind the FIT contract. I know I have to give a program that links to a specific end date, and I come up with 14:48:07 14:48:08 14:48:12 14:48:17

Page 214

engineering solutions that is will make that happen. 14:48:19

Q. But your understanding is five years? 14:48:22 14:48:24

A. Five years, I believe there's a -- a degree of slip allowed in that, as one would expect. That's what we see in projects globally. There may be a period of time that you have to build your project, but if you are started -- if you are demonstrating to those that are issuing the FIT-type contracts that you have begun work that you have committed capital to a project, there's typically some leeway in that. It's not a cliff edge. It's not a hard stop. There is some porosity in that end date. 14:48:24 14:48:27 14:48:31 14:48:35 14:48:39 14:48:42 14:48:48 14:48:50 14:48:53 14:48:57 14:49:01

Q. Okay, we can come back to that buffer period in a minute because I do understand what you are getting at there, that period that extends beyond the five years, but if we could come to tab 9 of your binder, which is Exhibit R-0092. This is a copy of the standard form FIT contract, and we're going to look at page 9. 14:49:01 14:49:02 14:49:05 14:49:07 14:49:10 14:49:20 14:49:22

In Section 2.5 it notes that. 14:49:36

"The supplier..." 14:49:38

So in this case, Windstream: 14:49:39

"... acknowledges that time is of 14:49:40

Page 215

the essence in to the OPA with respect to obtaining commercial operation of the contract facility by the milestone date for commercial operation set out in Exhibit A." 14:49:42 14:49:45 14:49:46 14:49:48 14:49:49 14:49:51

Do you see that? 14:49:54

A. I can see that. 14:49:54

Q. And it notes further: 14:49:55

"The parties agree that commercial operation shall be achieved in a timely manner and by the milestone date for commercial operation." 14:49:56 14:49:58 14:50:00 14:50:02 14:50:03

[As read] 14:50:04

Do you see that? 14:50:04

A. I can see that also. 14:50:06

Q. Now, I want to take you to page 15 of your second report. And you'll note there, I believe it's toward the bottom of the page, it says: 14:50:08 14:50:10 14:50:38 14:50:40

"The project could have been developed and constructed in a period of approximately 5.25 years or 63 months." 14:50:41 14:50:42 14:50:43 14:50:46

Page 216

[As read] 14:50:48
A. Yes. 14:50:48
Q. So, in your professional opinion 14:50:49
then, the project could not reach commercial 14:50:52
operation within the five years required in the FIT 14:50:54
contract; it required extra time; correct? 14:50:56
A. Well, that's correct; that's what 14:50:59
our schedule has thrown up. 14:51:00
MS. SEERS: Mr. Chair, I hesitate in 14:51:04
interjecting again, but Ms. Squires has just put to 14:51:08
the witness whether something was required under the 14:51:12
FIT contract or not. And so I'd just like to 14:51:14
register an objection that there have been other 14:51:17
witnesses that have testified already as to what was 14:51:19
and wasn't required and this witness is not 14:51:21
an expert on that. 14:51:24
BY MS. SQUIRES: 14:51:25
Q. So, I would note in that very same 14:51:26
paragraph in Mr. Irvine's report he says that: 14:51:27
"That schedule means that the 14:51:29
project could have been developed 14:51:30
and constructed in a period that 14:51:31
was consistent with the 14:51:33
constraints of the FIT program." 14:51:34
So, I believe Mr. Irvine is prepared 14:51:35

Page 217

to discuss what is or is not consistent with the FIT 14:51:37
program or, Mr. Irvine, tell me if I'm wrong? 14:51:40
A. Well, I'm reliant on those who 14:51:43
have a good working knowledge of the FIT program to 14:51:45
feed into our report. I do not have a good working 14:51:48
knowledge of the FIT program. 14:51:53
Q. So when you said that it was 14:51:55
consistent with the constraint of the FIT program, 14:51:57
that was without an understanding of the FIT program 14:51:59
itself? 14:52:02
A. Yes, about those who have gotten 14:52:02
a better understanding of the FIT program than 14:52:05
I have. 14:52:08
Q. All right. Those are, 14:52:08
I believe -- just give me one second again. 14:52:10
[Counsel confers] 14:52:16
MS. SQUIRES: Nothing else from me, 14:52:49
Mr. Irvine. 14:52:50
PRESIDENT: Thank you, Ms. Squires. 14:52:51
I trust there will be questions in redirect? 14:52:53
MS. SEERS: You will be surprised to 14:52:55
note that there are not. 14:52:56
PRESIDENT: There are not? 14:52:58
MS. SEERS: We have no questions. 14:52:59
PRESIDENT: Anything from the 14:53:01

Page 218

Tribunal? 14:53:01
QUESTIONS BY THE TRIBUNAL: 14:53:01
MR. BISHOP: Yes. You said that at 14:53:04
one point that you compared apples to apples and 14:53:06
that you looked at projects similar to that in 14:53:10
Ontario. 14:53:14
What projects did you consider to be 14:53:14
analogous to this project? 14:53:18
THE WITNESS: Basically, a number of 14:53:20
projects that operate in the Baltic sea that utilise 14:53:21
gravity-based foundation, for example, Nysted, which 14:53:27
is one that has been discussed by others. 14:53:32
MR. BISHOP: Could you speak up 14:53:36
a little bit? I'm having trouble hearing you. 14:53:37
THE WITNESS: Nysted is a project that 14:53:39
is situated just south of Copenhagen in the Baltic 14:53:42
Sea -- so that project was -- it's spelled 14:53:47
N-Y-S-T-E-D. 14:53:53
That project utilized gravity-based 14:53:55
foundation and I would argue that it's a better 14:53:56
representative location because it's in a more 14:54:00
sheltered sea. 14:54:04
And it is also, using gravity-based 14:54:05
foundation. 14:54:12
It is also using Siemens 3.2 megawatts 14:54:12

Page 219

turbines. So those turbines aren't directly 14:54:17
comparable with the proposition that's under 14:54:20
discussion. 14:54:23
Many of those other projects that are 14:54:24
being compared to the Lake Ontario project are using 14:54:26
4 megawatts turbines, 6 megawatts turbines. They 14:54:30
have potential technology issues, they have 14:54:33
different foundation requirements, so they are not 14:54:36
directly comparable. 14:54:39
Those other projects in -- I cannot 14:54:40
remember the lake in Sweden, but it's in my 14:54:44
presentation that I gave this morning, which is very 14:54:47
similar to the proposed project in Lake Ontario. So 14:54:50
I would consider those in the Baltic Sea using 14:54:56
gravity-based foundation to be better comparators of 14:55:00
the possible, rather than those 80 kilometres 14:55:03
offshore and 35 metres of water. 14:55:08
MR. BISHOP: Are there any others that 14:55:12
you consider comparable, other than those two? 14:55:14
THE WITNESS: Off the top of my head, 14:55:18
it's challenging for me to recall what might be 14:55:19
appropriate. I could certainly follow that up, if 14:55:24
that would be appropriate. 14:55:27
MR. BISHOP: Well, I think we're just 14:55:30
looking for your testimony today. You came here to 14:55:32

Page 220

testify about these matters; you made the statement 14:55:34
that you were looking at apples to apples in similar 14:55:37
projects, so I'm simply asking you what you're 14:55:41
referring to. 14:55:44
THE WITNESS: Well, I'm referring to 14:55:45
those projects that we have on our database. Many 14:55:46
of them are listed in the presentation. I've done 14:55:51
numerical analysis on the information that was 14:55:55
presented to adequately normalize that information, 14:55:58
such that we can look at installation rates in terms 14:56:02
of megawatts per one installed, in terms of turbines 14:56:05
per month installed, in terms of the overall project 14:56:12
duration from the start to finish. So I'm sorry I'm 14:56:14
unable to recall the precise names of those 14:56:22
projects, but I do have that data. 14:56:24
MR. BISHOP: So when you are referring 14:56:30
to apples to apples, though, you're talking about 14:56:31
projects that would have similar technical -- 14:56:35
technical issues, technical requirements? You're 14:56:38
talking about the technical aspects of the project. 14:56:40
THE WITNESS: Similar technical 14:56:42
aspects, but we have big issues in Germany, 14:56:45
specifically, with regards to the grid support, so 14:56:48
this is adding years of delay on the project, so 14:56:55
it's not fair to rope these into the comparison. 14:56:57

Page 221

MR. BISHOP: Okay. Thank you. 14:57:01
THE WITNESS: Thanks. 14:57:01
PRESIDENT: Mr. Irvine, if I could 14:57:06
take you to your presentation pages -- let me see, 14:57:07
do we have page numbers here? So, starting with the 14:57:14
project specific SgurrEnergy experience, probably 14:57:23
page 8, 9, I suppose. You have listed on three 14:57:28
pages, you have listed your experience. You have -- 14:57:43
THE WITNESS: Yes. 14:57:47
PRESIDENT: First as lender's 14:57:48
engineer. Then as independent engineer or advisor 14:57:50
in the -- in acquisition. 14:57:54
THE WITNESS: Yes. 14:57:56
PRESIDENT: And then as owner's 14:57:58
engineer. 14:57:59
THE WITNESS: Yes. 14:58:00
PRESIDENT: So you have looked at this 14:58:00
from different angles. 14:58:01
THE WITNESS: That's correct. 14:58:03
PRESIDENT: And the one that would 14:58:04
probably be closest to what you are doing here would 14:58:09
be which one of these poles? Perhaps, well, as 14:58:13
an expert you would probably be an independent 14:58:19
expert engineer. 14:58:21
THE WITNESS: I would call myself 14:58:22

Page 222

an independent engineer in the context within which 14:58:23
I've been asked to look as these projects and give 14:58:27
evidence. 14:58:30
PRESIDENT: So looking at all of 14:58:32
these, how would the current project compare in 14:58:33
terms of size, in terms of the megawatts that the 14:58:42
project would produce, and the number of -- 14:58:47
I believe, one expert used the term "Bicycle" -- and 14:58:53
the number of bicycles to be set up? 14:58:56
THE WITNESS: It's smaller at 14:59:00
300 megawatts. The sort of block size that we're 14:59:01
looking at in terms of these projects are in excess 14:59:06
of 500 megawatts. London Array, for example, is in 14:59:09
excess of 700 megawatts. It is one of the biggest 14:59:14
offshore wind farm in the world. So, this is what 14:59:18
I'm saying about taking data and trying to normalize 14:59:23
it a manner that gives you a direct comparison. 14:59:27
PRESIDENT: And in terms the number of 14:59:31
130 turbines in this project, I understand, how 14:59:32
would that compare with the ones that you have 14:59:36
listed on these three pages? 14:59:39
THE WITNESS: Well, again, typically 14:59:41
there is reduced number of turbines in larger sites. 14:59:43
They're now using 6 megawatts machines, 7 megawatts 14:59:48
machines, so there are fewer turbines than many of 14:59:53

Page 223

these projects. London array has 3.6 megawatt 14:59:57
turbines for example. 15:00:01
PRESIDENT: So what would determine 15:00:08
whether you use 6 or 3 megawatts, for instance? Is 15:00:09
it the wind resource? 15:00:12
THE WITNESS: Well, the purpose of 15:00:14
going bigger is designed to reduce the levelized 15:00:16
cost of energy. 15:00:20
So, the bigger you make the turbines, 15:00:22
the fewer foundations you need. The fewer 15:00:24
deployment operations you need. You are typically 15:00:29
fishing the turbine up into the higher atmosphere 15:00:32
where you're able to capture more energy, so going 15:00:35
bigger is designed to make the project more cost 15:00:39
effective to... 15:00:42
PRESIDENT: So in this instance where 15:00:44
you have -- where the plan was to build around 130 15:00:45
bicycles or turbines, why would it -- would it not 15:00:53
have been cost efficient to use more efficient 15:00:58
turbines, 6 megawatts? 15:01:01
THE WITNESS: Yes. And that could be 15:01:05
another scenario that we could have run. We were 15:01:05
basing this on the information that was available 15:01:08
with regards to a single scenario. 15:01:11
PRESIDENT: That was the scenario that 15:01:14

Page 224

you were given, that there would be 3.2 megawatts. 15:01:15
THE WITNESS: 2.3. 15:01:19
PRESIDENT: 2.3. 15:01:21
THE WITNESS: Yes. So that's the 15:01:22
scenario, and as I've said on several occasions, you 15:01:24
would keep refining the situation. 15:01:28
We've seen projects that start with 15:01:31
2 megawatts turbine that could end up with 15:01:33
a 4 megawatts turbine in fewer locations. 15:01:36
It is a development process that's 15:01:40
continually refined as we move through the 15:01:42
development phase, and there is always 15:01:46
an opportunity to capture the best available 15:01:49
technology at a given time. 15:01:52
PRESIDENT: Were you involved in the 15:01:58
project in Sweden, in Lake Vänern? 15:01:59
THE WITNESS: Personally? No. 15:02:03
PRESIDENT: Do you know how big that 15:02:06
project is in terms of the number of turbines and 15:02:07
the size? 15:02:09
THE WITNESS: It's in a report. 15:02:12
PRESIDENT: It's not on this -- on 15:02:15
the -- 15:02:17
THE WITNESS: It is not on the 15:02:18
presentation? 15:02:19

