

Canadian Nuclear
Safety Commission

Commission canadienne de
sûreté nucléaire

Public hearing

Audience publique

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Le 11 juin 2021

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280 Slater Street
Ottawa, Ontario

Salle des audiences publiques
14^e étage
280, rue Slater
Ottawa (Ontario)

via videoconference

par vidéoconférence

Commission Members present

Commissaires présents

Ms. Rumina Velshi
Dr. Timothy Berube
Dr. Marcel Lacroix

M^{me} Rumina Velshi
M. Timothy Berube
M. Marcel Lacroix

Secretary:

Secrétaire:

Mr. Marc Leblanc

M^e Marc Leblanc

Senior General Counsel:

Avocate-générale principale :

Ms. Lisa Thiele

M^e Lisa Thiele

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by videoconference / par vidéoconférence

--- Upon resuming on Friday, May 11, 2021

at 9:00 a.m. / L'audience reprend le vendredi

11 juin 2021 à 9 h 00

Opening remarks

THE PRESIDENT: Good morning and welcome to the continuation of the public hearing of the Canadian Nuclear Safety Commission.

Mon nom est Rumina Velshi. Je suis la présidente de la Commission canadienne de sûreté nucléaire.

I would like to begin by recognizing that our participants today are located in many different parts of the country. I will pause for a few seconds in silence so that each of us can acknowledge the Treaty and/or traditional territory for our respective locations. Please take this time to provide your gratitude and acknowledgment for the land. As well, I would like to acknowledge that the proposed site for the Darlington New Nuclear Project, located within the overall Darlington site, lies on the traditional territory of the Mississaugas, the Wendat, the Anishinabek Nation and the Métis Nation of Ontario, as well as on the territory covered by the Williams Treaties.

Je vous souhaite la bienvenue and welcome

to all those joining us via Zoom or webcast.

Under my authority to do so in s.22 of the *Nuclear Safety and Control Act*, I established a three-member panel of the Commission to conduct this licence renewal hearing. I will preside over the hearing, and I have with me on the panel, Dr. Marcel Lacroix and Dr. Timothy Berube, who are, like me, participating remotely for this virtual hearing.

Ms. Lisa Thiele, Senior General Counsel to the Commission, and Marc Leblanc, Commission Secretary, are also joining us remotely.

I will now turn the floor to Mr. Leblanc for a few opening remarks.

Marc, over to you.

MR. LEBLANC: Thank you, Madame la Présidente. Bonjour, Mesdames et Messieurs. Bienvenue à l'audience publique de la Commission canadienne de sûreté nucléaire.

The Canadian Nuclear Safety Commission will resume the public hearing on the application by Ontario Power Generation, OPG, for the renewal of the site preparation licence for Darlington New Nuclear Project.

During today's business, we have simultaneous interpretation. Please keep the pace of your speech relatively slow so that the interpreters have a

chance to keep up.

To make the transcripts as meaningful as possible, we would ask everyone to identify themselves before speaking.

I'd also like to note that this proceeding is being video webcasted live and that the proceeding is also archived on our website for a three-month period after the closure of the hearing.

As a courtesy to others, please mute yourself if you are not presenting or answering a question.

As usual, the President will be coordinating the questions. During the question period, if you wish to provide an answer or add a comment, please use the Raise Hand function.

Sixteen intervenors are scheduled to present today, and the Commission will also be addressing the written submissions, before the final rounds of questions.

Before we start, I would like to remind intervenors appearing before the Commission today that we have allocated a maximum of 10 minutes for each oral presentation and I would appreciate your assistance in helping us to maintain that schedule.

Your more detailed written submission has already been read by the Members and will be duly

considered. There will be time for questions from the Commission after each presentation, and there is no time limit ascribed for the question period.

I will ask that once your presentation is over and the associated question period that follows, that you leave the Zoom session. You will be able to continue following the hearing via the live webcast on the CNSC website.

President Velshi.

THE PRESIDENT: Thank you, Marc.

For the benefit of those of you who weren't with us yesterday, I'd like to reiterate some of my opening remarks.

The matter before the Commission is an application to renew, on substantially the same terms as in its existing licence, the authorization to prepare the site that it has held since August 2012.

Many submissions in this renewal proceeding address the relative merits of different reactor technologies, including SMR technologies, and whether and which of those technologies may or may not fit within the licensing basis of the site preparation licence, and within the bounds of the environmental assessment that was conducted for this project. However, the licensee has not chosen a reactor technology, and this hearing is not

addressing technology choice. Neither is it the role of the Commission to determine or evaluate Ontario's energy mix choices.

The Commission is a safety regulator, and since OPG has applied to renew the site preparation licence for the DNNP, the Commission will assess the continued suitability of the site in accordance with regulatory requirements, and will assess the adequacy of the information before it, and the adequacy of the proposed licence and its conditions, for the activities that would be authorized under a renewed site preparation licence.

Once OPG has made a choice of technology at a future date, there will be other steps that will be necessary, including the determination of whether, from a regulatory perspective, that choice fits within the licensing basis, within the bounding parameters of the EA, and how this will be managed going forward.

The Commission therefore expects that participants presenting orally will focus on the matter that is before the Commission in this hearing.

So we'll start with our presentations. The first presentation is by the Curve Lake First Nation, as outlined in CMD 21-H4.60.

I understand that Chief Emily Whetung will be offering us an opening remarks, before the

presentation.

Good morning, Chief Whetung, the floor is yours.

CMD 21-H4.60

Oral presentation by Curve Lake First Nation

CHIEF WHETUNG: This is Emily Whetung of Curve Lake First Nation, for the record.

--- Spoken in Anishinaabemowin (Ojibwe Language)

Good morning, everyone. I'm Chief Emily Whetung, Curve Lake First Nation. Thank you, President Velshi.

I send greetings on behalf of my community to all Members of the Commission, the CNSC's Executive Committee members, CNSC Staff, OPG's representatives, and all of those who are participating in this process.

--- Opening prayer / Prière d'ouverture

--- Spoken in Anishinaabemowin (Ojibwe Language)

- that brings us light and warmth;
- for that is our life source;
- for bringing us fresh clean (Ojibwe language);
- for bringing us fresh clean air;
- for she sustains us;

- that watches over us;
- that we stand on, that we call (Ojibwe language) for that is our foundation;
- miigwech for those that have been before us and have left these gifts for us to share and to carry forward; and
- miigwech for those yet to come, for giving us this responsibility.

A prayer of healing is offered today for this earth, for the land, for the water, for the people, for our language, a prayer of love and respect, a prayer of enlightenment and acceptance, a prayer of peace and hope.

A prayer is offered for those of us that need you to walk with us this day to guide our steps, to allow us to feel your presence in our life and to remind us that we walk this path together.

--- Spoken in Anishinaabemowin (Ojibwe Language)

Good morning again everyone. I'm Chief Emily Whetung, Curve Lake First Nation.

Through this past year we have all had to make changes to our everyday lives. I recently considered that whether we wanted to or not, we've had to open up our homes and our personal spaces to the world. In every video call, video chat, virtual meeting, we have revealed our way of life to each other from pets barking to children waving

in the background, everyone has had a glimpse into our lives.

We have all invited the positivity or negativity and the invasiveness into our personal spaces and, for that, I think we can all acknowledge that we now have a shared experience.

If you can take a moment and magnify this shared experience in its most negative aspect, you may be able to see what it might have been like for my ancestors: to have to open up our land; to have to alter our way of life; to have to hide; to be pressured into signing treaties whether we wanted to or not.

I hope that we can all reflect upon our current new experiences through this pandemic and look with a little more understanding on the historic experiences of my ancestors. As now a shared experience to be able to learn more about each other and to come together in a meaningful way.

I encourage everyone to reflect upon the words we use in land acknowledgements. It is a recognition of this land occupied by my ancestors and the ancestors of those of my sister communities.

We often take the time to recognize the treaties in the land acknowledgment

too, because that treaty is what created a formal contractual relationship for my ancestors to share the land and resources with your ancestors. It is the foundation for having the space for all of those gathered here today to run the businesses and produce the energy that you all work to achieve.

Recognition and respect are essential elements of establishing healthy and reciprocal relations, and these relationships are a key to reconciliation.

I acknowledge CNSC and OPG in their dialogue and work with our respective consultation staff, as CNSC and OPG strive to meaningfully consult with Curve Lake First Nation in activities related to OPG's application to renew the Darlington New Nuclear Project Site Preparation Licence.

It is with respect that I wish to convey the views of Curve Lake First Nation at this hearing. Curve Lake First Nation's view on our interactions with OPG, so far, are summarized in our written submission.

While this dialogue is at the stage of information sharing. I am encouraged that both CNSC and OPG are committed to progressing towards meaningful consultation and relationship building.

In my assessment, CLFN has made great

strides in the last few years to build relationships and engage in open dialogue on a government to government or government to corporation basis as it relates to processes of consultation. Consultation and accommodation are critical in ensuring that the rights and interests of the Mississauga Anishinabek Nation are prioritized regarding projects in our territory.

Our consultation department has emphasized that environmental protection and sustainability is an integral component of the future of the Curve Lake First Nation. Working with Curve Lake to develop project concept, design, planning, assessment, characterizing potential and actual impacts, and monitoring are necessary steps in our process.

I have a qualitative model as a guide to assess our relationship building. The beginning of this spectrum is information sharing, which is where we stand right now.

We would like to move along this spectrum and progress to engagement, so that we can have continuous back and forth communication. The next step would be moving to a constructive dialogue and involvement, where we can both share our needs and wants, and figure out how we can get there.

We can then move toward trust building, and this would be where the relationship is ongoing, and that is a reciprocal trust between both parties, doing what we can to mutually help each other.

Meaningful consultation is the next step in this spectrum, which is where we can share our ideas, gain feedback, and figure out how we build from a concept to a fully formed idea or project together to ensure that it is reflective the goals, wants, needs and desires of all parties.

When we finally reach a point where we have a sustainable and empowered relationship, where we are regularly in touch, discussing those concepts and putting them into action together. This final stage of the continuum is an easy, ongoing relationship with regular communication, a shared vision, and common attainment of goals.

This is the continuum we hope to continue to follow, building our relationship stronger, and building trust throughout the process. We are hopeful given that we have started on this journey we can reach the desired final stage.

The final stage of our spectrum is respectful of our foundational belief of balance. In our belief system, we need balance in our world for things to

continue to be plentiful and to sustain us. We need water to sustain us and fire to keep us warm.

While many believe that there was no ownership system in First Nations prior to contact, I would say that this is patently untrue. We have always understood that our future generations owned the lands and the resources, that we have borrowed these lands and resources from them and that we have an obligation to return the lands and resources to them when they get here.

During our dialogue I request that we keep in mind that we are here to consider the information relating to the Darlington New Nuclear Project on behalf of "all our relations". When we say this in Anishinaabemowin we mean our parents and our siblings, our aunts and uncles, our Cousins and their cousins. All human beings in fact.

When we say all our relations, we also mean more than our human relatives. Our relations include the four-legged animals and the fur-bearing animals. Our relations include the plant species and the insects. Our relations include our Mother the Earth and all that she provides us.

When you start from a point of all things being related, you begin to recognize that we take only what we need. It means that all living things are

connected, everything in the universe is connected to each other and to the Creator. We cannot exist without each other, everything we do has an effect on each other. By living in this way, there will be enough left for those who own the land, the grandchildren of our children's grandchildren.

We believe in sharing the land with all of our relations and living in balance, all are able to benefit from what Mother Earth has given us. While I hope that you find these cultural beliefs interesting enough to explore further, I have shared them with you not just because they are important to understand who we are as Michi Saagig, but because it is important to us that any plan in the nuclear industry is built on this foundation of harmony and balance.

We can appreciate that nuclear power, in general, has a smaller carbon footprint than other energy sources. But the waste generated from nuclear power will be here for the grandchildren of my children's grandchildren. Any plan needs to reflect the perspectives and needs of all parties involved and it means finding solutions to unacceptable situations.

I hope that you will come to recognize that it is difficult for us to see how nuclear energy, which has a lasting legacy of waste, can align with our

beliefs. It is equally important for us to recognize that we have an obligation to all of our relations to participate in these conversations in a constructive way, in a good way, as difficult as that may be.

I want to ensure that we work together to define a present, future, and end state that is able to honour our obligation to return these lands and resources to our future generations when they get here. To insist that they are not forgotten, that they are considered in every aspect of the nuclear industry and that we are doing everything possible in the nuclear conversation to ensure that our environment is left intact for the true owners.

I think that this would be the most appropriate moment, having shared the significance of our future generations with you, to pause and acknowledge the final resting place of 215 of our children that has finally been identified.

This acknowledgement is significant, because everything is connected. The issue of residential schools does not stand alone from the issue of developing nuclear technology in our territory. If you do not understand the impacts of Residential Schools on our societies and civilizations, you can never fully understand our perspective.

I'd like to share with you that my office

window overlooks the toddler program playground of our daycare. Every time I pause in my work, I watch them. This brings such immense joy to my day. They are the reason I sit at this desk. They are the reason that I work until late into the evening. They are our future.

The 215 children that lay buried at the Kamloops Indian Residential School are 215 lives stolen from our communities, 215 futures gone. They are 215 toddlers that our parents had taken. They are 215 youth who had the potential to be sitting here before you today. They are 215 who now never have that chance.

In the last two weeks since their final resting place was shared, our communities have all grieved. We have grieved as if these little ones from the Kamloops School are our own nieces and nephews because this is the first 215 bodies that have been revealed.

With 138 Residential Schools that operated in Canada, some of them as recently as 1996, all of our communities grieve together, knowing there are more to come. Please know that this grief is not historic, that residential schools are not ancient history.

If you think that there was school operational in 1996, I could have been a student there. In 1996 when the school closed, I would have been in grade 6.

Today I need to share with you that every

First Nation has been impacted by the news of the 215 bodies being identified, because these are children that have been taken out of our communities. These are our relations who are now gone, forever missing from the continuum of our civilization.

As I close, I acknowledge that there will continue to be conflict in this journey. As we delve into meaningful consultation, meaningful relationship building, we will face the divide of opposing world views. We will have to overcome a painful history. We have the ability to rise to the challenge.

There is clear opposition to nuclear in the territory of the Anishinabek Nation. What will emerge from that conflict is up to all of us.

I encourage CNSC and OPG to include harmony and balance as part of the thinking and processes; I can see this unfolding as we hold our routine meetings together. I hope that we can jointly create as space for all knowledge systems, using both Indigenous oral and western written knowledge to make informed decisions about the impacts from current operations and into future.

I have to emphasize the difference between being engaged and being understood. Being understood leads to effective joint planning that satisfies everyone. Being understood means to

have our historic and ongoing rights sincerely considered in this journey. Being understood is our ultimate goal.

To me, it is important that we are treated with respect and equality, that we are viewed and valued as partners with not only historic rights, but as relations who have agreed to live together, to work together and to share this space into the future.

In a larger way, I have an open mind to work with the nuclear industry to define how it can rise even higher and flourish by lifting up our society, our local communities, our Earth. I invite the nuclear industry to remember that we are all connected, to step into a vision larger than itself. I think this will be a nuclear legacy to be proud of.

I keep my mind open for further conversation and meaningful dialogue. I thank you for your time, your attention, and your commitment to working together for all of our relations.

Miigwech.

THE PRESIDENT: Chief Whetung, miigwech.

You have moved and inspired all of us with your prayers and your remarks.

Let me open the floor for questions.

We'll start with Dr. Berube.

MEMBER BERUBE: First of all, welcome, Chief Whetung. It's good to have you before us to speak on this topic. I want to thank you very much for such an insightful presentation. It's -- it covers a tremendous amount of ground, and important ground.

Also, I want to thank you for the excellent written submission, probably one of the best documents of its kind that I've written -- read on this topic to date, and so I think that it can't be unstated that that is a welcome perspective. Thank you very much for that.

Unfortunately, we are constrained to the limitations of the hearing matter at hand. And as such, I have to ask you, because you covered so much ground, what is your principal concern given this relicensing hearing, in terms of what's going on underneath the provisions of that. Could you explain that to me?

CHIEF WHETUNG: Certainly. I mean, I'd like to start by inviting you to have a conversation with me about anything that's not on topic today at another time. I'm certainly happy to do that and always will make myself available.

Our primary concern is generally, in terms of relationship building and ensuring that as we move forward those concerns are addressed before we get to the

hearing. And I think that we've really started down the path of relationship building, and so there's not one specific concern at the moment in relation to this project, but generally about ensuring that that relationship continues to grow so that all perspectives are considered.

MEMBER BERUBE: And so, I'm going to pass this on to OPG and then CNSC to try to get an understanding of where the relationship building is here with Curve Lake First Nation. Probably start with engagement and where you intend to go. OPG, if you could start first and give us an understanding of how you're -- how you're conducting these kind of relationships at this point?

MR. MANLEY: Robin Manley, for the record. I'm the Vice President of New Nuclear Development at Ontario Power Generation.

And I'd like to say that, like you Commissioner, I think this was one of the best interventions I've seen. I definitely appreciate Chief Whetung's remarks this morning. OPG has reviewed Curve Lake First Nation's intervention and we welcome its insights.

We agree with Chief Whetung that while progress has been made, deeper engagement and consultation along the spectrum that Chief Whetung spoke to today is needed and we look forward to doing so.

To help OPG with this, we look forward to working with Curve Lake First Nation regarding cross cultural training for our DNNP staff, and to meeting with the Council and its knowledge keepers to better understand the Curve Lake Nation's culture, history, and rights in the territory. OPG is open to doing so, the same thing, with other member communities of the Williams Treaty First Nations.

I'd like to take this opportunity to respond to one of the comments in the written intervention where Curve Lake First Nation brought to OPGs attention that some of OPG's past documentation regarding the project was not wholly accurate in its characterization of Williams Treaty First Nation's rights. OPG apologizes for any pain this has caused the community, however unintentional.

OPG has been engaged with the Williams Treaty First Nations over the past 20 years on a regular basis to provide information on OPG's nuclear operations projects and environmental reporting. And we recognize the point that Chief Whetung and the intervention has made, that while these meetings provide opportunity for information sharing, and we hope for transparent dialogue and for OPG to seek community input, we need to go beyond that.

Since the renewal of new nuclear planning

activities related to the DNNP project, recently OPG has progressed -- progressively stepped up our engagement with the communities with respect to consultation activities, as well as collaboration. For example, in 2018 OPG and the Williams Treaties First Nations representatives unveiled a section of the Darlington Energy Complex Information Centre that acknowledges the history and culture of the territory, which was designed in conjunction with community representatives. But we recognize this is just one small step in a shared journey.

We look forward to working with the Williams Treaty First Nations to deepen our understanding of the Mississauga Anishinaabe and the Chippewa world view. And in this way OPG and our -- and our project partners on the project, we hope, will better understand the Williams Treaty First Nations Aboriginal and Treaty Rights, history, and culture.

And so specifically, in a couple of areas, for example in the intervention, about the environment. OPG has committed to operate a robust environmental program for DNNP through all proposed stages of the project. We've had early conversations with Curve Lake First Nation on how they can meaningfully participate in the program, and we view this intervention as providing critical and insightful intent -- content, excuse me, for how to achieve this.

Overall, I think that this intervention and Curve Lake First Nation's team and Chief Whetung have clearly communicated its expectations and high standards, and OPG will work with community representatives to understand them, and in taking actions on how best to implement their recommendations.

Thank you.

MEMBER BERUBE: CNSC, could you basically elaborate on the activities taken so far with Curve Lake First Nations in terms of engagement? Also what the barrier here is, if there is one, for consultation and how that relationship is actually being progressed to this point?

MS. DUCROS: Caroline Ducros, for the record.

Of course, first I'd like to say I also want to thank you very much, Chief Whetung, for your presentation. It was -- it was really moving, for sure, and does stress the importance of reconciliation and us moving forward together, and an acknowledgement of complicity on our part and for that I apologize.

I'd like to pass it to the Indigenous Relations Team, and also to the Environmental Protection Team, to talk about how we want to move forward in terms of our relationship building. And also to acknowledge that we

want to know from you too what is working and what is not working and how we can improve on that.

So with that I will move it to the Indigenous Relations Team.

MR. LEVINE: Thank you very much. This is Adam Levine, Team Lead Indigenous Relations and Participant Funding, for the record.

So just to echo Ms. Ducros -- Dr. Ducros' comments, I just want to say Miigwetch to Chief Whetung for just a wonderful opening statement. I think everyone was just absolutely absorbed by it, and very timely, and very meaningful and important. And we take all of this extremely seriously and we're really happy to be on that journey with Curve Lake First Nation.

We've been working with Curve Lake for well over a decade, off and on, on many different files in their territory. They have an enormous amount of nuclear activities within their territory, about 14 or more different nuclear facilities, and we're really happy that this has now culminated in the signing of a terms of reference for long term engagement with Curve Lake and the CNSC. We just signed that a few -- a few weeks ago.

And within that terms of reference, it lays out the framework for achieving that journey that Chief Whetung eloquently laid out. And it includes a lot

of the values that Chief Whetung laid out in her -- in her speech as well, and that we're fully committed to, fully understanding and appreciating and moving up that spectrum of collaboration and engagement and so we're definitely well on our way there.

We meet monthly or more with Chief Whetung's team at Curve Lake and we have a very specific workplan on things that we're going to be collaborating on. And through these conversations, we've learned a great deal. I believe Curve Lake has learned a great deal about the nuclear industry and how we regulate it to ensure safety for everyone. And we're starting down the path of looking towards how we can really have that partnership and improving each other's way of working and viewing the world and what we do together. And part of that is being open and honest, and open to new ways of looking at things, and really seeing ways that we can benefit the relationship co-equally. And so I think we're on our way there.

We have a lot of work to do still, and we think we have the structure now in place to actually make reality what Chief Whetung laid out in her dialogue today and we're really proud of that work. And so, I'll pass it over to my colleagues in the Environmental Protection Team to talk more about specifically around IEMP and other things that we are wanting to do specifically with Curve

Lake.

Thank you.

DR. DAGHER: Dr. Elias Dagher, for the record.

I know we have Kiza Sauvé, her connection dropped, so she will hopefully be coming back to provide a response on the IEMP and some of the other engagement initiatives that have been taken.

So Dr. Elias Dagher, for the record. I'm the current Acting Director of the Environmental Risk Assessment Division.

We are actually looking forward to meeting with Curve Lake First Nations on June 24th, and we'll actually be sharing with them an overview of the environmental protection framework, with a focus on the environmental risk assessment process.

So I would like to add that CNSC Staff, we have begun to apply Indigenous knowledge into our own framework for reviewing ERAs and we welcome all information that can be used to provide insight, whether it be western science or Indigenous knowledge. There is value in everything. We are looking forward to that future meeting and those discussions and see how we can better integrate that Indigenous knowledge into our reviews.

And perhaps when Ms. Sauvé is back online,

we can go back to her for some of the other consultation that has taken place with Curve Lake First Nations.

THE PRESIDENT: Thank you.

Dr. Berube, did you have any follow up comments or questions?

MEMBER BERUBE: No, not at this point. Thank you.

THE PRESIDENT: So let me just add my thoughts. I'm very heartened by the commitment made by both OPG and CNSC along the lines of moving on the trajectory of the spectrum that Chief Whetung spoke about.

But maybe a question for OPG first. The whole aspect of incorporating Indigenous knowledge has changed significantly over the last 10 years, and it's still evolving. And so when we -- when you looked at your baseline environment data and I know Chief Whetung in her submission, you know, talked about the shifting baseline syndrome and the lack of appreciation or acceptance of that. How is that translating into your commitments, and should there be an expectation of a tangible commitment around this area in your list of consolidated commitments, OPG?

MR. MANLEY: Robin Manley, for the record.

President Velshi, could you repeat, should there be an expectation of what kind of commitment did you

say?

THE PRESIDENT: Yeah, as I looked at your list of commitments, there was nothing tangible in there and that, you know, as you looked at what has changed over the last 10 years, Indigenous knowledge an incorporation of that from what had happened in the EA 10 years ago, I didn't see anything in there. And I just wondered what your thoughts were on whether something specific should be included in that area.

MR. MANLEY: Thank you for clearing. It's Robin Manley, for the record. Sorry, I missed the word tangible.

That's a good question. I believe that where we are right now is we are -- we're trying to understand this better. I think what -- our team is meeting with Curve Lake and Scugog, and we're open to meet with any of the other Williams Treaties First Nations very regularly. And I think that there are opportunities for us to have a more detailed, in depth understanding, and I would commit that we will find something that works for them.

Can you hear me? Sorry -- yeah. Okay. We will find something that works for them, and I don't know what it looks like at the moment. I think we need to learn what -- what works best, what would be the most

meaningful for Curve Lake First Nation. And so, I don't see any problem with adding some sort of commitment that we will incorporate, you know, their Indigenous knowledge in the process that we're going to undertake.

THE PRESIDENT: Thank you. I appreciate that. Thank you.

Dr. Lacroix?

MEMBER BERUBE: We can't hear you, Dr. Lacroix.

MEMBER LACROIX: Yeah. Okay, thank you. I'm sorry.

THE PRESIDENT: Perfect.

MEMBER LACROIX: Chief Whetung, thank you very much for your presentation. I echo what my colleague already said, it was extremely touching.

And before your presentation, when I read your submission, I was totally outside my box, in a sense that you made me think, you gave me a totally different point of view. And it's always interesting to read your submission -- the submissions from CLFN.

You -- during your presentation, or your oral presentation, you mentioned the difference between understanding and engagement. And I found in your submission that you -- you underscored this -- this meeting and when you mentioned that the words "no significant

adverse environmental effects" are words that are -- do not necessarily convey the same meaning for you and for the First Nation. And I must also say that I understand these words, but I could not explain them myself.

And then you go on by talking about the shifting baseline syndrome of western science, and I would like to hear more about it in a sense that, can you relate it to the actual PRSL?

CHIEF WHETUNG: Sorry. Chief Emily Whetung, for the record.

Can you just define PRSL for me? I'm just a little -- getting familiar with the acronyms.

MEMBER LACROIX: Oh, I'm -- I'm sorry. I'm terribly sorry. This is the Power Reactor Site Licence. This is the subject of the hearing today. I'm sorry.

THE PRESIDENT: Site Preparation Licence.

CHIEF WHETUNG: Thank you. Got it. I can start to touch on it.

The idea of a shifting baseline is that the baseline for western science is far more recent than it is for our communities or our desires. So for Curve Lake First Nation, for Indigenous communities, the baseline should be before any action was taken to alter the site. And that would be a consistent and time defined baseline,

and then shifting that constantly to be 10 years, or 20 years, means that you're evaluating the site and looking at it from a perspective of having it already altered.

So that's my -- my layman's term review. But I'd like to turn to my team, Julie and Gary, and see if there's anything that they would like to add to that answer for you to make it a little bit more fulsome.

MR. PRITCHARD: I guess I'll go first. It's Gary Pritchard, for the record. I usually wait for Julie to go first, but -- yeah.

Shifting the baseline syndrome is something I routinely see as a -- as an aquatic ecologist, as well as a traditional harvester on the landscape. I actually fish Lake Ontario, the tributaries of Lake Ontario, quite a bit with my family. And in the progression of the EA, I actually have noticed the fish community changing over time.

So now in front of the Darlington Nuclear we actually harvest Walleye that travel down from like, the Bay of Quinte, which we historically never saw when I was a child and that was when I was 15. And so we have actually seen a climatic shift in the fish community and we know target different species, but that's not reflected a lot in the western science.

It's that lack of intimate knowledge, one

site visit, one sampling round, one sampling program, versus a four-season approach to our harvest practices. So we do actually know what is happening within the landscape. I've never caught a round whitefish around Darlington. I've netted for them, I've done benthic trawling, I've angled for them, but I've never seen one. But I do know there's other fish that actually live there, and that's one of the things that I'm always concerned about.

MEMBER LACROIX: Thank you. Interesting.

CHIEF WHETUNG: So I think that's probably it from our team, unless there's further questions.

MEMBER LACROIX: No, no. That's all right. Thank you very much. We will just take a very short break if people can stay on. We need to reconnect the President who we just lost. And it's important in all Commission proceedings that the Panel hears all of the evidence. So we can not proceed without having the three Members present.

So I know President Velshi will join us in a minute or so, so if everybody can be patient and just wait. Thank you.

--- Upon recessing at 9:44 a.m. /

Suspension à 9 h 44

--- Upon resuming at 9:45 a.m. /

Reprise à 9 h 45

THE PRESIDENT: I'm sorry. I lost the connection for a bit. Can you hear me?

MR. LEBLANC: Yes, we can, Madame le President, and as soon as we lost you, we stopped. So we are ready to resume. I don't know if Dr. Kapyrka was going to add to the discussion, and we had just -- Mr. Pritchard had just completed discussing. So if not, then we can resume.

THE PRESIDENT: I heard Mr. Pritchard.

MR. LEBLANC: So Madame le President, I don't see --

THE PRESIDENT: So is Dr. --

MR. LEBLANC: -- Dr. Kapyrka raising her hand. So I will take for granted that we can go to the next question.

THE PRESIDENT: So Dr. Lacroix, back to you.

MEMBER LACROIX: Thank you, Madame le President. No, I'm done. Thank you.

THE PRESIDENT: Thank you. So let me then just turn back to Chief Whetung, if you'd like to add anything to what you've heard. I very much appreciate,

again, the -- what you raised with us.

Maybe a quick question for you, you know, the spectrum that you identified, given the commitment that you have heard from both OPG and CNSC Staff, how long do you think it would take to move from this information sharing stage to this sustained empowered state?

CHIEF WHETUNG: Thank you. Chief Emily Whetung, for the record.

I don't -- time is always our enemy. So I don't know that I have a specific defined timeline of what it will take. But in the last year we've made significant progress in terms of information sharing and the needs of my community, and the needs of OPG, and even the needs of the CNSC. So we're meeting regularly, monthly I believe at the moment, and that's certainly helping to move things along quickly.

Ideally, I think we'd be in that position in the next six months to a year, but I fully recognize that might be a little more -- more -- it might take a little bit more time than that.

THE PRESIDENT: Okay. Thank you. It just gives me a sense of the timeline. So I'll turn it over to you for any final comments you'd like to make, please.

CHIEF WHETUNG: Sorry, my audio dropped out there for a second. Could you -- okay.

MR. LEBLANC: We -- we did not hear.

Please restart, Chief Whetung.

CHIEF WHETUNG: My audio dropped out there so I wasn't sure if that was a question to me.

THE PRESIDENT: Yes, it was. It was not a question, just giving you an opportunity to make any closing statement.

CHIEF WHETUNG: Thank you.

It's Emily Whetung, for the record, again.

I want to say thank you and Meegwetch for the -- the beginning of this relationship and the respect that we are being shown, and that we're starting this relationship off with OPG, starting afresh, moving it in a significant direction with OPG and CNSC, and it give me hope for our future relationships and future projects. So, meegwetch.

THE PRESIDENT: Thank you very much for appearing in front of us today and, again, for your very inspiring and moving submission.

I'm sorry I seem to have some bandwidth issues as well. You see, if I switch off my camera, forgive me.