Page 225

PRESIDENT: Okay, we'll find out. 15:02:20
Yes, I think that's all I have. 15:02:26
DR. CREMADES: I have a small 15:02:28
question. I have a small question is the following: 15:02:29
Your company was engaged in February 2011, for this 15:02:34
project. You started working for this project in 15:02:42
February, 2011. 15:02:45
THE WITNESS: No, that's not my 15:02:48
understanding. No, I think we started later than 15:02:50
that. This is a hypothetical situation that I've 15:02:53
looked at. 15:02:57
DR. CREMADES: We did you -- when were 15:02:59
you contracted by Windstream to work on this 15:03:00
project? 15:03:02
THE WITNESS: Prior to the first 15:03:03
report, which I'm assuming is roundabout 2012. 15:03:04
DR. CREMADES: '12, so after the 15:03:11
moratorium? 15:03:13
THE WITNESS: Yes. 15:03:13
DR. CREMADES: In order to understand, 15:03:15
do you think that your work was done for the project 15:03:18
or in preparation of this arbitration? 15:03:23
THE WITNESS: Well, I was asked to 15:03:26
look at a theoretical situation, the question being: 15:03:28
Would it be theoretically possible to build this 15:03:32

Page 226

project? So we have taken an engineering view upon 15:03:36
that development, so, the work we have done, 15:03:39
I guess, it's useful, but it's based on this 15:03:48
theoretical situation which is designed to get 15:03:53
answers for this Tribunal. 15:03:58
DR. CREMADES: Well, I want to be more 15:04:02
concrete. The fees you were paid, did you think 15:04:03
should be considered costs of the project or costs 15:04:06
of this arbitration? 15:04:08
THE WITNESS: Well, I believe our work 15:04:12
stands and can be utilized with regards to the 15:04:14
development of the project. So it could be, if the 15:04:16
project was to be progressed. 15:04:20
DR. CREMADES: Uh-hmm. 15:04:23
THE WITNESS: It would be a cost to 15:04:24
the project. We have used information from the 15:04:25
relevant and best experts to build into this 15:04:31
project, to build into our reports, so this would 15:04:35
all stand very good stead with regards to 15:04:39
progressing the report -- the project if that was 15:04:44
the desire. 15:04:47
DR. CREMADES: Thank you. 15:04:49
THE WITNESS: Thank you. 15:04:50
PRESIDENT: Thank you, Mr. Irvine. 15:04:53
Any questions as a result of the 15:04:54

Page 227

questions from the Tribunal? 15:04:57
MS. SQUIRES: Yes, just one brief 15:05:02
question. 15:05:03
PRESIDENT: Yes, please. 15:05:04
FURTHER CROSS-EXAMINATION BY MS. SQUIRES: 15:05:10
Q. Mr. Irvine, you mentioned Nysted as 15:05:12
an appropriate project when Mr. Bishop asked for 15:05:16
a comparator; do you recall that? 15:05:19
A. I recall that, yes. 15:05:22
Q. Now that project is built in water 15:05:22
about 6 to 9 metres in depth; correct? 15:05:25
A. Correct. 15:05:28
Q. And it has 72 turbines; correct? 15:05:29
A. Correct. 15:05:32
Q. And it is backed by Dong; is that 15:05:32
correct? 15:05:34
A. That's correct, yes. 15:05:35
Q. So if we're looking to compare 15:05:35
apples to apples, this would not be an appropriate 15:05:37
comparison; correct? 15:05:40
A. No, I disagree. I think it is 15:05:41
a relevant comparison. It is an evolution of the 15:05:43
process with regards to deployment of 2.3 megawatts 15:05:46
turbines in a relatively benign sea using 15:05:50
gravity-based foundation, so the learnings from that 15:05:56

Page 228

are comparable. 15:05:59
Q. So in spite of it being in 15:06:00
shallower with water with less turbines, and being 15:06:02
backed by the world leader in offshore wind 15:06:06
development, you consider it comparable? 15:06:07
A. I considered it comparable, yes. 15:06:10
There are useful learnings to be gained from that. 15:06:10
And Wolfe Shoals does have machines that are in the 15:06:13
same water depth, although some are deeper. 15:06:13
MS. SQUIRES: That's my only question. 15:06:21
Thank you. 15:06:22
PRESIDENT: Ms. Seers? 15:06:22
MS. SEERS: Yes, we have some 15:06:24
questions. 15:06:25
PRESIDENT: Please. 15:06:26
RE-EXAMINATION BY MS. SEERS: 15:06:26
Q. Mr. Irvine, Dr. Heiskanen asked 15:06:34
you a question about why you use a 2.3 megawatt 15:06:37
Siemens turbine as opposed to a 6 megawatt Siemens 15:06:39
turbine. Can you explain when the 6 megawatts 15:06:45
Siemens turbine became available on the marketplace 15:06:47
and how that would have fit or not fit within the 15:06:50
project schedule that you developed here? 15:06:52
A. Well, it was not available to the 15:06:54
marketplace in 2011, which was the theoretical 15:06:55

Page 229

position we had to take. When precisely it came on 15:07:01
the market, we helped with the lender's engineering 15:07:05
assignment on that, so I think we're looking at, 15:07:11
perhaps, two years ago, three years ago, was the 15:07:14
first project that got through the project financing 15:07:16
phase. 15:07:21
Q. Okay, and Dr. Heiskanen also asked 15:07:24
you questions about the comparison between -- or it 15:07:28
may have been Mr. Bishop, I apologize, I'm not 15:07:30
sure -- about the comparison between the 15:07:33
Wolfe Island Shoals project and other projects 15:07:36
including, you mentioned projects in the Baltic sea. 15:07:38
Could you elaborate on why you would 15:07:44
consider projects in the Baltic sea, comparable to 15:07:46
this particular project? 15:07:49
A. Well, largely because of the more 15:07:50
benign sea state. 15:07:53
There is less risk associated with the 15:07:55
development of a project. There is likely to be 15:07:58
less downtime with regards to weather. If we go 15:08:01
into the more northerly parts of the Baltic sea, 15:08:05
they're far less saline compared to the Atlantic, 15:08:09
for example. 15:08:14
So we are moving into zones where 15:08:15
there is basically less weather risk and there is 15:08:17

Page 230

utilization of gravity-based foundation in a more 15:08:22
benign environment. 15:08:25
Q. Thank you very much. 15:08:31
QUESTIONS BY THE TRIBUNAL: 15:08:32
PRESIDENT: Thank you. Actually, 15:08:32
I have one more question: You mentioned in your 15:08:32
presentation that you used radar to investigate wind 15:08:35
resource. 15:08:39
THE WITNESS: It is LiDAR. 15:08:40
PRESIDENT: Yes. Well, the question 15:08:42
is why are airlines so bad in detecting turbulence, 15:08:45
even if they have radar? 15:08:49
THE WITNESS: Well, they actually use 15:08:51
LiDAR to detect turbulence, and they avoid it. 15:08:52
Sometimes you can't fly over it or around it, but 15:08:56
that is deployed on aircraft. 15:09:00
PRESIDENT: Okay, so maybe we can 15:09:03
explore that during -- I trust this doesn't give any 15:09:05
rise to further questions? 15:09:08
MS. SQUIRES: Just curiosity. 15:09:11
PRESIDENT: Just curiosity. Thank you 15:09:12
very much. 15:09:14
THE WITNESS: Thank you. 15:09:15
MS. SEERS: Mr. Chair, if I may raise 15:09:37
a procedural issue. I see we're actually ahead of 15:09:40

Page 231

schedule -- uncharacteristically perhaps ahead of 15:09:42
schedule. 15:09:42
PRESIDENT: That is entirely 15:09:46
unintended. 15:09:46
MS. SEERS: It must be because it's 15:09:48
Sunday. We had Mr. Clarke scheduled to start today 15:09:49
and continue tomorrow, and I'm certainly prepared to 15:09:54
proceed, however, I had contemplated further time 15:09:56
tomorrow and so I would ask for the Tribunal's 15:09:59
indulgence, if possible, to get as far as we can 15:10:02
today and then continue tomorrow morning, if 15:10:05
possible. 15:10:07
PRESIDENT: Certainly. The idea was 15:10:08
to start today, and I don't see any reason why we 15:10:10
should change the program. 15:10:16
MS. SEERS: No, and certainly I'm 15:10:18
prepared to start today. I just had contemplated 15:10:20
also continuing tomorrow morning. 15:10:22
PRESIDENT: You were planning to 15:10:24
continue anyway tomorrow so, we may finish earlier 15:10:25
today. 15:10:30
MS. SEERS: If possible, that would be 15:10:32
appreciated. 15:10:33
PRESIDENT: I doubt that will be many 15:10:34
objections to that, but I'd like to hear the 15:10:35

Page 232

Respondent's comments. 15:10:37
MS. SQUIRES: I am sure Mr. Clarke 15:10:40
would like to be like to be free of this process. 15:10:42
He is available tomorrow morning. 15:10:45
PRESIDENT: Yes. Okay, but let's have 15:10:45
a break. We will continue at 3:25 with Mr. Clarke. 15:10:45
Thank you. 15:10:50
--- Recess taken at 3:10 p m. 15:10:53
--- Upon resuming at 3:30 p.m. 15:10:53
PRESIDENT: Good afternoon, 15:30:06
Mr. Clarke. So you have been here so you know how 15:30:07
it works. So if you could please state your name 15:30:11
for the record and read the declaration for expert 15:30:14
witness. 15:30:15
THE WITNESS: Yes, good afternoon. My 15:30:16
name is Gareth De Villiers Clarke. 15:30:17
I solemnly declare upon my honour and 15:30:21
conscience that my evidence and my opinions will be 15:30:25
in accordance with my sincere belief. 15:30:28
AFFIRMED: GARETH DE VILLIERS CLARKE 15:30:30
PRESIDENT: Thank you very much. 15:30:31
The URS report has already been 15:30:34
subject to cross-examination in part earlier in this 15:30:39
proceeding last week. So this is now the 15:30:42
engineering aspect of it. We understand you have 15:30:54

Page 233

prepared a presentation which we look forward to 15:30:57
hearing, but before we start, will there be any 15:30:59
questions on direct also from the Respondent? 15:31:02
MS SQUIRES: Yeah, after the 15:31:09
presentation there will be 15:31:10
PRESIDENT: After the presentation 15:31:12
Thank you very much 15:31:13
Please go ahead, Mr Clarke 15:31:13
PRESENTATION BY GARETH D CLARKE, AECOM UK 15:31:13
THE WITNESS: Good afternoon 15:31:27
MS WATES: Mr President, if I could 15:31:46
just ask for a few moments so we can advance the 15:31:47
slides to the start of 15:31:48
PRESIDENT: Yes, of course 15:31:48
THE WITNESS: Thank you 15:31:49
Good afternoon, my name is Gareth 15:31:49
Clarke I am a Chartered Engineer, which is the UK 15:31:51
designation I think it's equivalent to 15:31:55
a Professional Engineer in other jurisdictions 15:31:59
I have 35 years of experience, of 15:32:02
which two years were in the mining industry I then 15:32 07
spent four years with a transmission utility where 15:32:11
primarily I was involved in project management of 15:32:15
a major project, and I've now been a consulting 15:32:19
engineer for 29 years 15:32:22

Page 234

In that time, I've been in both 15:32:26
a technical leadership and project management roles 15:32:28
with direct involvement in projects throughout that 15:32:35
time. 15:32:39
I'm currently a technical director in 15:32:42
the AECOM UK Power & Energy business unit where 15:32:46
I have been involved in a wide range of projects in 15:32:53
the power sector covering thermal generation, 15:32:57
renewable energy generation and transmission and 15:33:05
distribution. 15:33:08
I have personal direct involvement in 15:33:09
one offshore wind project and numerous on-shore wind 15:33:14
projects. 15:33:18
For this particular assignment, my 15:33:24
role was the leadership and management of the 15:33:27
technical team in the UK, particularly the 15:33:33
environmental work was done from our Canadian 15:33:39
office, but I was leading the technical team in the 15:33:42
UK. 15:33:45
I assembled a team of experts for this 15:33:47
project from both within URS as we were at the time 15:33:50
of appointment and specialist sub-consultants, all 15:33:58
of whom we have, in fact, worked with for a number 15:34:02
of years prior to this appointment. 15:34:06
During the project, I've coordinated 15:34:08