So, we'll move to our next presentation which is from Northwatch as outlined in CMD 21-H4.43 and 21-H4.43A. And we have Ms. Brennain Lloyd with us to

present the submission.

Ms. Lloyd, the floor is yours.

CMD 21-H4.43

Oral presentation by Northwatch

MS. LLOYD: Yes. Thank you, President Velshi. I'm not sure if my slides are showing. Ah, here they come. And I will ask CNSC staff to move my slides forward for me.

So, good morning. Thank you for the opportunity to present. And thank you to Chief Whetung for her -- her very moving and -- moving comments; we really appreciate the leadership and the knowledge that she brings to these discussions.

I am speaking from the Robinson Huron Treaty area, Nipissing Territory, and also the Territories of Kebaowek First Nation.

Northwatch is a regional organization in northeastern Ontario, so our territory, our area of interest includes -- encompasses areas within Robinson Huron, Robinson Superior, Anishnawbeg Aske Nation Treaty areas, and the Algonquin Territories in the eastern edge of our region.

I am joined today, assisted in our

submission preparation by Morten Siersback and he is joining me today for this presentation.

Next slide, please.

So, Northwatch's interest, we are a -- we have intervened on a number of different licensing matters related to reactors operated -- owned by Ontario Power Generation and owned and operated by either Ontario Power Generation or Bruce Power, and our primary interest is with respect to radioactive waste, their generation, their storage potential, transportation and that, of course, stems to repeated expressions of interest on the part of the nuclear industry to dispose of these wastes in a manner which could have consequence for Northern Ontario, including Northeastern Ontario.

In this application we have an additional interest because of Ontario Power Generation's interest, stated interest in provided the first of a kind SMR, small modular reactor operation, installation. and given the repeated expression on the part of the industry, and in fact on the part of the federal government to utilize this kind of novel technology potentially in northern and remote locations, including in Northern Ontario. So, we have really a double interest in this application.

Next slide, please.

So, I've listened carefully to the

Commission's -- President Velshi's instruction to the public interest intervenors, in particular yesterday and at the beginning of this morning's proceedings, that this is not about SMRs; that we're not to be discussing the SMR technologies that may or may not come into play as a follow-up to this licence renewal. But if you look at the amount of printed space taken up in Ontario Power Generation's application in CMD -- I seem to have lost the slides -- their application in CMD and indeed the amount of discussion of SMRs by other intervenors, particularly those associated with the nuclear industry, it's difficult to make that cut-off. It's difficult to make that separation.

It's even more difficult to make that separation because when we look at what this application -- what the licence renewal rests on, it rests on an environmental assessment approval from 2012, from a hearing in 2011, and that application rested on OPG putting forward four sort of reference cases for very different kinds of technologies. Now we know that there are three technologies, small modular reactor technologies OPG is considering for this site, and they are excluded from the discussion, and that's a difficult cut-off to make.

When you look at need, then the need rests on OPG's suppositions of 2009 which were then rather overwritten by the province some years later -- we should

actually still be on slide three at this point.

And when we look at the Commission reminded us yesterday that their purpose is to look at safety, but when we look at the purposes presented by OPG in this application it is to support the future of the nuclear industry supply chain. That's their vision; that's their purpose. They don't want to lose the asset of this -- this site preparation licence. And their purpose is to support the future nuclear industry supply chain -- very different purposes.

So, we would request that the Commission require OPG to provide a complete project description following the selection of their preferred reactor design, come back to the Commission at that time, and we will accept the distinction -- you know, the cut-off that the Commission makes between the amount of -- the depth in which we look at the reactor technologies at the site preparation stage versus construction. But we simply find it unworkable to go forward with no identification of the technologies.

Next slide, please.

So, we did have the assistance of Morten Siersback who looked at specifically the information provided in the application with respect to site layout, and he found that it was -- it was deficient, that OPG

simply had not met the requirements. They had not even provided the amount of information in the initial application let alone added to that information based on their revised intentions in terms of technology, and 10 years having passed since they first received that site application licence -- site preparation licence.

Next slide, please.

Our interest, of course, is specifically and particularly with respect to radioactive waste, so we looked at it, and you can see this in detail in our Section 4.3.1 of the Northwatch submission. Site layout should include information relating to radioactive waste, the proposed conventional and radiological waste treatment and storage areas are to be included in site configuration information provided and was not, so we would request that the Commission direct OPG, should they decide to return in 2022 with a complete application. But they specifically include that information.

Next slide, please.

And this is animated; you could just move through the next two clicks.

We won't spend time on this in our presentation; time is short. But OPG has, in the past, been a recipient and I think co-contractor of studies in how to reduce risk making storage more robust at the

reactor site, and we would like that information to be included in the site storage -- the waste storage proposal that they come back to you with when they come back with the complete project description.

Next slide, please. You'll have to animate -- and, again. Thank you.

So, with respect to the license period, we really struggle with this notion that the Commission is to renew a licence that was issued based on that assessment done that assumed certain -- certain safety requirements would be met as expressed through the PPE. We did, in 2011, have some low confidence in the way that exercise was undertaken, but now we see that that exercise has not been undertaken at all, and there are three very different chronologies, and these -- so, I think the question is, is the Commission willing to accept an assumption rather than a determination that these three new potential technologies will meet the safety analysis and including the PPE.

Next slide, please.

There's a question around qualified operators. One of the tests in the *Nuclear Safety Control Act* for the Commission is, is OPG qualified to carry out the activity. And, I think there's a question here about who is carrying out the activity.

In part, OPG does describe some

rearrangement of their organizational structure and it appears that there is an engineering procurement and construction company who will be contracted, so I think there's a question for the Commission around who requires that -- who is to be qualified and what is that qualification.

Next slide.

This becomes even more a question at later stages and questions around who will be the operator of any future small modular reactor design.

Next slide, please.

And our conclusions are that the application is premature. The information provided is inadequate. And the Commission must make a determination at this point as to whether the project of 2022 is the same project as was subject to EA and Licensing decision in 2012, and we would suggest to you that it is very definitely not.

Last slide, please.

And, again, our requests are that the Commission require OPG to provide a complete project description; that they give, at most, a licence extension for one year. And those -- that additional information would allow you to make a determination rather than accept -- simply accept OPG's assumptions.

Thank you.

THE PRESIDENT: Thank you very much, Ms Lloyd, for your presentation. And I can to some extent appreciate the questions and quandary that you see yourself in, and you expect the Commission to be in, as well.

But let me open it up to my colleagues for their questions. And we'll start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Madam Lloyd, for your presentation, as well as for the written submission.

The issue of the site layout was discussed yesterday by OPG, and I would like OPG to remind us what is the issue. Well, why the lack of information at the time being concerning the site layout?

MR. MANLEY: Robin Manley, for the record.

Commissioner Lacroix, I will do my best. If I don't directly answer your question, please do tell me.

So, we are at the stage where we have a project underway at the planning and engineering design stage but not at the stage where we have yet picked which particular technology partner to work with and, therefore, we haven't established the -- the exact footprint of any particular reactor plant.

What we can say -- what I do say is, that

it is within the -- it is within the envelope that was considered during the environmental assessment, so it's on those lands. It has a size, we're talking about a plant on the order of 300 megawatts or so, whereas, the EA considered up to 4800 megawatts, so something physically smaller and less output than -- than what was considered under the EA.

The EA was done with a sort of a bounding layout that imagines several different possible designs. It was not established what design it would be, just as we have not established at this time what design it is, but we will be within the EA. And once we have picked the technology partner with which to work, and if we get project approval to actually proceed, we intend to come back to the CNSC with a full project description and the full CNSC construction licence application with all of the necessary supporting documentation that would be available to the public to be reviewed thoroughly and by staff at a public hearing, at a construction licence hearing, and that would include the reactor design, the safety issues that the intervenor has mentioned; it would include the waste issues and how that waste will be safely managed. Those things would all be incorporated in our construction licence application.

Thank you.

MEMBER LACROIX: Thank you, Mr. Manley.

Madam Lloyd, does it address your concern?

MS. LLOYD: Thank you, Commissioner. No, it doesn't. In fact, I think what OPG is suggesting is that the Commission simply exempt them from the site renewal -- the site preparation licence renewal and those responsibilities.

OPG is saying, well, yeah, we didn't provide any of that information; we provided it in a generic kind of way 10 years ago. We didn't provide that information now, but we will provide it later.

Well, this is the site preparation licence and I think that I find, you know, bounding is bounding -- is that a bounding exercise in terms of the technology? Well, now OPG has just used the term to say bounding in terms of the property boundaries. Those are very different things.

I think that OPG's response contained really no surprises for me, except that I'm surprised at their -- at their persistence in this notion that they can simply ask the Commission to extend without having met the obligations of making that request. And really I think they're asking you to go on assumptions rather than determination. And, in effect, it's an exemption from this licensing renewal. They just want a -- you know, sort of a

forever arrangement for their 2012 licence.

I think a much more prudent approach on the part of the Commission would be to say, we hear you OPG. You don't have that information, so come back to us when you do.

And, in fact, OPG has, you know, in a meeting with stakeholders said that they would be making that technology decision in November. I don't know how long it then would take them to go from their technology selection to their approval, but it may well be that it is still within the window of this licensing period. That, I think, would be a more prudent course of action on the part of both OPG and the Commission.

Thank you.

THE PRESIDENT: Thank you, Ms. Lloyd.

Mr. Manley?

MR. MANLEY: Thank you.

Robin Manley, for the record.

Perhaps I could add additional information. My team has reminded me that we have an existing commitment under our licensing basis. Technically, it's called DP18 which refers to -- it's a -- a preparation licence commitment, number 18, that has to do with the layout -- I'm just looking at my note here. It has to do with the commitment to provide a layout to staff

as we go forward in our application process. So, that information will be forthcoming to -- to CNSC staff, as part of our application materials through the project process.

THE PRESIDENT: And that will happen after the technology has been selected, Mr. Manley?

MR. MANLEY: That is correct.

Robin Manley, for the record.

That is correct.

THE PRESIDENT: Thank you. Dr. Berube.

MEMBER BERUBE: I just want to expand on that idea and get CNSC's perspective on this, basically looking at the site layout parameters, and why are you -- why the current site maps and definitions sufficient in your opinion? You stated that this fine. And if you could just expand on -- on why you believe that's fine?

DR. DUCROS: Caroline Ducros, for the record.

Yeah, I just want to bring it back to the Joint Review Panel recommendation number one, that stated that the Panel understood that prior to construction the CNSC would determine whether the environmental assessment is applicable to the reactor technology, so that phased approach was considered in the previous licence and hasn't changed for this licence.

But I'd like to pass it to the project officer Ms. Laura Andrews, to provide a little bit more detail on the new commitment that Mr. Manley just mentioned, and also what the expectation is from the CNSC.

MS. ANDREWS: Laura Andrews, for the record.

So, as part of renewal -- as part of renewing a licence, the applicant must demonstrate they come up to modern codes and standards. And under the safety and control area physical design, there is a new requirement in REGDOC 1.1.1 which is the revised regulatory document since the issuance of the licence. There is a requirement in this document to provide the site layouts. And, as a result of the renewal process, this gap was identified by OPG. And all of the commitments coming out of the JRP process need to reflect modern codes and standards, and so this new commitment was added by OPG to meet the new regulatory document.

THE PRESIDENT: Thank you.

Dr. Berube, any follow-up to that?

MEMBER BERUBE: Yeah, just -- you know, just a little more amplification. I mean, I understand -- I understand what you're saying, that there's a new commitment. But the site maps are -- you know, they're unspecific and the definitions are -- well, they're --

they're good, I think; they are suitable. But I'm trying to understand, you're saying that the site layout is fine for relicensing purposes. Can you tell me specifically why you think that's the case?

DR. DUCROS: Caroline Ducros, for the record.

So, it is the case because what we assessed and what was received in the application met all the requirements, the regulations and the -- which I mean heavily relied on the Regulatory Document 1.1.1 for site evaluation and site preparations.

The technology itself had not been selected, and that is understood and will come back -- will have to come back to us, in terms of we need to know some site design information prior to some site preparation activities, and the commitments report will outline specifically which ones are needed, when, and those are defined in Appendix F, I believe, of REGDOC-1.1.1.

So, for a Site Preparation Licence, we have what we need to assure that the environment remains protected and that human health remains protected.

However, it has to be emphasized that for the Licence to Construct phase, there's going to need to be a lot more substantial information in terms of design, in terms of the plant parameter envelope, in terms of OPG

demonstrating that the predictions of the Environmental Assessment are still met, in fact that the releases have to be within the predictions and conclusions of the previous EA.

So for that reason, for a licence to prepare site, we have sufficient and quality information to make that determination.

But I would like to pass it to Dr. Miller to add more detail to some examples to clarify what I'm saying at a more high level.

DR. MILLER: Doug Miller, for the record.

To build on this, through the licensing basis OPG will be assessing whether or not when they have the technology and suitable design information, they will be assessing whether the technology fits within the bounds of the Environmental Assessment. We have reflected this through the licensing basis that they will provide an analysis in accordance with REGDOC-1.1.1 on site evaluation, site preparation, and in particular focusing on Appendix F of the document.

That provides the criteria that is necessary to demonstrate the impacts of accidents and malfunctions at a high level. It is not at the level of a detailed deterministic safety analysis, but it is certainly a system level analysis of the impacts of normal operation

and accidents and malfunctions on the environment.

MEMBER BERUBE: Yes, thanks for that. I think that's enough for me; thanks.

THE PRESIDENT: Thank you.

I will ask staff another issue that the Intervenor has raised, and this is around the licensee being qualified to carry out the activity authorized, in this case the site preparation activities.

Help me understand how staff has assessed the adequacy of that, given that it will be EPC, a company that will be contracted to do the work. How do you get reassured that indeed the licensee is qualified?

DR. DUCROS: Caroline Ducros, for the record.

I would like to pass this question to the Management Systems expert for contractor management.

MR. CORMIER: Kyle Cormier, Management System Officer, for the record.

Yes, OPG must maintain its role and responsibility as the licensed entity for DNNP regardless of who's doing the work. OPG has committed to ensuring ongoing and thorough oversight of the activities of the Engineering, Procurement Construction company in accordance to the OPG Nuclear Management System.

So there are various commitments regarding

both the conduct of the site preparation activities and OPG's oversight of the site preparation activities, including but not limited to a commitment for OPG to describe how review and oversight of site preparation activities will be performed and that the contractors performing the work for DNNP will have a management system that's compliant with CSA N286-12. That's the management system requirements for nuclear facilities.

So through this, CNSC staff are satisfied that OPG's application and the information submitted in support of the application for the renewal of this Licence to Prepare Site application address relevant requirements and explicitly with respect to contractor management.

THE PRESIDENT: Thank you very much for that.

Mr. Lacroix.

MEMBER LACROIX: Yes, I do have a question and I want to make sure that I understand correctly.

Dr. Ducros mentioned that once a technology has been selected and been assessed by OPG, it will come back to CNSC staff and they will review it.

Is it done within the bounds of the actual Site Preparation Licence?

DR. DUCROS: Caroline Ducros, for the record.

Some aspects are done within the bounds of the Site Preparation Licence in terms of what they can do before they start putting shovels in the ground. So there are some actions that OPG or some documents that they need to verify, send to us for verification prior to doing some site preparation actions.

But they can't construct any facility under the Site Preparation Licence. So the details of the technology, the details of the emissions, the details of the interactions between the facility and the environment, the plant parameter envelope aspects that need to be examined in terms of making sure that they are within the bounds of the EA, will take place during the Licence to Construct review and we will come back to the Commission for that.

Another aspect of this in terms of the qualifications of the licensee and what they can and cannot do is the CNSC does have a compliance verification process. So if at any time OPG is out of compliance with any of its commitments and expectations in the licence and *Licence Condition Handbook*, CNSC would take regulatory action. Depending on what that is, we may come back to the Commission if it's a deviation.

If there's any deviations to the licensing basis, there are powers that the inspectors have to stop

operations, to stop any activities taking place. And we would have to come back to the Commission, because OPG must remain within the licensing basis.

MEMBER LACROIX: Okay, thank you very much.

You answered my question. Thank you very much.

THE PRESIDENT: Mr. Manley?

MR. MANLEY: Robin Manley, for the record. Thanks for the opportunity to comment on this.

In a moment I'm going to ask Carol Gregoris to provide some additional material.

With respect to the EPC and, you know, who is accountable, I would just like to make it very clear that Ontario Power Generation is accountable for this licence and all activities undertaken under this licence and on this site. Whether or not we have an EPC, Engineering, Procurement and Construction company, that is doing work for us does not relieve us of the accountability for following the Act and the Regulations and the licence requirements, which we take very seriously.

I do recognize Caroline Ducros' comments. We are very familiar with CNSC inspections and requirements under the Regulations to report on our activities and any issues that arise, and we do that I think very well.

In addition, I would say -- and here's where I'm going to ask Carol to provide some additional context.

We are in the midst of executing a very major project of refurbishment of our Darlington plants where we have EPC companies involved. So we have a lot of experience dealing with that and making sure that we follow the licence requirements in a nuclear site, on a nuclear plant.

Today we are talking about a Site Preparation Licence and site preparation activities, which are not nuclear plant construction, which doesn't change the requirement of following the Act or the Regulations but just to say bear in mind the scope of what we're talking about.

Carol, could you maybe speak a little bit about our experience following the requirements with EPCs during refurbishment?

MS. GREGORIS: Carol Gregoris, for the record. Yes, thanks, Robin.

I just want to go over from our quality programs. So we meet the N286 Standards, as was discussed earlier. As part of our N286 program we have a procurement program where we specify quality requirements for all of our vendors. Our vendors have to have quality programs

that meet those requirements. We audit them to those quality programs. We keep approved supplier lists where we have audits on file for those vendors.

In addition to that, OPG provides very close oversight of the work that all of our vendors do on site. Our oversight program includes all of the elements of safety, quality, environment compliance.

So we do have quite a robust program, as was discussed before.

With respect to the refurbishment program, we have many vendors on site performing work for our refurbishment. This is nuclear quality work that is being performed, very complex work. We have had a very good record as far as quality and safety on that project. So I think we have demonstrated our ability to ensure that we have the right vendors doing the work and to provide oversight.

THE PRESIDENT: Thank you for that supplementary confirmation.

Ms. Lloyd, we've made good notes of the issues you've raised, the requests that you've made. I'm sure in our round of questions there will be a lot more questions and discussions on the topics raised here.

I will give you the opportunity to make any concluding comments before we move to our next

submission.

MS. LLOYD: Thank you, President Velshi. I would like to share a few thoughts based on the discussions we've just heard.

I think we've observed this tension before between what decisions go to staff after an approval versus what information is before the Commission as they make the decision.

I think if I was a Commissioner I would feel that tension between an arrangement where the Commission approves and therefore is responsible for the decision for the licence approval, but staff actually decide. Staff makes the really nuts and bolts decision. I think that's a tension that is disconcerting.

I also think in this case I appreciate that there's not going to be nuclear activities taking place during the Site Preparation Licence period prior to site construction application, but I think it's a matter of good planning.

And I also want to just flag the concern about sort of approval creep.

In the approval of a Site Preparation Licence are future opportunities being -- are you foreclosing on other future decisions, particularly around site configuration?

I think site configuration, it's important and I think it's important in a couple of ways. It's important in terms of -- it matters because it could affect the degree to which you can optimize safety at the site at a later stage when there are nuclear operations at the site, optimizing safety just in terms of how the site is configured, what part of the infrastructure is placed where, how close are the waste storage facilities to the shore of Lake Ontario, for example?

That, I think, is a safety question. How do you maximize safety, optimize safety?

I think it also leads to how do you minimize environmental impacts? So there may be lake infilling, there may not be. Well, when is that decision made? And is that decision not an outflow of the way the site is configured? So there is a way to minimize environmental impacts based on how the site is configured.

So, yes, nuclear operations don't come until the next stage. But yes, these are important considerations in terms of how you deliver your mandate that I think really rightly need to be addressed at site configuration, as part of site configuration, which is part of whether you extend the Site Preparation Licence or not.

I will just make one final comment and that's on the question of a qualified operator.

I accept that OPG has experience overseeing EPCs and that might be appropriate for site preparation. It might be functional for refurbishment. I would just again say that this is going to become a really large question at construction and operation stages, and we know so little of what OPG's intentions are with respect to the Darlington site.

We have seen for the micro modular reactor at Chalk River, it's a little more advanced and we see there a situation where we have a proponent, we have a vendor. We have a proponent, Global First Power, a vendor, Ultra Safe Nuclear, a site operator, Canadian Nuclear Laboratories, a site owner, AECL, and a partner, Ontario Power Generation.

We could have a similar arrangement when we get to that stage for the Darlington site.

So I flag it now. I accept that for site preparation maybe it is not of the same consequence as later. But it takes on a very different, a much more detailed and much more important question and investigation as we move into these licence applications that could have multi players in the operator's chair.

I will leave it at that and thank you very much for your time and your consideration.

THE PRESIDENT: Thank you very much for

your time and appearing in front of us.

We will move to our next presentation, which is from the North American Young Generation in Nuclear, Durham Chapter, as outlined in CMD 21-H4.57.

We have Mr. Wajih Hamouda and Ms. Payton Sainsbury who will be presenting the submission.

So I will turn the floor over to you.

Thank you.

CMD 21-H4.57

Oral Presentation by

**North American Young Generation in Nuclear,
Durham Chapter**

MR. HAMOUDA: Good morning. My name is Wajih Hamouda and I am the Public Relations Chair of the NAYGN, Durham Chapter.

MS. SAINSBURY: Good morning, everyone. My name is Payton Sainsbury, and I am the Community Outreach Chair of the NAYGN, Durham Chapter.

MR. HAMOUDA: Our organization, NAYGN-Durham, seeks to provide opportunities for young nuclear enthusiasts to hone their leadership skills, develop their professional abilities, create lifelong connections, constructively engage with the public, then

inspire today's technology professionals to meet the greatest challenges of our time.

On behalf of NAYGN-Durham we would like to say a few words related to the application for the renewal of OPG's nuclear power reactor Site Preparation Licence for the Darlington New Nuclear Project.

In Ontario we take electricity for granted. Our way of life demands reliable electricity 24/7. The majority of this electricity consists of baseload. The burden of generating baseload electricity in Ontario falls primarily on nuclear plants such as OPG's Darlington Station.

Nuclear plants are ideally suited for this crucial role in the energy landscape because of their impressive capacity factors. In 2020, for example, Darlington achieved a remarkable 93 percent capability factor. This speaks to OPG's continuous focus on improving operating procedures, modernizing plant monitoring and control equipment and sharing learning experiences with other reactor operators in Canada and around the world.

Canada's nuclear industry is among the safest and most strictly regulated industries in the world. Darlington has consistently been awarded the highest possible safety ratings by the CNSC. Contrasted against the millions of deaths related to air pollution, oil train

crashes, natural gas explosions, hydroelectric plant accidents, dam failures, mining fatalities, it is clear that nuclear energy is the safest large-scale form of energy that humanity has ever used.

When compared to the costs of various electricity sources in Ontario, such as solar, natural gas, wind and hydro, nuclear energy comes out as one of the cheapest, at about 7.7¢/kWh.

Because of cheap, affordable and clean nuclear, Ontario continues to be one of the most pleasant places in the world to live, with low electricity prices in comparison.

As for used fuel, it is estimated that if an average person's entire lifetime use of electricity all came from nuclear energy, all of the waste would fit in a small soda can. Used fuel storage from a technical standpoint is relatively simple compared to other challenges that have already been surmounted successfully.

It is also worth remembering that given the significant energy content, with a little bit of innovation it may be possible to recycle all the used fuel in the next generation of advanced nuclear reactor technologies.

MS. SAINSBURY: In addition to the advantage of being able to recycle used fuel, new and

advanced reactor technologies promise a host of other potential benefits. The future of reliable, low carbon nuclear power lies in the advancement of small modular reactor, or SMR, technology.

As the name suggests, SMRs have a smaller footprint and occupy less land than traditional reactor sites. They also have a modular design which allows them to be factory constructed off site.

Not only can SMRs be used to provide electricity to remote locations, which could greatly benefit the Indigenous population, but also to provide heat to a variety of applications, such as water desalination or even heating commercial, residential and heavy industry applications.

The support and development of nuclear energy in Canada can set an example for the world to follow in solving one of humanity's most pressing challenges: establishing a future with a stable climate and an abundance of energy.

More and more sectors of the Ontario economy, such as transportation, are moving towards electrification. This will result in continued growth in the demand for OPG's clean energy. It is essential for Ontario's evolving energy needs to be met while also combatting climate change.

The low carbon energy from SMRs is likely to be a key element of OPG's ability to continue to deliver clean energy and for the Province of Ontario to achieve the target of becoming a net-zero economy by 2050.

We can no longer afford to wait. We know that the easiest and fastest way to reduce emissions and rapidly decarbonize the economy is to rely on nuclear energy. We have proven in Ontario that it is possible and have shown how it can be done.

We need to establish clean electric grids to enable the electrification of transportation, heavy manufacturing, heating and other high energy use industries. We can do this by supporting a nuclear clean energy transformation, through streamlined regulation and approval processes, increased investment in research and development and new nuclear technologies such as SMRs and incentivizing the move away from carbon-intensive energy sources.

Our nuclear industry in Ontario sets an example that we can all be proud of. Nuclear energy is clean and safe, but it continues to require our vigilant support.

As members of the young generation of nuclear energy enthusiasts, we ask that our industry be supported by thoughtful and careful consideration and

recognition of the benefits that all citizens of Ontario enjoy from this wonderful technology.

Thank you.

THE PRESIDENT: Thank you very much for your submission.

Let me ask Dr. Berube if he has any questions.

MEMBER BERUBE: Thank you for your very thoughtful presentation, but I have no questions.

THE PRESIDENT: Dr. Lacroix?

MEMBER LACROIX: Neither do I. Thank you very much for the presentation.

THE PRESIDENT: Okay, thank you.

We will now take a health break and we shall resume at ten to 11:00, please, 10:50 a.m.

--- Upon recessing at 10:35 a.m. /

Suspension à 10 h 35

--- Upon resuming at 10:50 a.m. /

Reprise à 10 h 50

THE PRESIDENT: Welcome back. We're ready to move to our next presentation, which is by Mr. Louis Bertrand as outlined in CMD 21-H4.47 and CMD 21-H4.47A.

Mr. Bertrand, I'll turn the floor over to

you.

CMD 21-H4.47/21-H4.47A

Oral presentation by Louis Bertrand

MR. BERTRAND: Thank you, Madam Chair. Good morning, President Velshi. Good morning, Commission Members, and good morning also to everyone in attendance from wherever you may be.

My name is Louis Bertrand, I'm a professional engineer and I live and work in Durham Region.

I'm speaking from the traditional territories of the Mississaugas of Scugog Island, part of the Williams Treaties. As a settler bound by the treaties, I humbly hope that I can carry out my obligations as a treaty person.

I have an interest in the safety of nuclear power reactors, and specifically the nearby Darlington and Pickering nuclear generating stations. I have participated in previous CNSC hearings and the Joint Review Panel hearing for the Darlington new build.

Ma présentation sera faite en anglais, mais par après, si on me pose une question en français, j'essaierai dans la mesure du possible de répondre pareillement.

Next slide, please, slide 2.

I would like to situate my talk in the context of overall safety. Safety and security are related, but distinct. They are related by the fact that a failure of either can lead to a disruption of operations, or worse, a serious accident.

Security of computerized technology assets means maintaining integrity and availability. However, it is impossible to prove that there are no vulnerabilities in the software, this would be proving a negative.

Safety implies that the individual components are working correctly and that, together, the entire system built from those components operates as intended. Again, this is trying to prove a negative. In both domains we must rely on operational experience.

In the next few slides I will give some examples of cyber security OPEX and put them in context.

The points to retain are that we are seeing the emergence of skilled, patient and well-resourced groups with motives aligned with geopolitical objectives of less than friendly nation states. And as information technology and operations converge, and more and more equipment is automated, the number of targets increases and disruptions tend to become more severe.

The colonial pipeline system suffered a

ransomware attack last month. While this did not directly affect operational technology, the close coupling of IT and OT, operational technology, prompted the company to shutdown operations for nearly a week.

The SolarWinds compromise was disturbing in that the attack vector was a software component published and signed by the vendor, therefore downloaded and installed by over 18,000 customers. The compromise happened upstream of the software distribution and bypassed the best customer cyber security programs. The attackers were skilled and patient, choosing their targets carefully; US government agencies, research labs, and cyber security firms.

The threat actors are believed to be aligned with a nation state and the motive was espionage and possibly also to erode confidence in public institutions.

In this experiment, to demonstrate the vulnerability of the power grid to a cyber attack, a generator set was destroyed remotely. The attack required deep knowledge of electric utility operations. But, as demonstrated by other attacks, this level of knowledge is within reach of nation state actors.

This is a video. The soundtrack does not have any narration, it's ambient noise only, so if you

don't hear anything you're not missing anything.

The attack compromised a safety relay to invert its logic. When the generator was synchronized with grid power, as it normally should be, the relay disconnected the generator. Once the generator was desynchronized --

--- Video presentation / Présentation video

Let me finish explaining.

The relay reconnected the generator when it was desynchronized with the grid and put a crippling load on that generator. The cycle continued and eventually, as you saw, the machine was completely destroyed.

This was a test conducted by the US Department of Homeland Security and the Department of Energy.

A large-scale disruption of three utilities in Ukraine in December 2015 was attributed to nation state actors coordinating multiple simultaneous attacks.

First, they put the substations offline. Then incapacitated remote control equipment, forcing service personnel to travel to each substation to restore service. The attacks also incapacitated uninterruptable power supplies for IT equipment. And finally, a flood of

phone calls tied up customer service phone lines. The scale and complexity of the attack is an indication of the sophistication of the adversary.

In the case of the Boeing 737-MAX poorly designed software made the headlines in a tragic story of two crashes. But the real story should be familiar to any accident investigators. A long chain of events led to the crashes and the software error was only the proximate cause.

First, Boeing was under commercial pressure to catch-up with Airbus. Software was assumed sufficient to compensate for a design flaw in the airframe. Pilots did not have training on the MCAS system and the Regulator, the US FAA, delegated many safety inspections to Boeing ensuring. In short, the main problem was an inherent conflict between goals, sales versus safety.

This is relevant here because OPG is a commercial electricity producer and its prospective reactor building partners are also commercial entities. And, like any commercial entity with a safety mandate, there is a built-in conflict between profit and safety.

A lot has changed since the 2009 Environmental Impact Statement. To sum up the foregoing slides: attackers are better prepared and equipped; motives are strategic; there are more targets and attack

points; and, IT and OT, operational technology are increasingly integrated and intertwined.

As noted in the Chatham House report in 2015, there is a built-in conflict between operations and IT security. Safety culture requires careful planning and execution, and the early design freeze locks in latent vulnerabilities. Yet, security requires a rapid response to incidents or emergency software patching.

Attackers are, as the saying goes, beyond design basis, they do the unexpected. As an example of attacker thinking, Dr. Bruce Schneier proposed a pancake challenge: the goal, eat pancakes; one rule, do not pay.