Page 235

the activities of the team, and I've also been 15:34:10
responsible for directly reviewing the technical 15:34:17
parts of the -- both URS reports. 15:34:19
As Mr. Rose indicated last week, the 15:34:31
URS approach to this project covered three key 15:34:35
issues: Recognizing the time constraints imposed by 15:34:40
the FIT contract, clearly one of the key issues was 15:34:47
the project schedule. 15:34:51
We also then looked at the project 15:34:55
risks, and the risks facing the project during both 15:34:58
its development and construction phase, and we also 15:35:02
looked at the cost and commercial implications 15:35:09
insofar as they were influenced by the technical 15:35:15
aspects of the project. 15:35:20
Effectively, what we were doing was 15:35:23
looking to provide assumptions or review of the 15:35:26
assumptions made by Deloitte. 15:35:32
The methodology we applied in our 15:35:40
analysis is we analyzed the documents and 15:35:43
submissions made by Windstream. It was specifically 15:35:51
not our intent or object or objective to consider 15:35:57
the design or develop the design or other aspects of 15:36:02
the project. 15:36:06
In this respect, I guess you could say 15:36:08
we were more like lenders' engineers as described by 15:36:10

Page 236

Mr. Guillet last week where he said a lender's engineer role was to challenge the project and the risks facing it, and how those might impact the project. 15:36:17 15:36:21 15:36:26 15:36:29

In assessing the risks facing the project, we recognise that risks can have both direct cost and schedule impacts or implications. And in undertaking our work, we identified a significant number of risks. 15:36:37 15:36:39 15:36:43 15:36:50 15:36:55

We fully acknowledge that not all of those risks would have materialized, and that some of them that did materialize could have been mitigated. But we also considered -- considered it unrealistic that in a project of this size and complexity, that no risks would materialize that would have an impact on project -- on schedule and/or costs. 15:36:57 15:37:00 15:37:05 15:37:08 15:37:12 15:37:15 15:37:21 15:37:26

The other thing that is important is our analysis is based on the status of the project and the industry, as at the -- effectively the 11th of February, 2011. 15:37:33 15:37:35 15:37:39 15:37:47

In other words, looking at the project as if it had continued under the scenario that is being dealt with in this hearing. Essentially, we found that the project had a significant risk 15:37:51 15:37:53 15:38:00 15:38:10

Page 237

profile. 15:38:13

The FIT contract imposed a fixed time or fixed milestones for the project. And those, when taken into consideration that this was a first of a kind project, and that it was in the early stages of development, meant or led to our conclusion that it had a significant risk profile. 15:38:15 15:38:20 15:38:27 15:38:30 15:38:39 15:38:41

If we just look at each of those in turn, we considered that the project was in early stage of development, because if I summarize those points there, it still had a number of studies, both technical, environmental and other work to do to develop the project. 15:38:49 15:38:54 15:38:56 15:39:03 15:39:08 15:39:12

In addition, it still was in the process of securing sponsors and funding. And we considered that this is the definition of a project in the early stage of development. 15:39:17 15:39:19 15:39:23 15:39:27

Implicit in a project being in the early stage of development is that it has a higher risk profile than in later stages. The purpose of the development process is to reduce the risk profile of the project as has been mentioned many times. 15:39:30 15:39:32 15:39:34 15:39:38 15:39:41 15:39:45

You iteratively work through the solutions, identify more -- you obtain more 15:39:45 15:39:50

Page 238

information, develop solutions and therefore reduce the risks facing the project. 15:39:52 15:39:56

If we -- right, we're there now. Confusing me -- we also concluded that the project was the first of a kind. I think it is essentially obvious that the project would have been the first offshore wind project permitted in North America and particularly under the REA process. 15:40:10 15:40:21 15:40:31 15:40:34 15:40:36 15:40:40

That inherently would have meant the project would have been subject to more scrutiny since the different agencies involved would have wanted to make sure that they weren't setting any unintended precedence by accepting certain processes, approvals or solutions. 15:40:42 15:40:46 15:40:49 15:40:54 15:40:58 15:41:04

In terms of technology, we've already heard today from COWI that the use of semi-floating gravity-based foundation for offshore wind farms is an innovative -- it is the new solution. So this would have been at that time the first project to employ this particular technology in the offshore wind sector. 15:41:07 15:41:09 15:41:20 15:41:23 15:41:26 15:41:30 15:41:33

Finally, in terms of construction, as the first offshore wind project to be constructed in North America, the supply chain would have been doing the project -- this type of project for the 15:41:38 15:41:40 15:41:45 15:41:48

Page 239

first time associated with the inevitable learning curve that they would have to go through, notwithstanding their experience in all other similar or analogous types of technology and projects. 15:41:50 15:41:56 15:41:58 15:42:02 15:42:06

If we now move onto the schedule, clearly we looked -- we considered the schedule presented by Windstream in both their initial -- their claim memorial and their second submission. And one of the things we did was to compare that against experience internationally with offshore wind projects. 15:42:13 15:42:20 15:42:22 15:42:29 15:42:35 15:42:40 15:42:44

We used the 4C database for this analysis. And in order to provide a consistent measure, because there are many different measures of dates, but the one which is normally reasonably consistently available is the date when the permits were obtained or the permitting process was completed to the date of commercial operation. 15:42:46 15:42:53 15:42:57 15:43:01 15:43:05 15:43:11 15:43:13

What this graphic shows is that the Windstream project would have achieved at that -- what's effectively construction period, if you like -- faster than any other project internationally to date. 15:43:16 15:43:21 15:43:26 15:43:29 15:43:35

I would stress that we heard earlier 15:43:36

Page 240

that Sgurr's representative indicated that we maybe 15:43:38
cherry-picked our projects for this graphic. I'd 15:43:44
emphasise that this represents all the projects for 15:43:48
which this information was available in the 4C 15:43:51
database. 15:43:54
Windstream, in their first submission, 15:44:07
submitted a schedule, which I believe was included 15:44:11
as appendix B of the first Sgurr report, which, in 15:44:18
many respects, as was again, Ms. Squires took Sgurr 15:44:25
through earlier, was very similar to the schedules 15:44:31
in use in earliest documents referenced by the 15:44:34
Claimant, including schedules in use by Windstream 15:44:42
back in late 2010. 15:44:52
In our first report, we identified 15:44:53
a number of concerns, discrepancies, errors, if you 15:44:55
like, in that schedule included in the Windstream 15:45:01
submission. 15:45:07
As a result of that, we analyzed and 15:45:08
developed our own schedule which we found led to 15:45:12
a commercial operation date of July 2020. I believe 15:45:18
that's approximately four years after -- or three 15:45:23
years after supply and default date. 15:45:26
As a result of our first report in 15:45:30
this second submission, Windstream submitted -- or 15:45:32
through SgurrEnergy they submitted a revised 15:45:37

Page 241

schedule which had significant changes from the 15:45:41
original Windstream schedule. 15:45:45
Notwithstanding those significant 15:45:52
changes when we looked at that schedule, we 15:45:54
identified a number of areas where we still had 15:45:58
concerns as to the schedule being proposed by 15:46:02
Windstream. Specifically, they were proposing that 15:46:09
construction would be -- start before receipt of the 15:46:16
REA, and the notice to proceed from OPA. 15:46:21
Alternatively, if they were wanting to 15:46:26
start construction ahead of receiving that, they 15:46:30
would have needed significant self financing ahead 15:46:34
of -- because that would have been ahead of 15:46:38
financial close. 15:46:40
Secondly, as has been discussed 15:46:44
actually on a couple of occasions already in various 15:46:47
witness statements, the time to obtain the REA in 15:46:53
that schedule was shorter than that proposed by 15:46:58
Windstream's own experts and the time -- and within 15:47:02
that, the time for -- allowed for environmental 15:47:06
field studies had been reduced, without explanation. 15:47:10
The schedule also showed that 15:47:19
financial close would be achieved concurrently with 15:47:21
completion of the ERT process. 15:47:28
In our experience, this is unusual and 15:47:33

Page 242

possibly unlikely to be achieved for a first of 15:47:35
a kind project, arguably unlikely to be achieved. 15:47:38
We identified some bottlenecks in the 15:47:43
gravity-based foundation' manufacturing schedule. 15:47:47
Those have been discussed with COWI today who 15:47:51
indicated that perhaps we had not understood or the 15:47:58
process that would be involved. 15:48:03
However, we believed that the 15:48:05
submission or description of the process provided in 15:48:06
the document was very clear, that the project went 15:48:11
through certain stages, in which case, those 15:48:14
bottlenecks would occur. 15:48:17
Finally, as has also been discussed, 15:48:20
the delivery time for the wind turbines was assumed 15:48:22
to be shorter than that provided by the TSA. 15:48:26
We tried to analyse using the Sgurr 15:48:40
schedule. We had that in MS project format. We 15:48:43
tried to use that to analyse the impact of those. 15:48:48
We found that because the schedule was 15:48:51
not robustly linked in its activities, that wasn't 15:48:53
practical. So we produced our own high-level 15:48:57
schedule which was deliberately focused on the 15:49:01
critical path items, the Sgurr schedule as I think, 15:49:06
approximately 400 lines long. 15:49:11
We reduced that significantly and took 15:49:15

Page 243

into account the concerns we had. I'm not going to 15:49:17
go into those in detail, but they are available on 15:49:24
the record if necessary. 15:49:28
The impact of that was that when we 15:49:29
analysed the schedule, our schedule showed that the 15:49:32
earliest date that commercial operation could be 15:49:40
achieved would have been August 2018. That's 15:49:43
approximately 13 months after the supplier default 15:49:48
date which, again, arguably could have rendered the 15:49:53
project not viable. 15:49:58
This next page is simply graphical 15:50:06
representation of that previous slide. You might 15:50:08
find that easier to understand. 15:50:14
One point which I should have made and 15:50:17
I omitted from what I've just said, is that we had 15:50:19
assumed -- or in preparing our schedule, we used the 15:50:23
same timeframes as proposed in the Windstream 15:50:30
schedule in all aspects, in all elements except 15:50:33
those five or six points where we had concerns. 15:50:37
In all other respects, we had accepted 15:50:44
the specific durations and timeframes imposed by 15:50:46
Windstream. 15:50:51
So finally, I just say that we believe 15:50:57
our schedule depicts the earliest possible 15:51:01
commercial operation date based on the assumptions 15:51:04

Page 244

and the evidence submitted by Windstream in their second submission. 15:51:08 15:51:12

I've spoken extensively about the risks that the -- I've spoken about the risks that the project faced and we referred to these extensively in our reports, and we note that in our schedule, apart from whether a mechanical breakdown delays that have been used in respect of the marine operations, we have not made any provision for delays arising from risks being realised. 15:51:14 15:51:16 15:51:20 15:51:22 15:51:28 15:51:34 15:51:37 15:51:44

And therefore, we would normally consider it prudent at these early stages in a project and in early development stages, that some form of contingency is provided within the schedule. That's all I have to say. 15:51:47 15:51:49 15:51:51 15:51:55 15:52:02

PRESIDENT: Thank you very much. And will there be questions. 15:52:08 15:52:11

MS. SQUIRES: Yes, just two very brief questions. 15:52:14 15:52:16

EXAMINATION-IN-CHIEF BY MS. SQUIRES: 15:52:17

Q. Mr. Clarke, you would have heard earlier when Mr. Irvine responded to my questions with respect to possibly delaying the renewable energy approval based on Ms. Powell's testimony by six months. 15:52:27 15:52:28 15:52:32 15:52:35 15:52:38

Page 245

Can you explain briefly for the Tribunal what impact this would have on the Sgurr schedule? 15:52:40 15:52:41 15:52:45

A. I have had a brief look at that. It's unfortunately not a very straightforward analysis because of the difficulties I referred to earlier, that the Sgurr schedule has not got a complete set of links between different activities. 15:52:48 15:52:52 15:52:55 15:52:58 15:53:03 15:53:06

However, I did try to run it and I found that what it was likely to do -- but I can't be certain right now -- is it was likely to delay the installation of the turbines by a full season, because it would have shifted the delivery of the -- moving the REA process out by six months, effectively extended the time for financial close by six months or the notice to proceed by six months, at which time the project -- the -- allowing the 14 months for delivery of the first turbine, assumed by Windstream, or that would have possibly shifted the installation of the turbines into the next summer. 15:53:08 15:53:11 15:53:16 15:53:19 15:53:22 15:53:29 15:53:35 15:53:38 15:53:40 15:53:46 15:53:51 15:53:57

So, effectively a whole construction season might have been lost. 15:54:00 15:54:02

Q. All right. And you would have heard Mr. Cooper this morning from COWI explain that 15:54:05 15:54:06

Page 246

the bottleneck in production that you had identified in your report could be fixed. 15:54:10 15:54:13