I ran this for a few years in a college-level introduction to IT course. And I realize my time is running short, I have three more slides, so I seek the indulgence of the Commission.

I ran this in an introduction to IT course with forty or so eager students. At first, it was the usual; dine and dash, hold-up, and a few completely impractical schemes. After a while, everything died down.

I re-launched the discussion by proposing dumpster diving for the pancakes. After they got over the predictable reaction, they really understood that in fact there are no other rules.

Can your severe accident modelling team

pass the pancakes challenge? Do they truly understand that attackers deliberately break the rules?

Finally, I want to broaden the scope of my intervention to the entire project. Are we just knocking down a few trees, shoring up the shoreline and building a road, or are we building an experimental reactor in a heavily-populated area?

The existing EIS and application proposed next-generation CANDU or pressurized water reactors? Both technologies reasonably well-known in the industry.

The proposed reactors are experimental, at best. Two of them are dug into the ground. Did the EIS consider subsurface conditions? How would you inspect containment if the outer shell is below ground? Concrete is not forever.

Two of them operate at extremes of temperature and pressure. Little known areas in material science where theory and practice may not agree. And what is the nature of the waste? What is the activity level, the chemical composition, and the emissions?

My last slide. Thank you, President Velshi, for your indulgence.

The original EIS and application was made under the *Environmental Assessment Act*. Since then, the *EAA* was replaced by the *Impact Assessment Act* of 2019.

The *Impact Assessment Act* covers nuclear facilities, but adds an important aspect to the assessment, it requires the examination of alternatives to the project. In other words, if the goal is to produce electricity economically with a minimum of greenhouse gas emissions, is the proposed project the best way to do it?

A thorough impact assessment would place this project in a wider context of increase efficiency and conservation on the demand side and of renewable generation on the supply side.

This feels very much like the proponent trying to dodge a fulsome assessment. This application should be turned down and the proponent should present a more detailed and realistic proposal, ideally the subject of an Impact Assessment by a joint panel of the Impact Assessment Agency and of this Commission.

President Velshi, Commission Members, thank you and I welcome your questions.

THE PRESIDENT: Thank you very much for your submission and your presentation.

We'll start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Mr. Bertrand, for this very interesting presentation and also written submission.

The central question of your written

submission is that could a cyber attack compromise the work that will be done in the site preparation and could it also threaten the safety of the site itself?

So this question is directed to OPG. And I would like to know, does OPG implement measures to prevent such an event and also to mitigate its consequences? Thank you.

MR. MANLEY: Robin Manley, for the record. Thank you for the question. I'm going to ask Dave Tyndall, who's our Director of SMR Engineering, to start and he may call upon other members of our team. Thank you.

MR. TYNDALL: David Tyndall, for the record. I'm the Director of Engineering for OPG's nuclear new-build programs.

So it's an excellent question. How I would start off to say is that OPG has a robust cyber security program that complies with the requirements that are currently identified in CSA N290.7-14, which is the cyber security requirements for nuclear power plants and small reactor facilities.

Within that program internal and external operating experience is reviewed and taken into consideration to ensure continuous improvements and best practices are implement to enhance our program and our posture within the industry.

Cyber security will absolutely be addressed at future licensing phases, in the licence to construct, in the licence to operate as we look at the actual facilities themselves. However, at this point in time for the activities undertaken in this licence, we would not expect to have things like operating software or devices that would be, I'll call it, in operation that would affect nuclear safety on the DNNP lands.

That is not to say that we will not continue to actively monitor our existing nuclear operations next door, which have been and undergo routine compliance.

I will pass to one of my colleagues, Ethel Macasias, who's from our Chief Information Office, to provide any additional details that may compliment my response.

Ethel, to you.

MS. MACASIAS: Hello everybody. For the record, my name is Ethel Macasias, I am currently the Senior Manager for Nuclear and Renewable Generation Cyber Security, so the OT side, operational technology, here at OPG.

So I fully agree with everything that David Tyndall has stated. We continue to always work with best practices, benchmarking, OPEX internal and external in

regards to continually enhancing our cyber security posture.

I know that you asked about the safety and security. It will not affect this -- there will be no effect, because it's for environmental assessment right now. In regards to measuring and mitigating, we continue to do that and, as David said, for our current and existing site we are looking at that continuously.

MEMBER LACROIX: Thank you. Thank you very much.

THE PRESIDENT: Maybe I can add to Dr. Lacroix's question. So to OPG, I was very happy with your response. As I looked at your CMD and as you were doing your gap analysis, and you looked at natural hazards and manmade hazards. I didn't see cyber attacks or cyber security specifically mentioned.

And I just wondered if, and given how much greater the risk is today than it was say 11 years ago around here, whether there was any specific assessment done around that?

MR. MANLEY: Robin Manley, for the record. Yeah, Dave, please. Thank you.

MR. TYNDALL: Sorry, Robin, I was slow off the mute button there. So Dave Tyndall, for the record.

So we do look at cyber security as part of

a threat in risk assessment which is obviously a confidential document that would be part of our submission. So that is definitely part of it. And we continue to monitor the ongoing hazards that that would present.

I may call on another person, Dave Dickey, if you could potentially jump in, who's from our security team here that may be able to enlighten us on that topic further.

MR. DICKEY: Good morning. For the record, my name is David Dickey, Director of Enterprise Emergency Management Programs and Training at OPG.

You know, I echo the comments of my colleagues. You know, one of the points I wanted to make was that, you know, it is the changing landscape in cyber security. You know, one of the ways in which we are always looking to continue to be safe is to work with our partners. My colleague Ethel is actually the Chair of the inner utilities Security Working Group for Cyber for Canada with our other partners across the land.

And so that group really assists us with making sure we understand the OPEX, what's going on out there, you know, talk vectors, all those kinds of things that are very important for us to continue to look at.

So, as I say, it is changing landscape, absolutely, but we're changing with that landscape and

looking at opportunities as a continuous improvement organization.

You know, threat and risk assessment is a very big part of what we do, will be for all phases of this project, and it includes cyber security.

I want to say again that this safety control area is, you know, a long-standing piece for us and it will continue to be on our minds as we move forward.

Thank you.

THE PRESIDENT: Thank you very much.

I'll give Staff an opportunity to add anything if they wish to.

DR. DUCROS: Thank you. Caroline Ducros, for the record.

I'd like to pass this to Mr. Justin Sigetich, who's the Cyber Security Expert.

MR. SIGETICH: Justin Sigetich, for the record. I'm the Director of the Systems Engineering Division.

CNSC has cyber security standards, they were referenced by the licensee, by OPG, it's the CSA Standard N290.7, Cyber Security for Nuclear Power Plants and Small Reactor Facilities.

And that document requires licensees to implement cyber security programs to ensure that they are

assessing the risks to their facilities and making sure that they implement and they maintain cyber security programs. Maintenance of their program ensures that not only have they created a program, but they are constantly reassessing their program.

So if there is a change to the potential threats or the potential risks, if there is a potential vulnerability that has been identified either through something they've discovered inside their facility or through an event, like something you've seen in the news, they are to review their own programs, procedures and update their program, as necessary, update their measures and potentially modify what they're doing.

So the CNSC does have requirements for cyber security and we have compliance verification activities to ensure that the licensees are ensuring that their programs are effective against cyber threats. Thank you.

THE PRESIDENT: Thank you very much.

Dr. Berube?

MEMBER BERUBE: Thank you for your informative presentation. I have no additional questions.

THE PRESIDENT: Okay. Thank you. Again, Mr. Bertrand, thank you very much for your intervention and appearing in front of us today.

We'll move to our next presentation, which is from the Ontario Tech University as outlined in CMD 21-H4.58, and we have Dr. Akira Tokihuro to present this submission. Dr. Tokihuro, over to you please?

CMD 21-H4.58

Oral presentation by Ontario Tech University

DR. TOKIHURO: Yeah. So I hope you can see me and hear me. Thank you very much. For the record, my name is Akira Tokihuro. I do not have a slide presentation. I just wanted to read my statement.

I am the Dean of the Faculty of Energy Systems and Nuclear Science at Ontario -- the University of Ontario Institute of Technology. We are commonly known as Ontario Tech. I appear before the Commission to speak in support of OPG's application for renewal of the Site Preparation Licence for OPG's Darlington New Nuclear Project.

I have a Doctorate in Nuclear Engineering from Purdue University, and have extensive and diverse experience in academia and industry relating to nuclear power research and applications. I was a contributor to the American Nuclear Society President's Committee on the 2011 Fukushima Daiichi nuclear power plant accident in

Japan, and a technical editor of a bestseller in translation on the event.

Prior to joining Ontario Tech University, I was at NuScale Power LLC, a nuclear energy start-up company in Oregon, where I was Senior Principal Engineer contributing to the design certification application of the NuScale Small Modular Reactor.

From 2007 to 2014, I was Professor of Mechanical and Nuclear Engineering, and Director of Nuclear Engineering at the University of Idaho. Prior to 2007, I was a faculty member at Kansas State University and the University of Missouri, Rolla campus. At Missouri, I was also Director and U.S. Nuclear Regulatory Commission Licenced Senior Reactor Operator of the university's research reactor.

I believe our governments and fellow citizens have come to increasingly acknowledge that the pace of climate change is accelerating, and that the threat of climate change is the defining challenge of the 21st century. There is recognition that the excessive accumulation of carbon dioxide in the earth's atmosphere is an extreme threat to us and the planet. We need to understand and act on the necessity and urgency of bringing about rapid, decisive, and fundamental changes in the way we

conduct ourselves personally, economically, and socially.

We must immediately find and expand low carbon solutions for everything that we do, such as -- first bullet, the transformation of raw materials into manufactured goods. Second bullet, the transportation of raw materials, goods and people. Third bullet, the transformation of energy resources into sustainable energy currencies such as electricity and hydrogen. And fourth bullet, the transformation of these energy currencies into usable energy forms. And the fifth bullet, mindful use of all resources, recycling and conservation.

Efforts to electrify transportation systems, such as the use of electric cars and electrifying the commuter train systems, will significantly reduce carbon emissions, but only as long as the electricity used by these vehicles is generated without burning fossil fuels.

Ontario has implemented significant reductions in carbon dioxide emissions by the closure of all the coal-burning electric generation -- generating stations in the province. But as long as the replacement of this generation is from fossil fuel burning units, the addition of carbon to the atmosphere continues.

Likewise, when the Pickering nuclear electric generating stations is taken out of service, much

of that generation that is essentially free of atmospheric emissions, may be replaced by natural gas burning power plants. The construction of new nuclear electric generating units at OPG's Darlington site, for which the renewal of the Site Preparation Licence is being considered at these hearings, will be an essential contributor to minimizing the atmospheric carbon emissions in the generation of electricity from natural gas plants for use in Ontario.

While it is recognized that such alternative energy sources as solar and wind will contribute to the generation of electricity in the province, there is -- their intermittent mode of operation would need continued reliance on burning natural gas, or as yet, technically infeasible energy storage.

Typically, due to their low operating costs, nuclear generation has been used to meet the base demand for electricity. However, CANDU units have already demonstrated their ability to cycle their outputs in response to changing electrical loads, and many of the new generation small modular reactors also have the capability to have their outputs scheduled to meet daily and seasonal changes in demand.

Although the recent introduction of carbon pricing in Canada is a stepping -- is a step in recognizing

that there is -- there are costs associated with using the atmosphere to disperse the waste Carbon Monoxide and Carbon Dioxide bi-products of burning fossil fuels, the revenues generated by the application of carbon pricing is not being targeted to prevent these gases from entering the atmosphere, or to capture and sequester them after they have been emitted.

In contrast to use of revenues gained from carbon pricing, funds collected from the sale of electricity by nuclear power plants are retained, and will be used to manage the safe storage, in both short and long term, the bi-products of nuclear-electric generation.

While opponents of nuclear power claim that the management of nuclear waste has not been solved, in fact, the technology for deep underground storage of radioactive material is known, and the funds to construct and operate such facilities already exist.

Furthermore, the fuel that has been used in the present and proposed nuclear reactors is currently in safe storage, and it still holds over 95 percent of the uranium atoms that are the potential sources of future energy generation. Not only is the used nuclear fuel incorrectly labelled as "waste", the technology exists, although not yet cost-effective, to extract the very large amounts of energy that remain in the

stored and only slightly used fuel.

Ontario is one of the few jurisdictions that has the means to "mix and match" energy generation to optimize supply and maximize the benefits of the overall energy system. Nuclear power does well to support renewables, especially those that are intermittent.

Considering life cycle assessment, nuclear power is safer than other options and is one of the lowest overall for carbon -- total carbon emissions. It remains an option that we have.

Members of the university had spoken, just 10 years ago, in support of the original application by OPG for a nuclear power reactor site preparation licence at Darlington. The University of Ontario Institute of Technology offers Canada's only undergraduate nuclear engineering program. We also offer programming in Health Physics and Radiation Science, within our Faculty of Energy Systems and Nuclear Science.

Situated between Pickering and Darlington, our programs were developed to address the skills, knowledge, talent, and innovation needs of the industry. Safety is both a priority and responsibility for us as we educate the next generation of engineers, health physicists, and radiation science professionals. Whether it be for our -- be our undergraduates, Masters or Ph.D

programs, our graduate certificate programs, or our Advanced Operations Overview for Managers program, we upskill both the emerging and current workforce.

Internationally recognized faculty members, many with industry experience, teach in these programs. Our faculty serve on national and international panels, associations and standards committees, and these national and international bodies recognize expertise. Ontario Tech University as it is known in recent years, has received designation as Canada's first International Atomic Energy Agency, IAEA's, collaborating centre to support small modular reactor and non-electrical applications of nuclear energy.

The university is fully engaged in nuclear safety through our senior and associate industrial research chairs in health physics and environmental safety. We connect to the local community through membership of the Durham Nuclear Health Committee, which meets quarterly and is chaired by the Region's Commissioner and Medical Officer of Health. The university's students are actively engaged in the sector, including North America Young Generation Nuclear, the Canadian Nuclear Society, and the Women in Nuclear chapters.

My faculty and our students are -- and I are pleased to support the application for renewal of the

Site Preparation Licence for OPG's Darlington New Nuclear Project.

Thank you for your kind attention. And to my colleagues, thank you.

THE PRESIDENT: Thank you, Dr. Tokihuro.
Dr. Berube?

MEMBER BERUBE: Thank you for your presentation, your views, and your expert opinion.

I have no questions at this point.

THE PRESIDENT: Thank you.
Dr. Lacroix?

MEMBER LACROIX: Thank you, Dr. Tokihuro, for your intervention.

No, I do not have any questions.

THE PRESIDENT: Thank you also from me, Dr. Tokihuro, for your appearance today.

We will move to our next presentation then, which is by Mr. Darek Kulczyński, as outlined in CMDs 21-H4.59 and 21-H4.59A.

MR. KULCZYŃSKI: (indiscernible)

THE PRESIDENT: Please proceed.

MR. KULCZYŃSKI: Oh, I'm sorry. I have a slides that appeared on my screen. But anyways, can you hear me?

THE PRESIDENT: Yes, we can. Mr.

Kulczyński, you just put yourself on mute.

CMD 21-H4.59

Oral presentation by Darek Kulczyński

MR. KULCZYŃSKI: Sorry about that. Good morning everyone. My name is Darek Kulczyński. I am a Professional Engineer.

I joined Ontario Hydro in 1982, worked at nuclear -- at Rolphton Nuclear Training Centre and then at the NPD NGS. I was involved with special safety systems and when -- then with planned decommissioning. In December 1987 I moved to Darlington NGS. I was involved with commissioning the vibration monitoring system for major pump sets, and with end fitting vibration measurement. I was then responsible for Tritium Removal Facility computer operation and retrofit replacement.

In 2011 I was a part of the Society at public hearings for New Darlington Nuclear Project and the author of the addendum to the Society's submission. I retired from OPG in 2015. By the way, it was nice to see Robin Manley again. I remember 20 years ago he started as a Chief Returning Officer for the Society.

Darlington B is essential for Canada and Ontario. Prime Minister Trudeau just announced an

ambitious 40 to 45 percent reduction plan in greenhouse gas emissions by 2030. Canada is committed to reaching zero net emissions by 2050. By 2025 however, Pickering NGS A and B will have been permanently shut down. This means removal of approximately 3,000 Megawatts of emission free power -- nuclear power from the Ontario grid. At the same time, one or two Darlington units will be offline for overhaul.

Let's look at -- briefly, at the attitudes towards CO₂ emissions in jurisdictions that proclaim that they care about climate change. France is the only member of the European Union that generates about 70 percent of her electricity in nuclear plants. The UK is the only other nuclear -- European country that is involved in rebuilding its nuclear fleet. Germany on the other hand, is shutting down its nukes and replacing them with thermal power plants. Germany is buying more and more natural gas from Russia and is the largest greenhouse gas emitter in Europe.

Let's hope that Canada in general, and Ontario in particular, will recognize that limiting carbon dioxide emissions is impossible without growth in nuclear power generation.

Let's look at some other options that don't generate CO₂. Wind turbines are not good. Capacity

factor is less than 25 percent. In fact, in Germany the capacity factor is less than 22 percent. Cumbersome connections to the grid and infrasound effect that are detrimental to humans.

Solar panels, not good either. We are not Sahara Desert. We are not Southern California. We are not Arizona either. Insufficient capacity factor.

Hydraulic generation, very good but most waterpower has already been harnessed in Ontario. When Pickering A and B shut down, of course you can replace 3,000 Megawatts quickly with power plants burning natural gas, which is definitely not good. Methane is 30 times stronger greenhouse gas than CO₂, and burning natural gas remains number one source of CO₂ in Canada.

Currently, Ontario provides 60 percent of energy needs with nuclear power, which constitutes just 33 percent of generating capacity. At least 3,000 Megawatts of nuclear power will need to be added to Ontario grid shortly after 2025, just to maintain the emission status quo and of course, to ensure that Ontario's power demand is being met.

We've got the great, highly sophisticated and very well-operating Darlington A nuclear plant. However, during commissioning in 1989 and 1990 there were two profound problems, the BBC generator rotor cracks and

with Fuel Bundle cracks which were reduced by the initial five blade impellers of PHT plants. These brought Darlington capacity factor essentially to zero because there was no power being generated.

However, these profound problems have been successfully resolved by Ontario Hydro and Darlington A has been operated great ever since.

And to mention, that in 2016 World Association of Nuclear Operator named Darlington A as one of the safest and top performing nuclear stations in the world for the third time in a row. As a result, Darlington A obtained INPO-1 rating, which is the highest rating in safety and in the realm of other indicators of excellence that the nuclear plant can reach in the world. Also, Darlington achieved very high-capacity factor. We heard in one of the previous demonstrate -- presentations, it was 93 percent of the whole plant last year. So Darlington achieved results that are remarkable.

On May 15, 2012, Darlington Unit 4 worked for 633 days without a trip or shutdown. This year on February 4th, Darlington Unit 1 was shut down for maintenance after a whopping 1,106 days of continuous generation, setting the world nuclear operation record and world thermal plant generation record. So as we can see, OPG is uniquely qualified and Darlington staff also

uniquely qualified to operate more nuclear power on their Darlington B site, especially if these are CANDU reactors.

Plans for Darlington B. Prior to 1990, Darlington B was to be a four-unit station similar to Darlington A. Darlington B was cancelled by Ontario NDP Government. In 2001 there were plans to use Darlington B site for ITER, International Thermonuclear Experimental Reactor, which was subsequently awarded to Cadarache in France. In 2011, during public hearings, the Society of Energy Professionals suggested that Enhanced CANDU 6, 740 Megawatts, be considered for Darlington B site. There was an addendum to the SEP submission that I prepared to describe CANDU -- Enhanced CANDU 6.

In 2013 Ontario Liberal Government suspended competitive bidding for Darlington B. And in 2020 it was announced that a small nuclear reactor might be built at Darlington B site.

Let's do plain arithmetic. How to close the nuclear generation gap of 3,000 Megawatts. OPG has applied to build up to four nuclear units at their Darlington site. There are only two designs that would close nuclear generation gap, AP-1000, which is the American Pressurized Water Reactor, probably the best on the market by Westinghouse. Four reactors like that would replace Pickering A and B, all eight units originally

installed.

However, if EC 6 Enhanced CANDU 6 were selected for Darlington B site, four reactors like that would provide 2,800 Megawatts, which would be 90 percent of Pickering A and B's six units that currently remain in operation. In addition, if OPG built additional two EC 6 units at their Weseleville site, six EC 6 units would replace Pickering A and B, all eight reactors originally commissioned.

Waiting for the next slide. AP 1000 is a great reactor, probably the best on the market, Passive Safety System Station Blackout up to 72 hours. But there is limited Canadian expertise in PWRs and Westinghouse has had profound problems with delivering on time and on budget since announcing bankruptcy.

On the other hand, EC 6 is the reactor built based on its predecessor of very successful CANDU 6 model, built in three-unit arrangements, is based on CANDU 6 and employs modularization and pre-fabrication, which fabulously shortens the construction time. There is ample expertise regarding CANDU and ample CANDU infrastructure exists in Canada, which was recently demonstrated during Darlington 2 refurbishment, which was a success.

EC 6 is equipped with advanced safety features like dousing, gravity fed flooding of calandria

vault. The safety margins of Unit of CANDU -- EC 6 direct predecessor, CANDU 6 model are very good. This is the distance between the accident point and prompt criticality region and fuel melting enthalpy region. CANDU 6 is second only to Pickering A reactors, as far as safety margins are concerned. So selecting EC 6 Enhanced CANDU 6 for Darlington B site would be a prudent and a safe choice.

What about small modular reactors? Well, they are just too small for Ontario nuclear power needs. It's a great idea for remote areas like the Arctic. It's good for Alberta, for ecological tar sand oil extraction. And it's Federal Government, not OPG or the Ontario Government that should develop and promote SMRs. The first fully fledged SMR power plant should be built at Chalk River, not at Darlington site.

I remind everyone that Chalk River Nuclear Laboratories was a site instrumental to developing Canadian nuclear expertise. And also, Americans used this site for research. For example, Admiral Hyman Rickover, born in Makow Mazowiecki, Poland, by the way, the so-called father of American nuclear submarine fleet, used Chalk River Nuclear Laboratories for his research. He is also said to have coined the term, crud, which stood originally for Chalk River Unidentified Deposits.

Finally, I would like to invoke Ontario

Hydro -- Ontario Power Generation's mission, which is to provide low-cost power in a safe, clean, reliable and sustainable manner, to benefit its customers and shareholders.

Having said that, I would like to appeal to my friends at Ontario Power Generation to reconsider what technology they want to build at Darlington B site. It cannot be taken in isolation from what Ontario needs, and it needs minimum 3,000 Megawatts of nuclear generation after 2025. It takes at least six years to build and commission a nuclear unit, wherein the AP-1000 or EC 6. Let us select something that we know how to build, we know how to commission, we know how to operate, we know how to store waste, and we definitely have confidence that it will achieve high capacity factor in the future, thus providing low cost nuclear power with a low -- no-emission nuclear power to the province of Ontario.

The end of Pickering is approaching.
There is not more time to waste.

Thank you very much.

THE PRESIDENT: Thank you, Mr. Kulczyński for your submission. And I'll see if my colleagues have any questions for you.

Dr. Lacroix?

MEMBER LACROIX: Thank you very much, Mr.

Kulczynski, for providing us with an overview of the electricity sector.

No, I have no questions.

THE PRESIDENT: Dr. Berube?

MEMBER BERUBE: Well, thank you for your very analytical presentation; I enjoyed it, but I have no questions.

THE PRESIDENT: Okay. Again, thank you for your submission.

We'll move to our next presentation which is from Atomic Energy of Canada, as outlined in CMD 21-H4.23. And we have Mr. Fred Dermarkar who will be presenting this submission.

Mr. Dermarkar, the floor is yours.

CMD 21-H4.23

Oral presentation by Atomic Energy of Canada

MR. DERMARKAR: Merci madame le Présidente et membres de la Commission. Je m'appelle Fred Dermarkar et je suis président et premier dirigeant d'EACL.

It's an honour for me to speak with you this morning in support of OPG's application for the renewal of its power reactor site preparation licence for the Darlington New Nuclear Project.

New Nuclear SMRs, together with renewables are central to Canada's climate action strategy. Without nuclear, Canada and the world will not be able to reduce greenhouse gas emissions. This has been recognized by the International Panel on Climate Change, the International Energy Agency, and many other reputable scientific organizations.

Here at home, Canada's Minister of Natural Resources, Shamus O'Regan, as recently as last week's 12th Clean Energy Ministerial stated that we need nuclear to get to Net-Zero.

There is much at stake. It is important for the future of our country, and our planet, that we succeed in demonstrating the viability of SMRs as part of the solution to climate change.

No organization is better positioned than OPG to successfully demonstrate an on-grid SMR. OPG has four major attributes that position it for success, and I'd like to walk you through it.

First, OPG has demonstrated its ability to deliver a major nuclear project on-time and on-schedule. The best demonstration of this occurred almost exactly one year ago when the Darlington Unit 2 refurbishment project became the first major CANDU refurbishment to be delivered on-time and on-budget.

Second, OPG is an experienced nuclear operator and has an impeccable safety record. This is reflected by the CNSC's own assessment of OPG's performance as a licensee. For example, the last time the CNSC issues its regulatory oversight report of power reactors, OPG scored either fully satisfactory or satisfactory in all categories. OPG has also received excellent ratings from the World Association of Nuclear Operators and through the in-depth international peer reviews that they perform.

Most recently OPG received an exemplary performance rating as part of the 2019 peer review follow-up at Pickering. And, maintained its excellent standing for Darlington in 2020, for the fifth consecutive review.

Finally, OPG's operating units are setting new records of performance, both individual unit lifetime records, as well as international records for continuous operation.

I would like to note that four months ago, on February 4th, Darlington Unit 1 was shut down for scheduled maintenance after 1,105 continuous days of generation, setting the world record for nuclear operation and thermal generation.

Third, OPG is committed to responsible management of all phases in the lifecycle of nuclear

power -- of a nuclear project, from the selection of the design right through to the final decommissioning and disposal of the waste and by-products of operation.

In this regard, OPG is collaborating with AECL and CNL to advance decommissioning and waste management as a means of addressing its environmental protection and remediation responsibilities.

And, fourth, OPG's Darlington site is Canada's only site licensed for new nuclear with a completed and accepted Environmental Assessment.

I'd like to step away from my role at AECL for a moment and offer a personal perspective on this. I worked at OPG at the time that it received its licence for the Darlington New Nuclear Project. At the time, I was the Vice President of Engineering Strategy, and contributed to the effort. I can personally attest to the rigour of the work that was done at the time to qualify the Darlington site. The process that was used qualified the site for multiple different technologies. It did this by taking the novel approach of defining a bounding environmental impact that accommodated the reactor designs available at that time. Since then, new SMR designs have emerged whose intent is to further reduce the impacts of accidents and malfunctions on the environment. In this regard, I'm confident that whichever of the designs under consideration

is ultimately selected, it will be readily demonstrated to remain within the bounds of the environmental assessment.

OPG's project to build a demonstration on-grid SMR can play a crucial role in helping Canada achieve its climate change goals, especially in the near term. Once proven successful at Darlington, SMRs of similar design for on-grid application can be readily constructed in other parts of the country, and in other countries, accelerating the journey to Net-Zero both in Canada and internationally.

When I introduced myself, I noted that I was the President and CEO of AECL. For the record, AECL is a federal Crown Corporation with a mandate to enable nuclear science and technology. In this context, AECL sees the Darlington New Nuclear Project as a critical opportunity for Canada to bring to bear its significant nuclear knowhow and experience to demonstrate new technologies, better assess the potential for these to contribute to the urgent need for clean energy and economic growth priorities, and take advantage of the experience and expertise of an established nuclear operator and an experienced nuclear workforce locally and across the Canadian supply chain.

In closing, AECL strongly supports OPG's application for the renewal of its power reactor site

preparation licence for the Darlington New Nuclear Project.

I would like to express my appreciation for the time that you have given us this morning, and I'm open to any questions that you might have.

Thank you.

THE PRESIDENT: Thank you, Mr. Dermarkar.

Let's open it up for questions then.

Dr. Berube?

MEMBER BERUBE: Well, thank you for your perspectives on OPG and your expert opinion on the matter. I think you've done an excellent job at expressing your views on -- on this particular license and I have no additional questions.

THE PRESIDENT: Thank you.

Dr. Lacroix?

MEMBER LACROIX: Thank you very much for your presentation.

The burning question here is that OPG is about to embark on a new project that involves an SMR and I know that AECL will be the campus for hosting a new technology and a smaller -- a smaller SMR. And I was wondering, is there a connection in the selection process between the type of work that is going on at AECL and the future technology that OPG will favour?

MR. DERMARKAR: Thank you for the

question. The technologies under consideration for the on-grid application are quite different from the technology that's being considered at -- at CNL. The technologies themselves are different. It is a different company with a different design, and -- and its application is intended to be different, one being a much smaller off-grid application, with the other one being a much larger on-grid application.

MEMBER LACROIX: Thank you very much for clearing that up. Thank you.

THE PRESIDENT: Mr. Dermarkar, much as I don't want to talk about technology, I do have a question. And, one, I just wanted to thank you for sharing your personal involvement with the original licence application and the reassurance about the bounding case.

You used the word "demonstration," for this particular project, and I know that on the CNL side with the micro modular reactor that is a demonstration. Help me understand why -- is this to demonstrate the business viability, or is it also to demonstrate the safety of -- of whatever technology OPG chooses?

MR. DERMARKAR: It's a first of a kind. We haven't built on before. And in terms of the -- the safety case, the safety case will be made before the reactor is built. But once you build a reactor you -- you

want to confirm that the as-built reactor operates consistent with what you expected from both a design perspective, an operational perspective, an economic perspective, and a safety perspective.

There is much to learn when you build a reactor for the first time. So, it's not only in one dimension. However, the principles underlying the safety of the reactor are proven principles. We're not -- in all these designs they are building on the understanding of reactor RND and reactor operation that has evolved over the last six or seven decades. So, there is a very sound base of knowledge that underlies the safety of these reactors, but there is much to learn, when you build one, around all the other factors that make it viable from an operational, financial perspective and so on.

THE PRESIDENT: Thank you very much.

Thank you for your submission and for appearing in front of the Commission today, Mr. Dermakar.

MR. DERMARKAR: Thank you.

THE PRESIDENT: We'll move to our next presentation, which is from Kinetrics, as outlined in CMD 21-H4.24 and 21-H4.24A.

And we've got Mr. David Harris to present this submission.

Mr. Harris, please proceed.

CMD 21-H4.24/21-H4.24A

Oral presentation by Kinetrics

MR. HARRIS: So, I scroll right, good.

Good afternoon, Madam President and Members of the Commission. For the record, my name is David Harris, President and CEO of Kinetrics.

I am pleased to be here today to express Kinetrics' -- Kinetrics' strong support for OPG's application for a 10-Year renewal of the Darlington New Nuclear Project Site Preparation Licence.