Can you tell me -- can you tell the Tribunal what this means for the schedule and for other items that might arise on the critical path? 15:54:15 15:54:18 15:54:21

A. Assuming that it could be fixed, and the 120 days schedule -- period for fabrication of each turbine -- sorry, each foundation could be -- or was achieved, the impact of that would be that instead of, as per our schedule, the gravity-based foundation being on the critical path, the turbine delivery would have been on the critical path. 15:54:25 15:54:28 15:54:37 15:54:40 15:54:47 15:54:51 15:54:54 15:54:58

And again, if you look at our schedule, you will see that the impact of that is maybe one or two months. I can't give you the exact figure offhand, but it's a short period. 15:54:58 15:55:02 15:55:05 15:55:08

Because the two were quite closely linked time-wise, and therefore, even if that was fixed in the gravity-based manufacturing process, and the time could have been achieved, the overall time to commercial operation in our assessment would have not been significantly different. 15:55:10 15:55:14 15:55:19 15:55:24 15:55:28 15:55:30

It might have been reduced by one or two months, but it would have still meant that the 15:55:32 15:55:35

Page 247

supply default date would have been missed by a considerable period. 15:55:38 15:55:41

Q. And lastly, can you briefly explain for all of our benefits, how the scheduling links work in that type of program? 15:55:42 15:55:43 15:55:46

A. Oh, now that is a challenging thing to do briefly. 15:55:50 15:55:52

Effectively how this type of software works is that you link activities by a -- essentially one of four types of linkage. 15:55:57 15:55:59 15:56:06

The most common one is what's called a "finish-to-start" relationship where the first activity finishes, and then the next activity starts. 15:56:11 15:56:13 15:56:17 15:56:20

You can modify that or extend that by putting either positive or negative lags on that. 15:56:23 15:56:30

So, if, for example, you needed a two-week delay while something was processed, after one activity finished and the next activity started, you would put in a positive lag of two weeks. 15:56:34 15:56:37 15:56:40 15:56:43 15:56:46

So that's the most commonly used relationship. 15:56:48 15:56:50

The next most commonly used one is called a "start to start" relationship where 15:56:52 15:56:55

Page 248

an activity -- one activity can start as soon as or 15:56:59
at the same time as another activity starts. 15:57:03
And again, you can -- you would 15:57:06
normally only use positive lags on that, but there 15:57:08
is no hard and fast rule on that. 15:57:13
The third type of relationship is 15:57:16
a finish to finish, and that is where an activity 15:57:17
can only finish when another activity has finished. 15:57:24
And again, you would normally put in 15:57:28
some sort of lag on that. 15:57:30
The final one is not commonly used, 15:57:32
which is a start-to-finish relationship, which is 15:57:35
the reverse of the finish to start relationship. 15:57:40
In fact, the Sgurr program was one of 15:57:44
the first times I've seen that relationship used in 15:57:48
over 20 years of developing these types of projects, 15:57:52
but it was perfectly valid. How they used it, I was 15:57:56
quite happy with it. 15:58:01
I'm sorry if that was too -- it is 15:58:03
quite a technical process. 15:58:05
MS. SQUIRES: Thank you. Those are my 15:58:09
questions. 15:58:10
PRESIDENT: Thank you, Ms. Squires. 15:58:11
Q. I have what I think should be 15:58:53
approximately one hour's worth of questions so we'll 15:58:55

Page 249

see where we go, but that will take us to the end of 15:58:58
my notes, and then I would be grateful to start 15:59:00
again tomorrow. 15:59:02
PRESIDENT: That will be fine. 15:59:03
CROSS-EXAMINATION BY MS. SEERS: 15:59:04
Q. Good afternoon, Mr. Clarke. 15:59:04
If you could have in front of you, 15:59:09
yes, this large schedule and the binder there, the 15:59:10
black binder and your two reports. And then if we 15:59:14
need to pull up anything else, I'll let you know. 15:59:17
Okay. 15:59:20
Q. Just get myself organized here 15:59:21
with the binders, the constant challenge around 15:59:24
here, with the constrained space. 15:59:27
Mr. Clarke, I don't know if you were 15:59:58
here on Thursday of last week. You were -- 16:00:01
A. I was, yes. 16:00:04
Q. So you will recall that we heard 16:00:05
from Canada's other expert, Mr. Guillet? 16:00:06
A. I was there for that, yes. 16:00:12
Q. Okay. So I've included 16:00:13
a transcript from his evidence at Tab 1 of your 16:00:14
binder. 16:00:19
If you look at page 187 -- I suppose 16:00:20
the pages are not numbered. 16:00:35

Page 250

Yes, it's right at the top where he 16:00:37
says: 16:00:39
"I mean, if you want me to attest 16:00:39
that Sgurr is one of the top 16:00:41
technical experts in the field" -- 16:00:44
PRESIDENT: You're looking at Tab 1? 16:00:45
BY MS. SEERS: 16:00:48
Q. Right at the top. The original 16:00:48
I was working from had numbering. Unfortunately, 16:00:49
this one doesn't. It is for the record, I believe 16:00:51
to be page 187 in the version of the transcript that 16:00:55
does have numbers. 16:00:58
So, Mr. Guillet testified: 16:01:00
"I mean, if you want me to attest 16:01:03
that Sgurr is one of the top -- 16:01:05
top technical experts in the 16:01:06
field, I'm happy to stipulate to 16:01:07
that. They're one of the two 16:01:09
companies (to) do that. It's 16:01:11
either Mott or Sgurr. And half of 16:01:13
the Sgurr team has gone over to 16:01:15
K2. K2 is the third one, but they 16:01:18
are amongst the key technical 16:01:22
experts in offshore wind. 16:01:23
I am happy to stipulate that 16:01:25

Page 251

SgurrEnergy is among the top 16:01:28
technical experts in the sector 16:01:29
and highly credible, if that's 16:01:31
what you want to get at." 16:01:33
And then on what I understand to be 16:01:34
page 189, which would be two pages later, Mr. Terry 16:01:35
took Mr. Guillet to an article that Mr. Guillet had 16:01:45
written about the Veja Mate project off the coast of 16:01:50
Germany, and Mr. Guillet said he describes Sgurr as: 16:01:55
"Having brought credibility to the 16:01:57
project and comfort to the 16:01:59
lenders." 16:02:01
And Mr. Guillet stood by that 16:02:01
statement. 16:02:03
So, my question, Mr. Clarke, I take it 16:02:05
that you have no reason to disagree with Mr. Guillet 16:02:08
that Sgurr is one of the top technical advisors in 16:02:12
offshore wind? 16:02:16
A. I agree with that. I have no 16:02:17
difficulty in agreeing with that at all. 16:02:21
Q. Okay. And then still on page 189, 16:02:23
Mr. Terry asked Mr. Guillet: 16:02:26
"Question: Has URS been involved 16:02:32
in any of your offshore wind 16:02:34
projects?" 16:02:36

Page 252

And Mr. Guillet answered on the next page. He said:

"Answer: I've been in contact with them recently over this project, but I'm not very familiar with them. If they were involved, it would be more in the early stages, early engineering, which we don't usually touch, so I don't know them that well."

And then Mr. Terry asked:

"Question: Have they been involved in any of your projects that you've worked on?

"Answer: No."

So is it fair to say, Mr. Clarke, that unlike Sgurr, URS is not known amongst the offshore wind facility development industry as having expertise in this area?

A. That would only be partially correct. If you -- there's two things there. Certainly, the project I had mentioned that I had specific involvement in one offshore wind, and that was an early stage development project where a company was looking to understand whether it was

Page 253

worth bidding for one of the round 3 licenses in the UK.

The other aspect that -- or two aspects where we've actually done significant work in the offshore wind industry is in foundation design, and specifically the design of, I would say, foundations in more difficult -- under more difficult technical conditions.

And, in fact, I understand that we were involved in the design of the foundations for the first offshore wind farm in the UK waters undertaken by GE at that time.

Q. Well, we'll go through the CVs of your project team and you can elaborate that on that in a moment.

But let's start with yours since you're the one here testifying. And I'm sure I'm going to be accused with being too enamoured by resumés, but I'm of the view that when it comes to experts, it is important to start there. So I've included yours at Tab 2 of your binder, if it assists you.

Of course, it is in appendix to your first report.

So I understand that you are

Page 254

a technical director in the US power unit with responsibility for the transmission and distribution sector?

A. That's my current role, yes.

Q. And you are based in Bristol, UK?

A. That's correct.

Q. I see you've recently worked on a number of projects, and I see from this involving electricity grid transmission and connection issues for various clients?

A. That's correct, yeah.

Q. And I take it, then, that you specialize in that topic, electricity transmission?

A. I didn't actually state in my -- I realize in my presentation that I'm an Electrical Engineer by background.

Q. Okay.

A. So, yes, I've tended to personally be involved in grid connections associated with wind farms.

Q. So I take it grid connection, transmission lines, distribution lines, that kind of thing?

A. I don't do a lot on distribution. We tend to work mainly on transmission, in other

Page 255

words, at the higher voltages.

Q. So these are the lines that connect power projects to the grid?

A. Would be a typical -- one of the typical areas I work, yeah.

Q. What are some of the other areas, transmission --

A. We are significantly involved in substation design --

Q. Right.

A. -- for all the major utilities -- well, almost all the major utilities in the UK and Ireland. We have done transmission line design, overhead transmission line design.

Q. Mostly in the UK?

A. In -- actually in Ireland, and then elsewhere in the world. Actually, not in the UK specifically.

Q. Would it be fair to say, Mr. Clarke, that when you work on electricity transmission projects for clients, you work under deadlines imposed by your clients?

A. That would be fair, yeah.

Q. Right. When you have an external deadline imposed by a client, I take it that you try

Page 256

to meet it? 16:07:07
A. Yes, we do. 16:07:08
Q. Of course that's all -- 16:07:09
I understand that that doesn't always happen in the 16:07:11
real world, but I take it to be the general 16:07:12
objective that engineers have when they work on 16:07:14
projects? 16:07:18
A. That's the general objective, yes. 16:07:19
Q. Lawyers too, by the way, when we 16:07:21
work on... 16:07:23
A. That's also why you have 16:07:25
variations and early warning notices in contracts. 16:07:26
Q. Certainly. Certainly. And so 16:07:30
I take it if engineers work like I work, you start 16:07:32
from your deadline and you come up with a project 16:07:38
plan to achieve that deadline so you can -- 16:07:42
A. If that deadline is achievable. 16:07:45
Q. Yes. 16:07:48
A. And there are many occasions when 16:07:48
it turns out not to be and we have to break the bad 16:07:55
news -- 16:07:58
Q. Right. 16:07:59
A. -- to our clients, that actually 16:07:59
the schedule they would like to achieve is not 16:08:02
achievable. 16:08:05

Page 257

Q. So sometimes you might tell your 16:08:06
clients, "I'm sorry, we can't do this." 16:08:07
But generally your objective would be 16:08:12
to try to meet a deadline? 16:08:14
A. Clearly, that's what you would try 16:08:17
to do if it's possible, but I can also state that 16:08:18
there have been times, obviously, when we've gone in 16:08:22
and told them a deadline was not achievable. 16:08:26
And there has also been times when we 16:08:28
have not been prepared to bid for work because the 16:08:34
deadlines were unachievable, in our opinion, and we 16:08:36
made that clear to our client that that was the 16:08:39
reason we were not prepared to bid for the project. 16:08:42
Q. I take it that one way to achieve 16:08:44
a tight deadline if you have a client that is 16:08:46
insisting that it be achieved is sometimes you can 16:08:52
do tasks in parallel, for example, or certain tasks. 16:08:54
Certainly not all tasks can be done in -- 16:08:57
A. I think that's inherent in the 16:09:00
scheduling process. And as you say, some tasks can 16:09:01
be done in parallel, but some tasks have to be done 16:09:05
sequentially, and those are the ones that cause the 16:09:10
difficulties with the deadlines. 16:09:13
Q. Certainly. Certainly. Before 16:09:15
joining URS in 2005, I understand you were the head 16:09:17

Page 258

of the electrical and mechanical engineering 16:09:20
department at Scott Wilson Railways? 16:09:24
A. I should actually clarify that 16:09:26
Scott Wilson was acquired by URS. 16:09:28
Q. Okay. 16:09:31
A. So actually -- 16:09:31
Q. Same company? 16:09:32
A. Same company. In fact what I can 16:09:33
state is that I have been with the same company for 16:09:34
29 years. 16:09:37
Q. Railway division then? 16:09:38
A. No, prior to joining -- when 16:09:40
I moved to the UK in 2001, I joined the railway 16:09:44
team. 16:09:47
Q. Right. 16:09:48
A. Prior to that, I was actually in 16:09:49
Africa in Zimbabwe where I was essentially running 16:09:51
an electrical engineering consultancy for Scott 16:09:57
Wilson. 16:10:02
Q. And we'll come to that employer 16:10:02
experience, but now we're focusing on your 16:10:03
experience with what's described in your resumé as 16:10:06
Scott Wilson Railways, which I take it to be 16:10:10
a predecessor of URS in the UK? 16:10:13
A. It was. In fact, Scott Wilson, in 16:10:15