Today I will share with you some information about Kinetrics, what we do, and then I will explain our relationship with OPG and why we support their application for a renewal of the site preparation licence.

The next slide, please.

So, starting off with who are we? Kinetrics is a Canadian owned company providing lifecycle management solutions to the electricity and nuclear industries. Our headquarters are in Etobicoke, with offices and laboratories in Pickering, downtown Toronto, Bruce County, and a growing number of international locations. We own and operate three CNSC licensed facilities in Ontario. Kinetrics originated as Ontario

Hydro's Research Division, becoming independent after the demerger and re-organization of Ontario Hydro in 2000.

Next slide, please.

So, what do we do? We provide a wide variety of services, some of which are listed there for you to see. This includes -- this requires many of our staff to work with OPG on their site during normal operations and outages. In the areas of safety and licensing, we perform periodic safety reviews, deterministic and probabilistic safety assessments, amongst other products and services.

Kinetrics performs most specialized safety analysis services for Ontario's nuclear reactors. These services have been provided to OPG over the last two decades and we have developed a strong and secure working relationship guided by mutual dedication to excellence and a healthy safety culture.

Next slide, please.

So, our involvement with DNNP. Kinetrics has been involved with DNNP since the project's conception. In 2009 we were selected to act as the owner's engineer for the development, construction and commissioning of a new nuclear generating station. Kinetrics' role was to provide key project and technical oversight, assist in the review of the design and safety analysis, monitor progress, and ensure that quality and procedures and codes were followed.

Kinetrics also assists in the preparation and reviewing various aspects of the site preparation licence and supporting documents.

Most recently, Kinetrics supported OPG's site preparation licence renewal efforts through review of OPG's licence renewal plan and the development of an Aggregate Assessment Report. This report provides a methodology and results that demonstrate the validity of the existing license basis for the next licensing period.

Throughout these projects, Kinetrics has noted OPG's excellent accountability and commitment to doing the work safely, while always keeping the public and the environment as top priorities.

Safety at OPG.

Next slide, please. Thank you.

OPG's commitment to safety cannot be understated. Our staff who work on their site witness the highly effective management of their facilities which provides a safe work environment. OPG has rigorous procedures in nuclear, conventional and radiation safety, and environmental protection which protects safe work practices both on and off the OPG site.

In addition, high safety standards are established and maintained by continuous improvement programs directed at both OPG and vendor staff.

The next slide, please.

OPG and the Environment. Kinetrics provides analytical and environmental services that support environmental assessments and monitoring programs. We have witnessed OPG to be industry leaders in environmental stewardship, maintaining high accountability for conservation and sustainability.

Next slide, please.

OPG and Aboriginal Relations. Kinetrics is a proud member of the Canadian Council for Aboriginal Business, the CCAB, which aims to strengthen the relationship between Aboriginal and non-Aboriginal peoples, businesses and communities.

OPG is also a member of the CCAB and has demonstrated an exemplary commitment to Aboriginal communities by creating the Indigenous Opportunities Network, the ION. The ION aims to increase the number of Indigenous people working in the nuclear industry. Kinetrics participates in this program and is appreciative of OPG for leading the way in these areas of diversity and inclusion.

Next slide, please.

Impact to Ontario. Kinetrics shares OPG's vision that an SMR on the Darlington site would promote Ontario as the clean energy capital of the world while

producing high-quality jobs. Building on OPG's leadership in this area, Kinetrics is also investing in innovations to support clean energy and to tackle the effects of climate change. And recently during -- earlier this week we announced a new facility called Helius that would support innovation and development of clean technologies. Without an SMR at Darlington, that project would not be able to move ahead.

Next side, please.

So, in summary, our first-hand experience of OPG's commitment to safety of the public, their existing facilities and the environment gives us the highest confidence that they will conduct the site preparation activity at Darlington safely and in compliance with regulatory regulations. Kinetrics fully supports a 10-year renewal for the site preparation licence of the Darlington New Nuclear Project.

Thank you for your attention. I am pleased to have had this opportunity to provide my support, and I'm happy to respond to any questions which you may have at this time.

THE PRESIDENT: Thank you very much, Mr. Harris, for your submission and presentation.

I'll turn to Dr. Berube to see if he's got any questions.

MEMBER BERUBE: Yes, Mr. Harris, thank you for your presentation and the opportunity to hear from you.

My question is, you mentioned that you perform services at Darlington location. What services, in particular, are you performing on the licensed site under consideration at this time?

MR. HARRIS: So, I think given the detailed nature, I'm going to hand over to my colleague -- and for the record, David Harris.

I'm going to hand over to my colleague Ranil to answer that question.

MR. JAYASUNDERA: Good afternoon, everyone. For the record, my name is Ranil Jayasundera.

Most recently, in support of the DNNP site preparation licence renewal we did complete an aggregate assessment report, so as David mentioned, the purpose this report was to provide a methodology and results in the assessment to confirm the validity of the existing licensing basis for the next licensing period. So, in areas where inputs to the licensing basis has changed since the original license was granted, the aggregate assessment report identified any necessary mitigating actions where necessary, which has been captured in the Darlington New Nuclear Power Plant, or the DNNP commitments report.

So, this aggregate assessment report has

been submitted along with the licence application to ensure that any items addressed in future phases of the project lifecycle are acknowledged and covered under the new licensing basis.

MEMBER BERUBE: Can you give me some specifics on that? What was in that report? I haven't seen it, obviously, so -- so, maybe you could just, if you could. If there's something confidential don't bring that up. But if it's public domain then, please.

MR. JAYASUNDERA: Sure. Ranil Jayasundera, for the record.

So, again, the -- well, the actual methodology of the report, you know we -- we took into account some of the key OPG inputs such as their compliance reviews against you know REGFDOC 1.1.1., since it's on-site preparation, as well as any assessments against modern codes and standards.

In terms of the findings, you know there were no safety or environmental issues identified as part of this report. The majority of the proposed mitigating actions to adjust any of these potential gaps were already captured by existing commitments or slight modifications to the existing commitments, as documented in the DNNP, in the report.

There was only one new commitment that was

proposed, to be included. This was related to the proposed layout of the -- of the structures in the final state, and this is once a reactor technology has been chosen. So, this is based on a new requirement from REGDOC 1.1.1.

MEMBER BERUBE: Thank you.

THE PRESIDENT: Maybe I can just ask a follow-up question. Were you surprised that there weren't more gaps -- a 10-year period -- on their changing standards and requirements and conditions, or you know is this what is to be expected?

Were there things that were maybe controversial that required debate?

I would just like to get your professional opinion on that.

MR. HARRIS: David Harris, for the record. Again, I will ask Ranil to please respond to that question.

MR. JAYASUNDERA: Ranil Jayasundera, for the record.

No, I would say we -- we employed a very systematic review. And, again, incorporating the inputs from OPG, we had a very you know clear and concise methodology in terms of extracting these inputs, trying to when we're identifying these gaps and consolidating them into you know topical similarities, we then took these

issues and prioritized them. We developed proposed resolutions, and then these proposed resolutions were then ranked based on explicit criteria such as no impact or unseen value. So, the fact that, you know, the -- it further demonstrated that there was a strong licensing basis in place and that there was relatively little to be done in terms of revisions to -- to take part, for this proposed licence renewal period.

THE PRESIDENT: Thank you.

Mr. Manley?

MR. MANLEY: Robin Manley, for the record.

Maybe I could briefly speak to that.

When it comes to codes and standards, I think it's not surprising that there were relatively few gaps. And that's because our work under this licence application is being done to OPG's Nuclear Management System.

OPG's Nuclear Management System is continually reviewed and updated with respect to regulatory requirements, CSA standards, etc., because it is used for our operating nuclear power plants and our waste management facilities, which are all licensed by the CNSC. So we are in a continual process of upgrading our programs to the highest standards.

Thank you for the opportunity.

THE PRESIDENT: Thank you.

Dr. Lacroix?

MEMBER LACROIX: Thank you very much. No, gentlemen, you have answered all my questions. Thank you.

THE PRESIDENT: Okay, thank you.

And thank you, Mr. Harris and Mr. Jayasundera, for joining us and answering our questions. It's greatly appreciated.

We will move to our next presentation, which is from USNC-Power, as outlined in CMD 21-H4.32.

We have Mr. Mark Mitchell to present this submission.

Mr. Mitchell, you may proceed, please.

CMD 21-H4.32

Oral Presentation by USNC-Power

MR. MITCHELL: Thank you very much, Madam President.

For the record, my name is Mark Mitchell. I am the President of USNC-Power, a British Columbian company with (indiscernible)

I am responsible for the development of the Micro Modular Reactor which we are planning to site at the Chalk River Laboratory.

I will just give a verbal presentation just to provide some context to our written submission and perhaps respond to any questions.

I think the highlight of our position after having reviewed and reached out to support this can be summarized in four points.

First that OPG is a suitable licensee. The application is good, for want of a better word, and the renewable is both necessary and beneficial.

I think I'm afraid while we don't talk about technology at this stage of licensing, I may delve a little bit into the opportunities offered by SMR in this context, and the future of them.

On the record we've stated that we strongly support OPG's renewal application and would like to demonstrate our support by sharing these reasons.

As the vendor of the MMR and an equal partner with OPG in the Global First Power Project, we have first-hand knowledge and experience of how OPG approaches projects like this and first-hand knowledge of the safety culture, competence and professionalism that the OPG staff, specifically seconded into GFP, bring to the daily execution of their duties.

So not just the analysis presented and documents filed, but the culture and diligence of the staff

give us excellent confidence in the statements made by OPG in its submission.

We also note three points:

- That they have complied with the conditions of licence to date;
- they have assessed and met the evolving regulations; and
- they have shown commitment to maintaining the social (indiscernible) First Nations engagement, public engagement, and the like.

USNC is impressed with how rapidly and profoundly the OPG staff seconded into the GFP project have embraced the concept of new nuclear generation's small modular reactors and they have brought this into their thinking and approach to future new projects.

Based on our current working partnership with OPG and their track record of successful operation of their CANDU plants, we support them as a licensee in terms of the DNNP licence renewal.

USNC and OPG share a passionate belief that new nuclear is an invaluable tool to fight the climate change crisis.

SMRs are an extremely valuable option as well. They typically exhibit enhanced levels of safety and also the ability to work in applications that are not

addressed by current nuclear technologies, such as working well with renewables while generating electricity.

(Indiscernible) safety features in any future build should definitely be considered.

So while the (indiscernible) applications are not bound to a specific technology, we note that nuclear is going to be significant in reducing (indiscernible).

And the project at DNNP is an opportunity to unlock this, unlock new technologies, strengthen Ontario's growth with renewables and also unlock these technologies not just for Ontario but for use across Canada.

USNC-Power follows the work that OPG has completed on the DNNP PSRL. We do this to help our team learn, get lessons learned and to support OPG's application.

We note that OPG has seriously honoured all their commitments made in the DNNP PRSL. These are documents in the submitted reports and I also note that they are planning to deploy a nuclear power plant at the DNNP site to achieve the Canadian federal government goal of net-zero by 2050.

(Indiscernible) provide evidence to support this; it's in the docket. And I think that in

terms of our tracking of the detail of the application we certainly concur and understand that the licence conditions that were proposed do not seem to be affected in any material way by developments since it was originally granted.

So based on the contribution of nuclear clean energy and the observations OPG in Global First Power, we would like to make the following points.

The DNNP site licence is an asset for OPG, Ontario and Canada. This is especially true if you consider two points: the importance of new nuclear generation in the future and the time and cost it would take to establish a new site if the renewal was not granted.

We also note that OPG has not asked for changes to the licence conditions and that they have not started any licensed activities, and finally that they do actively plan to use the site in future, which is evidenced by the commitment of OPG to submit their (indiscernible) application in the near future.

So with that, I would like to express our unreserved support for the renewal of the DNNP PRSL for the requested ten years.

Thank you very much.

THE PRESIDENT: Thank you, Mr. Mitchell.

Dr. Berube, any questions?

MEMBER BERUBE: Thank you, Mr. Mitchell, for taking the time and coming to present before us. I have no questions at this time.

THE PRESIDENT: Dr. Lacroix?

MEMBER LACROIX: Thank you, Mr. Mitchell, for your intervention. I appreciate it. Thank you very much. No questions.

THE PRESIDENT: Okay. Let me echo my colleagues and thank you, Mr. Mitchell, for appearing in front of us. Thank you.

So we will move to our next presentation then, which is from the Canadian Nuclear Association, as outlined in CMD 21-H4.35.

We have Mr. John Gorman who will be presenting this submission.

Mr. Gorman, over to you.

CMD 21-H4.35

**Oral Presentation by the
Canadian Nuclear Association**

MR. GORMAN: Thank you, Madam Chair. Good afternoon, Commissioners.

My name John Gorman. I am the President

and CEO of the Canadian Nuclear Association.

With me today is Steve Coupland, Director of Regulatory and Environmental Affairs at the CNA.

I am very pleased to have the opportunity to speak to the Commission in support of OPG's application to renew its Site Preparation Licence to support the Darlington New Nuclear Project.

You have already received written comments on behalf of the CNA and its members, and I would like for the record to briefly touch on some of the key points in our initial submission.

I will begin by pointing out the importance of the Darlington New Nuclear Project. The United Nations has declared that the planet is facing a major climate crisis and that it's imperative that Canada does its part to reduce emissions.

Most experts agree that greater use of non-emitting electricity is essential to meeting the world's climate change targets and several Canadian Ministers have declared that there is no path to net-zero without nuclear.

In that context it's critical that the Darlington New Nuclear Project proceed, but of course it can and should only proceed if the licensee demonstrates and the Commission is confident that the project will be

completed in a safe, responsible manner that protects workers, the public and the environment.

As the Commission knows, the Canadian nuclear industry operates on a safeties-first principle and is committed to the protection of workers, the public and the environment.

OPG has demonstrated its commitment to these principles for over 50 years of safe operations.

It is also important to note that in this application OPG is asking for a ten-year licence renewal of the current licence with no new request to expand the scope of the licence.

While OPG has not yet selected the technology, it is committed to ensuring that the technology chosen is within the bounds of the licence basis of the accepted Environmental Assessment.

During the existing licence period OPG has maintained the Site Preparation Licence and progressed long lead regulatory commitments. In addition, OPG has submitted annual reports and a mid-term licence report in 2018 providing an update on the status and progress of regulatory commitments.

The CNA would like to draw the Commission's attention to the extensive review OPG undertook to confirm that the Darlington site continued to

meet the conditions in the original licence.

This review included:

- a review of the management system that governed site preparation activities;
- a compliance review of the original application materials against REGDOC-1.1.1, Site Evaluation and Site Preparation for New Nuclear Power Plant Requirements;
- a review of current codes, standards and practices referenced in the licence basis;
- a review of applicable baseline data associated with the site;
- an evaluation of natural external hazards and external non-malevolent human-induced hazards;
- a review of potential security threats.

In addition to these reviews, OPG prepared and submitted to the CNSC detailed licence renewal activity report and a site selection threat and risk assessment.

It is CNA's view that when one looks at OPG's track record as a safe, reliable licensee, combined with the clear demonstration that the conditions of the granting of the original licence are still being met, that the Commission should grant OPG a ten-year renewal for its Site Preparation Licence.

Thank you for the opportunity to present

our views and I would be happy to take any questions.

THE PRESIDENT: Thank you very much, Mr. Gorman.

Let's start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Mr. Gorman, for your presentation and also written submission.

No, I do not have any questions.

THE PRESIDENT: Thank you.

Dr. Berube?

MEMBER BERUBE: Thank you, Mr. Gorman. I have no questions either.

THE PRESIDENT: Okay. And neither do I, Mr. Gorman. So thank you for your submission and appearing and your flexibility in the rescheduling of your submission.