Page 259

the UK was a much larger company than URS. 16:10:18
Q. Okay. 16:10:21
A. But obviously internationally, URS 16:10:21
was much larger. 16:10:23
Q. Right. And so it's described 16:10:24
though as Scott Wilson Railways. So, do 16:10:26
I understand that you were responsible or worked 16:10:28
within the railway division? 16:10:31
A. Within the railway division of 16:10:32
Scott Wilson, that's correct, yes. 16:10:33
Q. So you worked, I take it, in 16:10:35
transmission and distribution of power issues within 16:10:37
the railways? 16:10:42
A. Within the railways dealing with, 16:10:43
primarily, electrical aspects of requirements for 16:10:45
the railway network. 16:10:48
Q. I see. Okay. And then moving 16:10:49
then to your experience in Africa. 16:10:52
So you were based in Harare, Zimbabwe 16:10:56
for a number of years, I take it doing mechanical 16:11:00
and electrical engineering work? 16:11:04
A. That's correct, yes. 16:11:07
Q. And I take it you were working on 16:11:08
developing the Zimbabwe transmission infrastructure? 16:11:10
A. Actually, with Scott Wilson 16:11:14

Page 260

I didn't do very much of that. At the time when I was with -- prior to that I was with the grid operator in Zimbabwe. 16:11:15 16:11:19 16:11:24

Q. So developing country, obviously, you were working on, I assume, issues surrounding that in the transmission grid, presumably under-developed transmission grid? 16:11:27 16:11:29 16:11:34 16:11:37

A. Yes, although it was at that time -- although it needed modernization, it was appropriate for the size of the country. 16:11:39 16:11:40 16:11:45

Q. And I take it that you weren't involved in any offshore wind in Zimbabwe? 16:11:47 16:11:48

A. Well, that was back in the 1980s and as we heard earlier, the first offshore wind farm was only done in 1991. 16:11:52 16:11:55 16:11:59

Q. So, that brings me to the one reference in your resumé about offshore wind that you mentioned. 16:12:05 16:12:06 16:12:09

So it's four years ago in 2012, I take it that you acted was project director and quality assurance for a pre-feasibility study to support a licensed bid for a 600 megawatts wind farm in the Irish Sea? 16:12:09 16:12:12 16:12:14 16:12:19 16:12:23

Q. That's correct? 16:12:25

A. Correct. 16:12:26

Page 261

Q. So as I understand it, it sounds like a preliminary study of some kind to support a bid? 16:12:27 16:12:28 16:12:30

A. It was a preliminary study, effectively for them to pass -- to make a recommendation to their board as to whether or not to make a bid for that project. 16:12:31 16:12:33 16:12:36 16:12:38

Q. Right. So you, I take it, were not involved in any of the detailed design and engineering work in connection with that project? 16:12:40 16:12:44 16:12:46

A. No. 16:12:48

Q. And you were not involved in any of the construction or procurement in connection with that project? 16:12:49 16:12:51 16:12:55

A. No. In fact, on the basis of our report, they decided not to proceed -- 16:12:56 16:12:58

Q. So the project did not -- 16:13:00

A. -- with the project. 16:13:01

Q. So, sir, I suggest to you, based on your experience which does sound impressive in electricity transmission, but I'm going to suggest to you that you're not, in fact, qualified to testify as an expert witness with respect to the design and construction of an offshore wind facility? 16:13:04 16:13:09 16:13:13 16:13:16 16:13:19 16:13:23 16:13:26

Page 262

MR. SPELLISCY: I generally suggest that credibility is determinations for the Tribunal to make, but not for the Claimant to suggest to a witness. 16:13:27 16:13:28 16:13:30 16:13:33

PRESIDENT: Yes, please, rephrase the question. 16:13:34 16:13:35

BY MS. SEERS: 16:13:36

Q. Well, perhaps it's a question for submissions to the Tribunal separately. 16:13:50 16:13:51

You don't personally, sir, have experience with the fabrication of gravity-based foundation? 16:13:58 16:14:01 16:14:05

A. No, I just might point out the statement I made in my presentation that my role in this was to coordinate the activities of a group of experts from within our organization, to manage those activities, and to -- yeah, effectively to coordinate the multi-disciplinary aspect. 16:14:06 16:14:09 16:14:13 16:14:17 16:14:21 16:14:27

That's a feature of all the work I do right now is that although I'm an electrical engineer by training, almost without exception, all the projects I'm involved with are multi-disciplinary projects involving civil engineering, geotechnical engineering, very often environmental elements, so I'm very familiar with 16:14:30 16:14:33 16:14:36 16:14:41 16:14:42 16:14:46 16:14:50

Page 263

working in the broader project environment. 16:14:53

Q. Okay. I appreciate that but my question was, was narrow. 16:14:56 16:14:58

It was just -- I think you confirmed that you don't have personal experience in fabricating gravity-based foundation; right? 16:15:00 16:15:02 16:15:05

A. Correct. 16:15:07

Q. And you don't have personal experience regarding transportation and installation of gravity-based foundations? 16:15:07 16:15:09 16:15:13

A. No. 16:15:15

Q. Have you been to Ontario outside the context of this proceeding? 16:15:23 16:15:24

A. No. 16:15:25

Q. And do you have any personal experience regarding chartering vessels in Lake Ontario? 16:15:26 16:15:27 16:15:32

A. No, as I said, this is where we rely on the experts in our panel. 16:15:32 16:15:35

Q. Okay. 16:15:39

A. And my role was to coordinate them. 16:15:39 16:15:41

Q. I understand that, and we'll come to the other experts, and I'm just trying to understand what the scope of your experience is and 16:15:42 16:15:43 16:15:45

Page 264

isn't, so I appreciate the confirmation. 16:15:49
So I take it that to that extent you 16:15:55
also don't have personal experience regarding 16:15:57
chartering vessels in the Great Lakes or the St. 16:15:59
Lawrence Seaway? 16:16:01
A. No. 16:16:01
Q. Do you have any personal 16:16:09
experience with respect to permitting under the 16:16:11
Canadian Navigation Protection Act? 16:16:11
A. No. 16:16:15
Q. Do you have any personal 16:16:15
experience regarding ice conditions in Lake Ontario? 16:16:16
A. No. 16:16:19
Q. Personal experience regarding wave 16:16:19
conditions in Lake Ontario? 16:16:21
A. No. 16:16:22
Q. Do you have any personal 16:16:26
experience regarding sediment disbursal from in-lake 16:16:27
construction in Lake Ontario? 16:16:31
A. No. 16:16:33
Q. Do you have any personal 16:16:33
experience with the protection of drinking water 16:16:34
under Ontario's Clean Water Act? 16:16:36
A. No. 16:16:38
Q. Turn up, please, sir, the CV of 16:16:47

Page 265

Paul Norton of your team, which I've included at 16:16:49
Tab 3. 16:16:52
So I take it that Mr. Norton is 16:16:56
a coastal engineer, so did he prepare -- I take it 16:16:58
he prepared the sections of the reports that deal 16:17:01
with coastal engineering issues? 16:17:03
A. He and his team, yeah. 16:17:06
Q. And his team. It says on his 16:17:08
record that he appears to be quite well-traveled? 16:17:12
A. He certainly worked 16:17:15
internationally. 16:17:17
Q. I'm jealous. So it looks like 16:17:18
he's worked on projects in a number of countries, 16:17:20
including the UK and several countries in Africa and 16:17:23
the Middle East, Europe, with a lot of experience in 16:17:26
those places; right? 16:17:34
A. Right. 16:17:42
Q. But what I don't see, sir, on his 16:17:42
resumé is experience, experience with Lake Ontario 16:17:45
or even with North America. 16:17:48
Can you point me to any that he has? 16:17:49
A. I'm not aware of any, but, again, 16:17:53
if you come back to what I said our role was in 16:17:55
this, it was to analyze the submissions made by 16:17:59
Windstream -- 16:18:03

Page 266

Q. I understand. 16:18:04
A. -- not to develop them ourselves. 16:18:04
Q. I understand. I'm just exploring 16:18:08
your experience. And so, I take it, and you may not 16:18:10
know, but I take it that the questions I asked you 16:18:15
about experience with Lake Ontario, ice and waves 16:18:17
and other issues, drinking water in Lake Ontario, 16:18:20
I take it that Mr. Norton also doesn't have 16:18:22
experience with those matters? 16:18:25
A. Not to my knowledge, no. 16:18:31
Q. And in the next tab you have the 16:18:33
CV of Mr. Adrian Wright, Tab 4. 16:18:34
And those are appended to the first 16:18:43
URS report, but they don't have exhibit numbers. 16:18:44
And I take it Mr. Wright works on 16:18:49
projects for modeling oil spills for BP and Shell 16:18:53
and the like? 16:18:57
A. That's some of the work he does. 16:18:58
Q. And I also don't see any North 16:19:00
America, Lake Ontario or Great Lakes experience on 16:19:03
his resumé; is that right? 16:19:06
A. That's correct. But I might point 16:19:10
out that the modeling process as bid states use 16:19:15
standard processes and procedures, so therefore the 16:19:18
ability to analyse submissions made by bid, they are 16:19:20

Page 267

technically qualified and experienced to do that. 16:19:28
Q. But he wouldn't have any 16:19:31
experience with Ontario's Clean Water Act, for 16:19:32
example? 16:19:35
A. I couldn't answer that 16:19:37
specifically. 16:19:38
Q. And I take it he wouldn't have any 16:19:39
experience -- 16:19:40
A. I don't have any myself, no. 16:19:42
Q. And I take it he wouldn't have any 16:19:44
experience at the location, for example, drinking 16:19:45
water intakes in eastern Lake Ontario? 16:19:48
A. No, not prior to this study, 16:19:50
anyway. 16:19:52
Q. And I take it he wouldn't have any 16:19:56
experience with modeling sediment disbursal in the 16:19:57
particular conditions present in Lake Ontario, 16:20:02
personally, he wouldn't have done that before, 16:20:05
I take it? 16:20:07
A. Not to my knowledge. 16:20:08
Q. Tabs 5 and 6 of your binder, you 16:20:13
have the CVs of Mr. Chris Sturgeon of Red Penguin 16:20:16
Associates, and Mr. Douglas Percy of Red Penguin 16:20:22
Associates. 16:20:25
So I take it Red Penguin is a 16:20:25

Page 268

subcontractor of URS? 16:20:31
A. That's correct. 16:20:33
Q. And I take they are based in the 16:20:33
UK as well and have experience with underwater 16:20:36
cables? 16:20:40
A. That's their experience. 16:20:40
Q. But, again, I don't see any 16:20:43
experience listed with underwater cables in Lake 16:20:44
Ontario? 16:20:47
A. Again, I'm not aware of that. 16:20:48
Certainly Mr. Sturgeon is very experienced in most 16:20:51
parts of the world but not -- 16:20:55
Q. But not in Lake Ontario? 16:20:57
A. But I didn't say "yes" or "no" 16:20:59
specifically. 16:21:01
Q. You are not aware of him having 16:21:01
any experience with Lake Ontario? 16:21:03
A. No, no. 16:21:04
Q. And you are not aware of him 16:21:05
having any experience with the underwater cable that 16:21:06
was laid for the Wolfe Island on-shore project? 16:21:10
A. I think that's reasonably obvious. 16:21:14
Q. It may also be reasonably obvious 16:21:16
that you are not aware of him having any experience 16:21:18
with the proposed underwater cable to connect the 16:21:21

Page 269

proposed Amherst Island on-shore wind project to the 16:21:26
mainland near the project site? 16:21:31
A. To my knowledge, he is not 16:21:32
a consultant on that project. 16:21:33
Q. And you are not aware of him 16:21:35
having any experience or of either of them having 16:21:36
any experience in the permitting of such cables in 16:21:39
Ontario; right? 16:21:42
A. No. 16:21:43
Q. At Tab 7 I've included the CV of 16:21:51
Ben Gowers, and apart from the one pre-feasibility 16:21:53
study for an offshore project that you were involved 16:21:59
with, he appears to be the only person on your team 16:22:01
who has some experience with offshore wind 16:22:04
facilities; is that correct? 16:22:06
A. No, that's not correct. 16:22:07
Q. Would you point me to the CV of 16:22:08
the other person? 16:22:10
A. Certainly Mr. David Webb has 16:22:11
experience of the design of offshore wind 16:22:14
foundations. 16:22:20
Q. So we'll go to Mr. Webb's CV 16:22:20
afterward. 16:22:23
Anyone else? 16:22:24
A. Not that I'm aware of 16:22:25

Page 270

specifically, no. 16:22:26
Q. Okay. So you've included, by my 16:22:27
count, 111 pages of resumés with your two reports. 16:22:33
But again, the only one that I have seen that 16:22:37
disclosed experience with offshore wind facilities 16:22:41
was that of Mr. Gowers. 16:22:44
And I suppose we can look at 16:22:46
Mr. Webb's separately, but do you disagree with 16:22:47
that, of the 111 pages of resumés that's the only 16:22:51
experience? 16:22:54
A. I would agree that specifically 16:22:55
that is the case; however, where I -- what I would 16:22:57
state is that if you add up the experience of those 16:23:05
people, in fact, the ten people that I listed in my 16:23:09
presentation, the total there comes to over 16:23:12
250 years of experience, all in areas directly 16:23:20
related to the technologies and techniques used in 16:23:26
offshore wind. 16:23:29
Q. So they have experience, then, in 16:23:31
the various components, you would say, that go into 16:23:32
an offshore wind -- 16:23:35
A. That's correct. 16:23:37
Q. -- facility? So foundations on 16:23:37
the one hand, cablings, turbines, maybe various 16:23:43
different things, shipping vessels. 16:23:47

Page 271

So when you put them all together in 16:23:48
your -- in your -- I guess in your view, that gives 16:23:51
you the adequate experience to be giving expert 16:23:56
evidence about an offshore wind facility? 16:24:00
A. As the -- in the role that we were 16:24:04
playing or we were providing for this project. 16:24:09
Q. In the role that you were 16:24:14
providing for this project, so... 16:24:15
I looked through Mr. Gowers' resumé. 16:24:21
I didn't see, and you will point me to it if 16:24:28
I missed it, but I didn't see any experience with 16:24:30
actually building an offshore wind facility. 16:24:33
Did I miss it? 16:24:37
A. I believe you did. I'm trying to 16:24:44
find it because he was actually construction manager 16:24:44
on one offshore -- it's my understanding -- 16:24:45
Q. You're right. I do see that. 16:24:48
A. He was offshore manager for 16:24:50
an offshore wind project. 16:24:53
Q. So he was offshore manager for one 16:24:58
offshore wind project? 16:25:02
A. That's correct. 16:25:03
Q. And for other projects, he seems 16:25:04
to have been involved in a much more limited 16:25:05
capacity? 16:25:08

Page 272

A. Yes, in a variety of capacities for offshore wind projects. 16:25:09 16:25:11
Q. So a lot of the entities are listed as him having done tenders or providing strategic support? 16:25:12 16:25:13 16:25:21
A. That's true, yeah. 16:25:22
Q. And based on -- he's not here to tell us what his experience is obviously, so based on this resumé, it seems to me, anyway, I would suggest that his experience is perhaps limited; would you disagree? 16:25:25 16:25:27 16:25:29 16:25:36 16:25:47
A. I would not fully agree with that. He certainly demonstrated a very complete understanding of the construction requirements for an offshore wind farm. 16:25:48 16:25:50 16:25:53 16:25:58
Q. Okay. And he's not here, of course, to testify so we can't ask him about his experience? 16:25:59 16:26:01 16:26:04
A. Right. 16:26:05
Q. At Tabs 8 and 9 of your report -- pardon me -- of your binder, you have the CVs of Ms. Eleanor Hadland and Mr. Chris Frith, which were included with your second report, the AECOM report? 16:26:07 16:26:09 16:26:13 16:26:19
A. Correct. 16:26:23
Q. And they appear to be, as 16:26:24

Page 273

I understand it, experienced in ports design. 16:26:25
And again, I see a lot of international experience on their resumes, but what I don't see is Lake Ontario experience or even North American experience? 16:26:30 16:26:32 16:26:34 16:26:37
A. I would point out that we are a UK consultancy, and it is quite unusual for offices in the UK to work in North America actually. 16:26:39 16:26:41 16:26:44
Q. Certainly. Certainly. And they are experienced in UK and elsewhere. 16:26:50 16:27:00
But just for the record, there doesn't appear to be any experience with Lake Ontario? 16:27:03 16:27:06
A. That's correct. 16:27:08
Q. So, I take it that they too don't have any experience, for example, with the Navigation Protection Act? 16:27:11 16:27:13 16:27:15
A. I'm not sure why, as ports experts they would necessarily have that experience, even if they did have experience in Lake Ontario. 16:27:18 16:27:21 16:27:24
Q. So the contribution that they made to the report, I take it then, was with respect to chartering vessels and not with respect to shipping lanes? 16:27:26 16:27:29 16:27:32 16:27:35
A. No, their contribution to the report was in respect of, particularly, the on-shore 16:27:36 16:27:38

Page 274

manufacturing facility. 16:27:41
Q. I see. 16:27:42
A. And to an extent the use of precast or prefabricated concrete structures which has been evidenced on a number of occasions in this hearing. 16:27:43 16:27:52 16:27:56 16:27:58
Q. I see. 16:27:59
A. Are analogous or have been used as a basis for justifying that this wasn't -- although this might not have been -- this is common technology. 16:28:00 16:28:04 16:28:08 16:28:12
Q. Right. So they're responding, I take it, to Mr. Cooper's report primarily? 16:28:12 16:28:14
A. Primarily they were looking at the offshore foundations, yes. 16:28:17 16:28:18
Q. And something -- but Mr. Cooper, you'll agree with me, has substantial experience in the Great Lakes and in Lake Ontario, and they do not; right? 16:28:20 16:28:21 16:28:24 16:28:27
A. I am not clear on that, I have to say. 16:28:30 16:28:34
Q. Okay. 16:28:36
A. It was clear from Mr. Cooper's presentation that he's been involved in a lot of -- I think if I recall, it was the last nine years -- 16:28:36 16:28:38 16:28:41

Page 275

with offshore wind, but I'm not sure exactly how much of that was in Great Lakes. 16:28:44 16:28:48
Q. Okay. In several instances in both of your reports, and you mentioned this a bit in your presentation as well, you identify risks associated with the project in terms of the magnitude of the risk as you see it. 16:28:49 16:28:54 16:28:56 16:29:01 16:29:04
But you don't express a conclusion flowing from your risk assessment. So my question to you is: Your report, to me, reads like a list of risks without any real conclusion and so I take it -- I take it -- and you will at the me if I've got it wrong -- but I take it from the way your reports are structured, that you were asked by Canada to identify the potential risks of the -- that the project might face regardless of their magnitude; you were just asked too identify the risks; is it that fair? 16:29:07 16:29:12 16:29:14 16:29:20 16:29:24 16:29:29 16:29:31 16:29:34 16:29:36 16:29:40 16:29:43
A. We were actually asked by Canada to analyze the project from a technical and environmental perspective. And in analyzing the technical aspects, which is what we were asked to do, we obviously went through and identified the risks that the project faced. 16:29:45 16:29:46 16:29:51 16:29:59 16:30:01 16:30:05
Q. So you identified the risks and 16:30:10

Page 276

you applied a label as to whether, in your view, it is a low risk, a medium risk or a high-risk? 16:30:12 16:30:14

A. That's correct. 16:30:17

Q. But as I read your reports and as I understand your presentation, you don't actually conclude that the risks that you outlined will likely materialize or not likely materialize; is that right? 16:30:23 16:30:25 16:30:27 16:30:29 16:30:33

A. We don't specifically speculate on which risks will materialize. That's why they are risks; they're not certainties. 16:30:34 16:30:35 16:30:39

We wouldn't describe them as risks if they were going to materialize. 16:30:42 16:30:44

Q. Right. 16:30:45

A. I think what is reasonably clear from both our reports and my presentation was that we assess that this project had a high-risk profile. 16:30:46 16:30:48 16:30:53

Q. I understand you assessed the risk profile, but my question is whether you assessed whether the risks were likely to materialize or not likely to materialize? 16:30:58 16:31:00 16:31:01 16:31:06

A. I think if you look at our assessment, the one criteria that we used was the like likelihood of the risk occurring or developing and then the impact of that risk so... 16:31:08 16:31:09 16:31:17 16:31:23

Page 277

Q. I don't see that, sir -- I don't see a likelihood assessment in your report, so perhaps you can point us to it. 16:31:26 16:31:28 16:31:30

A. Just as an example, I'll take you to Appendix 9 of our second report in which we summarize the risks that we'd identified in our first report. 16:31:44 16:31:46 16:31:54 16:31:56

And in that you'll see we had three columns. We had the first column was the likelihood, and then we identified the potential impact on schedule and on cost. 16:32:03 16:32:05 16:32:07 16:32:10

Q. I see. So, in this appendix you've set out likelihoods? 16:32:14 16:32:16

A. And that, if you went back into our first report, you would find that at the end of each risk, that analysis. 16:32:19 16:32:21 16:32:25

Q. Okay. We heard from Mr. Rose on Friday about certain permitting issues, and I don't think you'll disagree with me that there is a bit of confusion about who was responsible for what. You were pointing at each other a little bit. And so just to be clear, I just want to confirm that the responsibility for the accuracy of the information contained in the rest of the two reports that Mr. Rose did not testify to, is -- either lies with 16:32:27 16:32:33 16:32:37 16:32:39 16:32:43 16:32:46 16:32:51 16:32:56 16:32:58

Page 278

you or Mr. Barillaro; is that correct? 16:33:03

A. That's correct. 16:33:08

Q. So do I have it right that Mr. Barillaro will be speaking about financing? 16:33:09 16:33:11

A. Yeah, finance and costs. 16:33:13

Q. And costs? 16:33:16

A. And, specifically, aspects -- I might defer to him on aspects relating to commercial implications as well because he's more knowledgeable in that area than I am. 16:33:18 16:33:19 16:33:24 16:33:27

Q. Certainly, so if I'm asking you questions then I'll ask questions of you, and if we're treading into territory that I should be asking Mr. Barillaro or my colleague should be asking Mr. Barillaro tomorrow, I think you'll let us know, okay? 16:33:30 16:33:32 16:33:34 16:33:37 16:33:39 16:33:43

A. I'll let you know. 16:33:44

Q. Okay. Now I believe you said in your presentation -- and this may be one example that's for Mr. Barillaro, but you mention it in your presentation so I thought I would give it a try. 16:33:45 16:33:48 16:33:51 16:33:56

Regarding the Environment Review Tribunal proceeding and the fact that in the schedule prepared by Windstream's experts, financial close occurs right at the end of the Environment 16:33:59 16:34:02 16:34:06 16:34:08

Page 279

Review Tribunal proceeding, and we have -- I don't know if you were here to hear the testimony of Ms. Powell about that. But I think you said in your experience, in your presentation I think you said in your experience that this would be unusual; did I have that right? 16:34:13 16:34:16 16:34:19 16:34:24 16:34:28 16:34:32

A. When I used the word "It was your are our experience" that's collectively the team as opposed to my personal experience. It is a question probably better directed to Mr. Barillaro because he has the direct experience on that. 16:34:33 16:34:37 16:34:41 16:34:44 16:34:47

Q. He has the direct -- 16:34:49

A. He has personal experience. 16:34:50

Q. He has personal experience with the FIT program? 16:34:52 16:34:53

A. Not with the FIT program, no. 16:34:55

Q. Does he have experience with the Environment Review Tribunal proceedings? 16:34:56 16:34:59

A. No. 16:35:00

Q. Does he have personal experience with arranging financing of a FIT project in Ontario? 16:35:00 16:35:01 16:35:04

A. No. 16:35:04

Q. Well, we'll ask him anyway. 16:35:05

Ms. Squires, in her 16:35:14

Page 280

examination-in-chief, asked you about shifting the 16:35:18
Environment Review Tribunal process by six months so 16:35:20
what would happen -- I think the question was: If it 16:35:24
took six months longer, what would that do the 16:35:27
schedule; right? 16:35:29
A. That's correct. 16:35:30
Q. And you answered, I understand you 16:35:31
answered it would just shift the rest of the 16:35:33
schedule back by six months? 16:35:36
A. I assessed the -- on a very 16:35:38
preliminary estimate or assessment, it could 16:35:41
actually be more than that because of the shift into 16:35:43
the next construction season. So, you potentially 16:35:46
lose the winter period as well. 16:35:51
Q. And we've already established 16:35:53
though, sir, that you don't have experience with the 16:35:54
FIT program or FIT contracts; right? 16:35:57
A. Sorry, I don't understand the 16:35:59
relevance of the link there, except insofar as I was 16:36:00
asked to comment on what would happen if we extended 16:36:03
it by six months. 16:36:07
Q. No, I understand, and you're not 16:36:09
being faulted for answering a question, of course. 16:36:10
I just want, for the clarity of the record, there's 16:36:14
no confusion that you don't have experience with the 16:36:18

Page 281

FIT contract or the FIT program; right? 16:36:20
A. No, I wasn't commenting on whether 16:36:22
or not there was a six-month extension out there. 16:36:24
Q. I understand. I understand. You 16:36:29
would have heard, I think, though, testimony on 16:36:31
Friday from your colleague, Mr. Rose, that projects 16:36:33
got built, of course, even though they were facing 16:36:36
permitting delays and that was because the OPA was 16:36:39
pragmatic in dealing with the issue of permitting 16:36:43
delays; do you recall that? 16:36:46
A. I heard that, yes. 16:36:47
Q. And so just to be clear on the 16:36:49
record, while what you are saying about the schedule 16:36:51
may be true, I put it to you that that doesn't 16:36:56
necessarily have implications under the contract and 16:37:00
you are not here testifying about what the 16:37:04
implications under the contract might be; right? 16:37:06
A. I think the issue there is that 16:37:10
the FIT contract is specific on its deadlines. 16:37:16
Should Ontario -- should they decide 16:37:20
to exhibit leniency and work collaboratively as was 16:37:25
suggested, currently that's speculation. And 16:37:31
I think one of the issues which might need to be 16:37:33
considered, and again you might ask Mr. Barillaro 16:37:39
his opinion on this is, how the lenders would view 16:37:41

Page 282

that as to whether a goodwill arrangement would be 16:37:44
acceptable to lenders. 16:37:51
Q. Sir, you just gave evidence about 16:37:58
the FIT program, the FIT contract. So do you 16:38:00
consider yourself to be qualified to give that 16:38:03
evidence? 16:38:05
A. I think I explained quite clearly 16:38:05
what my position was on that. 16:38:07
Q. Okay. We'll ask Mr. Barillaro for 16:38:13
his, as well. 16:38:16
Of course, you would have also heard 16:38:17
testimony from Mr. Cecchini of the OPA regarding 16:38:18
some of these matters, as well? 16:38:21
A. I did not hear that because I was 16:38:24
excluded from the room. 16:38:26
Q. Oh, that's correct. So 16:38:27
I understand from Mr. Rose then, that you were the 16:38:30
person responsible here, for the purpose of this 16:38:33
proceeding, for the comments in the URS report about 16:38:39
sediment disbursal and drinking water; right? 16:38:43
A. In terms of my role in this, yes, 16:38:49
in that I -- obviously, that information or that 16:38:53
input into our report was provided by Mr. Norton, as 16:38:55
we've discussed. 16:38:58
Q. But Mr. Norton is not here and you 16:38:59

Page 283

are the URS person here who is responsible for the 16:39:02
accuracy of that information; correct? 16:39:06
A. That's correct, yeah. 16:39:11
Q. Starting at paragraph 319 of your 16:39:18
second report, could you pull that up? 16:39:20
You purport to apply the proposed five 16:39:42
kilometre exclusion zone, assuming -- to this 16:39:45
project -- assuming that the exclusion zone applies 16:39:48
from uninhabited islands, uninhabited spits and 16:39:52
uninhabited peninsulas; do I have that right? 16:39:57
A. That's correct. I -- I -- yes, 16:40:05
that's correct. 16:40:07
Q. Are you aware or were you aware, 16:40:07
sir, when this was drafted, that no five kilometre 16:40:08
exclusion zone had, in fact, been adopted by the 16:40:12
Ontario Government? 16:40:16
A. I'm unaware that it had not been 16:40:17
confirmed, but I think we had evidence in both the 16:40:20
first submission from Windstream, and the second 16:40:23
submission that they were working to the basis that 16:40:26
a five kilometre exclusion zone would be applied. 16:40:29
Q. I believe you had evidence of 16:40:34
a discussion paper to that effect, but that no 16:40:36
decision had been made? 16:40:39
A. I agree, no decision had been 16:40:40

Page 284

made, but the layouts presented in both their 16:40:42
submissions showed a five-kilometre exclusion zone. 16:40:46
Q. I'm simply asking for your 16:40:50
confirmation, sir, that no decision had been made on 16:40:52
that topic, as to whether there would be 16:40:54
a five-kilometre exclusion zone? 16:40:57
A. That is my understanding. 16:41:00
Q. And certainly no decision had been 16:41:01
made as to the definition of that exclusion zone; 16:41:02
correct? 16:41:06
A. Sorry, you'll need to rephrase 16:41:08
that question. I don't understand. 16:41:09
Q. So, you understand there had been 16:41:12
a definition of the exclusion zone in terms of 16:41:14
what -- what the exclusion zone covered or how the 16:41:16
waters' edge would be defined? 16:41:19
A. My understanding was that the -- 16:41:23
call it the discussion paper -- I'm not sure exactly 16:41:26
what form it took, simply stated that five 16:41:29
kilometres from the shore. 16:41:32
Q. Right. And so you interpreted 16:41:35
that to mean five kilometres from uninhabited 16:41:36
island, uninhabited peninsulas, uninhabited spits; 16:41:40
correct? 16:41:45
A. That is the shore. 16:41:45

Page 285

Q. That is your -- 16:41:48
A. That is our interpretation, which 16:41:48
I might add is consistent with the layout presented 16:41:50
by Windstream in their first -- in their original 16:41:55
claim. 16:41:58
Q. I understand, but I'm just trying 16:41:58
to understand what you did -- what you were aware of 16:42:00
and what you did when you put together this 16:42:02
paragraph or this section of your report, is you 16:42:05
interpreted -- I take it what you did is you took 16:42:08
a guideline or -- not even a guideline, a discussion 16:42:11
paper. It's a discussion paper that's Exhibit 16:42:14
R-0119, you have a citation there and you 16:42:18
interpreted that discussion paper and you applied it 16:42:23
in the way that you have; is that correct? 16:42:26
A. That's partly correct. I think 16:42:29
that was the -- if you like -- a background, but 16:42:30
what I also point out is that in their first 16:42:37
submission, Windstream had applied the same 16:42:40
exclusions zone that we adopted. 16:42:43
They subsequently changed it. Again, 16:42:47
I don't believe they had any further information 16:42:51
which differed from -- I'm not aware of any 16:42:53
different information. 16:42:56
Q. No, I understand what you're 16:42:58

Page 286

saying, and I'm really not asking about what 16:42:59
Windstream did. I'm asking about what you did. So 16:43:01
do I have that right? You took the discussion 16:43:03
paper, you interpreted it and you applied it in this 16:43:07
manner; right? 16:43:11
MR. SPELLISCY: I think he's given 16:43:12
an answer to this question about three times. 16:43:13
MS. SEERS: Okay. 16:43:14
PRESIDENT: I think so. Please go 16:43:15
ahead. 16:43:16
BY MS. SEERS: 16:43:18
Q. So I take it, sir, that you are 16:43:18
not aware of any reason relating to the protection 16:43:20
of drinking water, why an offshore wind facility 16:43:24
should be sited more than five kilometres from 16:43:30
an uninhabited island that does not contain 16:43:33
a drinking water intake; correct? 16:43:36
A. That's correct, yeah, without 16:43:38
studies. 16:43:41
Q. Okay, but you are in the aware, 16:43:42
sitting here today, why there would be any reason 16:43:44
that would be the case? 16:43:47
A. No, although you could speculate 16:43:48
instances where that might be the case. 16:43:50
Q. Instances where there would be 16:43:52

Page 287

a requirement to have a setback from an uninhabited 16:43:54
island that does not create -- does not contain 16:44:00
a drinking water intake? 16:44:03
A. No, that would -- I wouldn't 16:44:05
anticipate that, no. 16:44:06
Q. Right. And I take it, sir, that 16:44:08
you are not aware of any reason relating to the 16:44:11
protection of drinking water, why an offshore wind 16:44:14
facility should be sited more than five kilometres 16:44:18
from an uninhabited spit or peninsula that does not 16:44:22
contain a drinking water intake; correct? 16:44:26
A. That's correct. I think it's more 16:44:29
or less exactly the same question. 16:44:30
Q. So there's no -- you're right 16:44:32
about that. So same question again, shoreline. 16:44:34
Shoreline that does not contain a drinking water 16:44:39
intake? 16:44:42
A. No. 16:44:45
Q. Okay. And if I were to suggest to 16:44:46
you, sir, that the only relevant set back to protect 16:44:49
drinking water would be one measured, not from the 16:44:53
shoreline or a spit or an island or a peninsula but 16:44:58
from a drinking water intake, would you agree with 16:45:02
that? 16:45:05
A. If that was the only purpose of 16:45:06

Page 288

the five-kilometre exclusion zone, I would. 16:45:07
Q. Right. 16:45:10
A. But my understanding -- 16:45:10
Q. Certainly. 16:45:14
A. -- is that's not the only reason 16:45:14
a five-kilometre exclusion zone was introduced. 16:45:17
Q. Okay, but if the purpose of the 16:45:19
five-kilometre exclusion zone was to protect 16:45:21
drinking water, you would agree there would be no 16:45:24
reason relating to drinking water to site it -- to 16:45:26
have the definition of the exclusion zone sited away 16:45:30
from those elements that we've mentioned? 16:45:33
A. If it was only drinking water, as 16:45:39
you've postulated, I would agree. 16:45:41
Q. Okay. At paragraph 320 you state 16:45:43
that MOECC -- that's the new -- we've been referring 16:45:54
to the Ministry of the Environment as the MOE, but 16:45:58
it's name has changed to include climate change as 16:45:59
well, so it is MOECC, but they're the same entity. 16:46:06
You state that MOECC's definition of 16:46:08
the five-kilometre setback distance is an absolute 16:46:10
distance from the shoreline, not a mean distance; 16:46:13
right? 16:46:15
A. That's what's stated. 16:46:19
Q. And you cite to MOE's discussion 16:46:20

Page 289

paper and to the second witness statement of 16:46:23
Ms. Doris Dumais; right? 16:46:25
A. That's correct. 16:46:31
Q. But I take it you won't disagree 16:46:32
with me that neither the discussion paper nor 16:46:34
Ms. Dumais' statement reflect an actual regulatory 16:46:38
requirement that's been adopted by the government of 16:46:43
Ontario; right? 16:46:47
A. I think we've discussed already 16:46:48
that that hasn't yet been formalized -- 16:46:49
Q. So that was -- pardon me? 16:46:52
A. That was the basis on which we 16:46:54
made our assessment. 16:46:55
Q. Right. So that's also the case in 16:46:56
your discussion of averaging here? 16:47:00
A. That's correct, but again, 16:47:02
I believe that the discussion paper is clear in that 16:47:03
it states from the shoreline; it doesn't talk about 16:47:06
averaging. 16:47:09
Q. All right. And we've already 16:47:10
established that you interpreted the discussion 16:47:11
paper. 16:47:13
At paragraph 279 of your report. You 16:47:15
assert that Baird's analysis regarding drinking 16:47:30
water "Could be misleading." Do you see that? It's 16:47:34

Page 290

in the second paragraph under 279? 16:47:40
A. Yes. 16:47:43
Q. And then on the next page, just to 16:47:43
summarize, my understanding of these paragraphs here 16:47:45
that you have, you criticize, as I understand it, 16:47:47
Baird's application of its model, and you note that 16:47:51
based on your calculations, three times more 16:47:54
sediment would be disbursed; is that correct? 16:47:57
A. I think what we state is that 16:48:02
given -- and as Baird have already said, as well, 16:48:06
that those were preliminary studies and needed to be 16:48:10
followed up with detailed studies. 16:48:13
Q. Right. 16:48:16
A. And taking into account that we 16:48:17
considered -- our calculations showed that over 16:48:20
three and a half times the volume of dredging was 16:48:24
needed, and, therefore, it's reasonable to assume 16:48:27
there will be a significant increase in the quantity 16:48:32
of sediment disbursed into the water as a result. 16:48:35
Therefore, further study is necessary. 16:48:40
Q. Further study is necessary? 16:48:43
A. I would point out that this is 16:48:44
a -- we've identified this is as a risk. 16:48:45
Q. Right. 16:48:48
A. We are not saying that it was 16:48:48

Page 291

certain. 16:48:49
Q. Okay. 16:48:50
A. But it is a risk that was present 16:48:51
until the further studies are done. 16:48:53
Q. Okay, and I take that you were -- 16:48:55
I think you were here on Friday, Mr. Clarke, when 16:48:57
Mr. Kolberg testified in his presentation that even 16:49:01
an increased level of sediment, even a three-fold or 16:49:06
even greater fold increase in the level of sediment 16:49:10
would not make a difference to his analysis; were 16:49:13
you here when he testified to that? 16:49:16
A. I heard them say that. He also -- 16:49:17
though, I note as I've just said, indicated that 16:49:21
further studies, detailed studies would be needed to 16:49:24
confirm that. 16:49:28
Q. Certainly. Certainly there is no 16:49:29
disagreement that this is information in this 16:49:30
proceeding is being prepared on the basis that no 16:49:36
further detailed studies were able to be conducted 16:49:38
because of the moratorium. 16:49:42
But I take it, though, that you don't 16:49:42
have any -- other than the fact that detailed 16:49:46
studies will be required in the future, based on 16:49:48
available information you don't have any reason to 16:49:51
disagree, I take it with Mr. Kolberg's analysis, 16:49:54

Page 292

sitting here today? 16:49:58
A. I don't have any reason to 16:50:00
disagree with it, but equally I'm not in a position 16:50:01
to -- collaborate -- corroborate or validate it, and 16:50:05
that's what the purpose of the additional studies 16:50:13
would be. 16:50:15
Q. Okay. 16:50:16
A. I think you would find -- and I'm 16:50:16
not sure exactly where we would find it, but we did 16:50:18
indicate that this was a low risk to the project, 16:50:22
with actually probably a low impact. 16:50:26
Q. So drinking water, then, is a low 16:50:29
risk to the project with a low impact. 16:50:30
I think we've already established that 16:50:40
you're not an expert in navigation on the 16:50:42
Great Lakes, but you're here, and your reports 16:50:44
discuss this topic so let's give it a try. 16:50:46
Your discussion of the shipping lane 16:50:50
starts at paragraph 309. 16:50:54
Pardon me, my colleague informs me 16:51:09
that in response to my last question, you nodded 16:51:10
your head instead of answering in the affirmative; 16:51:13
would you please clarify that for the record? 16:51:16
A. Sorry, can we just go back over 16:51:18
that? 16:51:19

Page 293

MS. SEERS: Madam Court Reporter, can 16:51:20
you read back the last question? 16:51:20
COURT REPORTER: (Reading testimony): 16:51:21
"So drinking water, then, is a low 16:51:21
risk to the project with a low impact." 16:51:21
THE WITNESS: I'm sorry. Drinking 16:51:34
water we identified as a low risk, yes, but that was 16:51:34
our conclusion. 16:51:39
BY MS. SEERS: 16:51:40
Q. Okay. Thank you. And so now 16:51:40
we're at paragraph 309 of your report which 16:51:45
discusses the shipping lane risk. 16:51:49
And you state at paragraph 311: 16:51:55
"Local Maritime organizations such 16:51:59
as the St. Lawrence Seaway 16:52:01
Development Corporation are likely 16:52:04
to view this is a causing 16:52:05
unnecessary additional risk to 16:52:07
shipping, and, therefore, argue 16:52:09
for the greatest possible buffer 16:52:10
zone." 16:52:13
[As read] 16:52:14
Do you see that? 16:52:14
A. Yes. 16:52:15
Q. And I don't see a reference, sir, 16:52:16

Page 294

in support of that statement. I take it there isn't 16:52:18
one? 16:52:20
A. No, that's an opinion based on 16:52:20
experience which is cited elsewhere, for example, 16:52:23
the UK offshore wind industry and also the Cape Wind 16:52:30
project which was also cited. 16:52:36
Q. An opinion from whom, in the URS 16:52:39
team, sir, who has experience dealing with the 16:52:44
Seaway Development Corporation? 16:52:46
A. I would suggest that was a -- it 16:52:47
came from the Red Penguin personnel. 16:52:50
Q. Do they have experience dealing 16:52:53
with the St. Lawrence Seaway Development 16:52:55
Corporation, sir? 16:52:55
A. Not directly, no, to my knowledge. 16:52:58
Q. Indirectly? 16:53:01
A. Yes. 16:53:02
Q. They don't have any direct 16:53:02
experience dealing with that organization. And you 16:53:03
heard, I take it on Friday, that Mr. Kolberg has 16:53:05
substantial experience dealing with that 16:53:11
corporation? 16:53:12
A. I did not hear that, no. 16:53:13
MR. SPELLISCY: I think the record is 16:53:14
clear that -- I believe his testimony was that he 16:53:16

Page 295

wasn't familiar with that organization. 16:53:17
BY MS. SEERS: 16:53:19
Q. I believe the record is that he 16:53:21
wasn't familiar with its corporate bylaws, but we 16:53:23
can check the transcript. 16:53:23
PRESIDENT: I was asking him about his 16:53:25
report and not the reports of others. 16:53:26
MS. SEERS: Certainly. 16:53:29
BY MS. SEERS 16:53:29
Q. You site at paragraph 312 you say: 16:53:29
"The Canadian navigation 16:53:46
authorities will review this 16:53:47
safety issue closely at the time 16:53:49
of permitting to minimize shipping 16:53:50
risks created by manmade hazards, 16:53:50
and since Canada has no previous 16:53:53
experience on this matter, it may 16:53:55
well consult agencies from other 16:53:57
companies where wind turbine 16:54:00
generators have been located 16:54:01
offshore." 16:54:02
[as read] 16:54:04
So I take it, sir, that statement has 16:54:05
not been made by anyone who had experience dealing 16:54:08
with Canadian navigation authorities; is that right? 16:54:11

Page 296

A. That's correct. But I would 16:54:14
suggest that that is a reasonably logical conclusion 16:54:15
or implication to draw from the situation. 16:54:18
Q. Okay. 16:54:20
A. Again, based on the experience 16:54:20
elsewhere such as the UK and Cape Wind. 16:54:24
Q. And you cite in the next paragraph 16:54:28
the UK guidelines and the world shipping council's 16:54:32
advocacy piece regarding buffers; right? 16:54:37
A. That's correct. 16:54:40
Q. And you heard, I take it, 16:54:41
Mr. Kolberg's evidence on Friday in response to 16:54:44
questions by Ms. Squires that in his view, anyway, 16:54:48
those documents are not particularly relevant to the 16:54:52
determination of the appropriate buffer for the 16:54:54
particular shipping channel in question. 16:54:57
I take it that you don't have any 16:55:00
better information to disagree with Mr. Kolberg's 16:55:03
opinion on that matter? 16:55:07
A. I don't have any better 16:55:09
information to agree or disagree with his opinion. 16:55:12
I think the conclusions he drew on Friday still 16:55:22
present some risk to this project. 16:55:25
Q. Okay. And then at paragraph 314 16:55:27
you make a statement that: 16:55:35

Page 297

"A wind farm located in the 16:55:37
Great Lakes may require a smaller 16:55:39
separation zone." 16:55:41
[As read] 16:55:44
And I take it you mean than one 16:55:44
located in the UK or on the open ocean; is that the 16:55:47
intent of that paragraph? 16:55:53
A. That's correct, yeah. 16:55:54
Q. And so this, I guess, sir, is 16:55:56
an example of a statement amongst many I've seen in 16:56:00
your report that does not reach a conclusion about 16:56:03
likelihoods based on available information. 16:56:07
So, can you clarify for us in your 16:56:09
opinion, sitting here today, whether the risk -- 16:56:13
whether you are saying -- whether URS is saying that 16:56:18
the risk posed by the shipping lane is high or low? 16:56:20
A. We would suggest that the risk, 16:56:25
certainly with the layout proposed in the second 16:56:29
Sgurr report, presents a high-risk still to the 16:56:34
project. 16:56:36
Q. Okay. 16:56:37
A. Because the turbines are located 16:56:38
directly adjacent to the shipping lane. There is no 16:56:41
buffer zone provided in that layout. 16:56:46
Q. Your report states in at 16:57:00

Page 298

paragraph 393, Your reports states there: 16:57:01
"The Great Lakes environment is 16:57:15
known to create conditions not 16:57:17
often found at sea with 16:57:18
a frequency and buildup of wave 16:57:20
peaks often resulting in confusing 16:57:22
seas with rogue waves frequently 16:57:25
recorded." 16:57:28
[As read] 16:57:28
Do you see that? 16:57:32
A. I see that. 16:57:33
Q. So I don't see a reference, sir, 16:57:34
in this section to establish what is known or not 16:57:37
known according to URS about the wave conditions in 16:57:40
the Great Lakes, or about any so-called rogue waves 16:57:42
being recorded at all, let alone frequently. 16:57:47
Do you have such a reference? 16:57:49
A. I accept that the reference behind 16:57:52
that was, it came from Mr. Sturgeon. 16:57:55
If you actually consulted with 16:58:02
a friend of his and I accept that that's only -- ITS 16:58:04
probably not admissible evidence, but a friend of 16:58:08
his who is a captain on the Great Lakes. 16:58:19
Q. So Mr. Sturgeon, who doesn't have 16:58:20
Great Lakes experience himself, consulted with 16:58:23

Page 299

a captain who he knew that was familiar with the 16:58:26
Great Lakes, but he didn't conduct wave modeling or 16:58:29
anything of the sort -- 16:58:33
A. That wouldn't have been Mr. 16:58:34
Sturgeon's role. 16:58:35
Q. And you heard, I take it from the 16:58:37
evidence from Mr. Kolberg on Friday, in connection 16:58:39
with this paragraph that it is, quote, "absolutely 16:58:41
false"? 16:58:47
A. I heard that. 16:58:48
Q. And I take it you don't have any 16:58:49
information sitting here today to contradict 16:58:50
Mr. Kolberg's evidence on that point? 16:58:54
A. No, I don't. 16:58:56
MS. SEERS: I think that pretty much 16:58:58
brings us to the end of today. It's five o'clock 16:58:59
and perhaps we could adjourn until tomorrow. 16:59:02
PRESIDENT: Thank you very much 16:59:05
Ms. Seers. 16:59:06
This is a bit inconvenient but 16:59:07
Mr. Clarke, I should ask you not to speak with 16:59:09
anybody about your testimony until we continue 16:59:12
tomorrow. We don't have a special room in the 16:59:15
Arbitration Place for you to spend your night. 16:59:17
THE WITNESS: I was worried I was 16:59:24

Page 300

going to be sleeping in that little room there. 16:59:25
PRESIDENT: Okay. So that's fine. 16:59:30
Thank you very much. 16:59:31
MR. TERRY: And Mr. President, just 16:59:32
one small procedural note. I just wanted to give 16:59:33
the Tribunal a heads-up that my friend and I are 16:59:37
trying to work out a basis for taking some of the 16:59:39
information that Mr. Cecchini provided you. 16:59:43
You will remember the session, I think 16:59:46
it was last Friday, and put it into a form that we 16:59:49
can use for the purpose of examining the experts in 16:59:51
a setting that won't require the use of restricted 16:59:54
access information. 16:59:59
So I just wanted to let you know that 17:00:00
because it may result potentially if we can't reach 17:00:02
an appropriate way to do it, just for me wanting to 17:00:05
get some public record information into the record. 17:00:09
So I give you that heads-up and hopefully we will be 17:00:11
able to resolve the issue. 17:00:14
PRESIDENT: So is this something that 17:00:16
might come up tomorrow or... 17:00:18
MR. TERRY: It might come up tomorrow. 17:00:20
It won't be necessary, I don't think to be used in 17:00:21
examining anyone tomorrow, but just potentially to 17:00:25
resolve the issue if it can't be resolved. 17:00:27

Page 301

PRESIDENT: As to whether there might 17:00:29
be any confidential information in that... 17:00:30
MR. TERRY: Yes, the idea essentially 17:00:34
is to try to sanitize the information and make it 17:00:36
useful, so it can be put to the damages experts 17:00:40
since they weren't able to be in the room when that 17:00:42
was used, and I'm fairly confident that can be done. 17:00:45
I know my friends have to check about 17:00:48
the appropriate OPA personnel to -- as to that being 17:00:50
done, but I just wanted to give that heads-up to the 17:00:54
Tribunal in case we have to discuss that. 17:00:58
PRESIDENT: It will be something that 17:01:01
is prepared on the basis of the transcript. 17:01:01
MR. TERRY: Yes. On the basis of the 17:01:04
transcript, informed by additional 17:01:07
publicly-available information, and that's 17:01:09
consistent with what our discussions had been when 17:01:12
this was dealt with last Friday, as well. 17:01:16
PRESIDENT: So, hopefully that can be 17:01:18
sorted out. 17:01:20
Mr. Neufeld? 17:01:20
MR. NEUFELD: We'll do our best to 17:01:23
sort something out. Now, just to mention, this is 17:01:24
highly preliminary as presented to us this morning, 17:01:26
that I think you probably put your finger on it 17:01:28

Page 302

immediately when you said this is on the basis of 17:01:31
the transcript. And it seems no, it's not. 17:01:33
So, anyway, we'll have our 17:01:35
discussions, and then we will revert to the Tribunal 17:01:37
once we've... 17:01:39
PRESIDENT: Very good. So we will 17:01:41
continue tomorrow morning at 9:00 o'clock with 17:01:43
Mr. Clarke. Thank you. 17:01:45
MS. SEERS: Yes. Thank you. 17:01:48
--- Whereupon the proceedings concluded 17:01:49
at 5:01 p m. 17:01:49

**C**

**F**

**H**

## Q