Why don't we take our lunch break now and we will resume our interventions at 1 o'clock.

We will see you then. Thank you.

--- Upon recessing at 12:15 p.m. /

Suspension à 12 h 15

--- Upon resuming at 1:00 p.m. /

Reprise à 13 h 00

THE PRESIDENT: Good afternoon and welcome

back to our proceeding.

We'll start with our next presentation which is from Women in Nuclear Canada, as outlined in CMD 21-H4.53.

I understand that Ms. Judy Bartley and Ms. Laurie Fraser will present this submission.

Please proceed.

CMD 21-H4.53

Oral presentation by Women in Nuclear Canada

MS. FRASER: Good afternoon, President Velshi, Commission Members, and members of the public.

My name is Laurie Fraser, and I'm a member of the Board of Directors for Women in Nuclear Canada and a member of the Durham Chapter.

Here with me today is Judy Bartley, also a member of the Board of Directors and the Chair of the Durham Chapter of WiN.

Across Canada we have more than 3,300 members and growing, with the majority of our membership located right here in Ontario. Our members come from a variety of work experiences and education. We represent women and men working at all levels of the business in many different areas.

While we have many men in our membership population, more than 95 percent of our members are women.

Since 2004 WiN Canada has worked towards three challenging goals. The first, is to develop a dialogue with the public about the contribution of nuclear and radiation technologies to people and society.

The second, is to support the professional development of our members and across all chapters.

Finally, Women in Nuclear Canada works to promote career interest in nuclear engineering, STEM, the trades, and other nuclear-related professions, especially among women and young people.

WiN members are confident in the continued high performance and rigorous safety protocols employed by the nuclear industry. Canada's nuclear fleet is comprised of the top performing stations in the world and continues to meet or exceed all regulatory requirements.

Now, I'd like to turn the microphone over to Judy Bartley.

MS. BARTLEY: Thank you. OPG has renewed plans for potential new nuclear power development at the DNNP site. The DNNP site evaluation and licence application has been renewed against the applicable regulatory requirements, current code standards and practices, as well as current site baseline data.

Changes have been identified and assessed and their resulting impacts are not significant. Nothing alters the previous conclusion on the suitability of the DNNP site for the new NGS. As such, the DNNP site remains suitable for a new nuclear generation and OPG's site preparation licence activities would not pose an unreasonable risk to the public, personnel or environment.

Further opportunities for this site would provide Canada with a viable option for clean, reliable nuclear energy complimenting renewables in meeting growing energy demands while supporting environmental and climate change goals.

Women in Nuclear Canada and Durham Chapter supports our OPG application for the renewal of Darlington New Nuclear Project nuclear power reactor site preparation licence.

Thank you for allowing Laurie and myself to participate in the licence hearing.

THE PRESIDENT: Thank you very much for your presentation and your submission.

We'll open it up for questions and we'll start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much for your intervention. No, I do not have questions.

THE PRESIDENT: Thank you. Dr. Berube.

MEMBER BERUBE: Thank you for your presentation. Just one question. Do you know many of your members actually actively work at the Darlington site at this time?

MS. BARTLEY: No, at the Darlington site, I do not. I think that would be an OPG question. We do have 900 members just in the Durham Region itself, so I don't know the actual Darlington numbers. Sorry.

MEMBER BERUBE: That's fine. I have no further questions.

MS. FRASER: Just to add to that, Judy's comment that there's 900 in Durham Chapter. Most of those women and men work at either Darlington or Pickering.

THE PRESIDENT: Thank you very much for your submission and for appearing in front of us today. Thank you.

We will move to our next presentation, which is from the Canadian Electricity Association, as outlined in CMD 21-H4.54.

We have Mr. Michael Powell with us to present this submission.

Mr. Powell.

CMD 21-H4.54

Oral presentation by

Canadian Electricity Association

MR. POWELL: Thank you. My name is Mike Powell, and I am Vice-President of Government Relations with the Canadian Electricity Association.

I am joining you from Ottawa today, which is the tradition and unceded territory of the Algonquin Anishinabe people who have been here since time immemorial.

We are very happy to be here today in support of Ontario Power Generation's application to renew their site preparation licence for the Darlington New Nuclear Project.

As you may know, CEA is the national voice of electricity in Canada. Our members generate, transmit, and distribute electricity to industrial, commercial and residential customers across Canada.

Electricity is a key economic, environmental and social enabler that is essential to Canadian prosperity in Canada's transition to a clean energy future. In addition, a condition of CEA membership is participating in our sustainable electricity program which, among other things, requires that members adhere to ISO 14001.

Canada's electricity grid is among the cleanest in the world. More than 80 percent of electricity produced in Canada is non-emitting, which will grow in the coming years. This means that electricity is well-positioned to lead the decarbonization of the country's economy through electrification.

Our sector is making substantial investments on an ongoing basis to enable this transition, ensuring that Canadians can benefit from innovations that are adding flexibility, reliability and security to the grid.

Nuclear power is essential to Canada's low-carbon electricity advantage. Nuclear power supplied over 100,000 gigawatt-hours of electricity in Canada in 2019 and supplies over 60 percent of Ontario's electricity.

In addition to emitting virtually no greenhouse gases, nuclear power is reliable, which helps ensure that the electricity is there when it is needed.

OPO has been a CEA member for decades. CEA has repeatedly recognized OPG's performance in sustainability and health and safety, including two awards in the past year. In 2020 OPG won the Sustainable Electricity program's 2020 Leadership in External Collaboration and Partnerships for its Giizis Energy Facility: Renewable energy micro grid project that was

between OPG and the Kiashke Zaaging Anishinaabek Gull Bay First Nation.

CEA awarded OPG as well in 2020 with the 2020 CEA President's Award for Safety Excellence in Generation. The President's Award is given to electricity service providers that achieved the top ranking in Total Recordable Injury Frequency, TRIF, amongst their peers of comparable size in generation, transmission, or distribution operations. This includes operations at their nuclear power facilities, including that of Darlington.

OPG is an active contributor in the committees and councils at CEA that advance environmental, social and safety goals. This includes CEA's environment committees, our Occupational Health and Safety Committee, and our Indigenous Relations Committee. In these, OPG is helps advance best practices in these areas across the sector.

CEA is proud to count OPG as part of our membership. We believe they have and continue to demonstrate a commitment to safety and responsibility and support them in their efforts to renew their Site Preparation Licence, PRSL, for the Darlington New Nuclear Project, DNNP.

Thank you. I'd be happy to answer any

questions that you may have.

THE PRESIDENT: Thank you, Mr. Powell.

Let's start with Dr. Berube please.

MEMBER BERUBE: Thank you for your presentation, Mr. Powell. I have no questions.

THE PRESIDENT: Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Mr. Powell, for this presentation.

Yes, I do have a question concerning the electric grid across Canada. Could you say a few words about the resiliency of this grid and also the capacity of this grid to adapt to a multitude of new power sources? And what about smart grids? It will take time to implement smart grids across the transmission and distribution grid.

So I would like to hear from you.

MR. POWELL: Absolutely. So right now Canada's fuel mix for electricity, 82 percent is non-emitting. Most of that comes from hydro electricity. So about 60 percent of Canada's power nation-wide is hydroelectric. The exact numbers for nuclear would be about 20 percent, maybe just a little under that. The remainder of the non-emitting parts being renewables like wind and solar.

The last 18 is legacy coal, which we'll be retired by 2030, faster than that in many jurisdictions,

and natural gas.

In many jurisdictions, including Ontario, where OPG operates, already there is a mix of fuel types, including variable sources like wind as well as, you know, large-scale baseload power, be it nuclear or hydro, and then peaker plants that might come from natural gas.

As Canada looks towards 2050, and even 2030 targets, we're going to need more electricity. The government's most recent climate plan that was released in December 2020, the health economy, healthy environment, suggested that that might need two to three times as much electricity.

Similarly, as we move towards less emissions, you know, net zero means not zero but, you know, you have to offset them, we're going to sources of those baseload power technologies that are not emitting and in greater numbers. And the opportunity from small modular reactors which, you know, seems to -- which is the direction that OPG and others are heading in, is that it can provide some of that small-scale baseload generation to offset variable renewables in places where perhaps traditional hydro facilities are less able.

So I mentioned at the start 18 percent of Canada's electricity is from emitting sources, that tends to be concentrated in a handful of places. Ontario has a

relatively clean grid, but in western Canada and Atlantic Canada there is more legacy fossils.

Smart grids are an evolving technology. I think all members are looking at ways in which they can use technology. That the system we have today is changing at a rate that is probably as fast as when, you know, Thomas Edison was stringing wires between poles.

MEMBER LACROIX: And what about the transmission lines? Most of them are north/south. And what about west/east?

MR. POWELL: So Canada's part of an integrated North American grid. There is lots of advantages to that, that tends to be where the population is on.

I think that you will see more east/west transmission in places where there is the most sense for it. As an example, you may have heard about projects who advance the "Atlantic Loop", which would basically connect clean electricity resources in Newfoundland and Quebec into the rest of Canada, primarily Nova Scotia. That's a place where, you know, additional east/west transmission offers some clear advantages to meet with that goal.

I think that we'll see more connections as we look to find the best way of providing affordable and reliable power for Canada. But getting around geography is

hard. Ontario is very big, as I'm sure you know, and so places where we'll likely see it is on more of a regional basis, Atlantic Canada, perhaps in Saskatchewan and Manitoba.

And I don't think we should discount the value that the north/south transmission infrastructure helps us with. It allows for load balancing between jurisdictions. As an example, in Manitoba, though this is a little outside the scope of perhaps the CNSC, they have just opened a transmission line with Minnesota where basically variable wind resources are using Manitoba as a battery. And so there's lots of opportunities like that.

I think Ontario can benefit from those north/south resources as well with nuclear or as moving forward, taking advantage of off-peak power and sales into the United States for that.

MEMBER LACROIX: Well, thank you very much for this instructive overview. Thank you.

MR. POWELL: Thank you.

THE PRESIDENT: Thank you very much for appearing in front of us today, Mr. Powell.

We'll move to our next presentation, which is from BWXT Canada Ltd., as outlined in CMD 21-H4.55.

And we have Mr. Jonathan Lundy to present this submission.

Mr. Lundy, the floor is yours.

CMD 21-H4.55

Oral presentation by BWXT Canada Ltd.

MR. LUNDY: Jon Lundy, for the record.

Good afternoon, President Velshi and Members of the Commission.

Thank you for allowing me to share some perspectives on OPG and this licence renewal application with you.

My name is Jon Lundy, I'm the Vice-President of Strategy and Business Services with BWXT. In my role I am oversight for safety, human performance, regulatory affairs, quality supply chain and business development activities for BWXT's operations in Canada.

In my remarks today, which I promise will be quite brief, I want to focus on my observation of OPG as an industry leader in nuclear safety and also offer perspective of why BWXT thinks the licence renewal is important.

For those of you who are unfamiliar with BWXT, we are a global supplier of nuclear components, fuel and services and medicine with 10 locations across Canada and approximately 1,500 employees in Canada.

We have been a supplier to OPG since it commenced operations, nuclear operations, and our involvement with them continues today with our supply components in fuel and engineering services. We are also working with them to bring novel diagnostic and therapeutic medical isotopes to patients in Canada and around the world.

I'd like to say a couple words on OPG's leadership on nuclear safety. Whether working with them on site or as part of their supply relationship programs, we've witnessed firsthand OPG's tireless focus on nuclear safety and operational excellence. And that focus importantly extends to their suppliers, like BWXT.

OPG demands organizations that it does business with to demonstrate commitment to nuclear safety and human performance improvement, or it won't do business with them. And I thank them for this, because their demands on us has not only made our company stronger, but our industry stronger overall.

Based on these interactions, which speak to OPG's leadership on nuclear safety, we are confident that OPG has adequately undertaken the Darlington New Nuclear Project site evaluation to ensure the licence application has been reviewed against regulatory requirements without any negative impact to OPG employees,

the public, or the environment.

We're also confident that OPG will remain committed to upholding its nuclear safety culture and operational excellence for any future nuclear generating facility.

Now, I'd like to share why we believe the renewal of the reactor site preparation licence is so important. First off, new nuclear is critical to achieving Canada's climate change commitments. The Province of Ontario has already seen the tangible and positive impact enabled by the closure of coal-fired electricity generation in 2014, which was facilitated through an increase in nuclear power.

The elimination of small smog days, which was once a routine occurrence, is just one example of the positive impact enabled by nuclear power generation.

As we know, the upcoming closure of 6 Pickering reactors will create a clean energy gap that we'll need to close with new nuclear in order to achieve net zero emissions by 2050. The renewal of site licence is a critical step towards this goal.

In addition, the Darlington New Nuclear Project will also play a key role in Canada's economy. Today nuclear in Ontario contributes billions annually and employs thousands of skilled workers to generate the

electricity of our province. What's more, Canada's nuclear supply chain, of which BWXT is one of the largest players, is an economic powerhouse which represents tens of thousands of jobs. Companies like ours rely on projects like the Darlington New Nuclear Project to proceed in order to survive and thrive.

Canada should be proud of the supply chain it has built, but it must be nurtured and new nuclear is essential to its growth and survival.

In closing, BWXT is proud to support the renewal of OPG's reactor site preparation licence for a period of 10 years. We are confident that OPG is qualified to carryout the licensed activities and will continue to take the necessary steps to protect the health, safety and security of its employees, the public and the environment.

Thank you for the opportunity to present today. I am pleased to answer any questions the Commission may have.

THE PRESIDENT: Thank you very much, Mr. Lundy.

We'll start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Mr. Lundy, for your intervention. No, I have no questions.

THE PRESIDENT: Dr. Berube.

MEMBER BERUBE: I have no questions as

well, thank you.

THE PRESIDENT: Okay. Again, Mr. Lundy, thank you for your appearance in front of the Commission today.

With that, we will move to our next presentation, which is from Westinghouse Electric Canada Inc., as outlined in CMD 21-H4.56.

We have Dr. John Barrett with us today to present the submission.

Dr. Barrett, please proceed.

CMD 21-H4.56

Oral presentation by

Westinghouse Electric Canada Inc.

DR. BARRETT: Thank you, Madam President, but I will yield the floor to my colleague, Fabricia Pineiro of Westinghouse who will give the presentation. And I'll be happy, at the end, answer any questions that may come my way.

MS. PINEIRO: Thank you, Dr. Barrett, and thank you, Madam President.

Fabricia Pineiro, for the record. I'm Director of Business Development at Westinghouse Electric Canada.

In my current role, as well as previous roles, I have had the opportunity of working directly with Ontario Power Generation, and I would like to thank the Commission for the opportunity to make these brief remarks in support of the renewal of OPG's site preparation licence for the Darlington New Nuclear Project.

We have also provided the Commission with a written submission detailing the reasons underpinning Westinghouse Electric Canada's support for the renewal.

Let me highlight a few key points in the time we share today. Throughout OPG's operating history Westinghouse has provided services ranging from engineering services in support of critical infrastructure and construction projects through to manufacturing of customized platforms such as that for the refurbishment project.

Over the past years Westinghouse has supported OPG's strong safety and operational performance at its two new nuclear generating stations working with OPG at both Pickering and Darlington.

Moreover, we have witnessed firsthand the diligence, commitment and passion for excellence of OPG personnel in ensuring the safe and reliable operation of OPG's nuclear facilities.

Others have testified to OPG's

capabilities and track record in protecting our citizens, our communities and the environment. Both Darlington and Pickering stations have recently been recognized for exemplary performance in safety and operations by the World Association of Nuclear Operators, a peer review body that is uncompromising on matters of safety and performance.

In 2012, following extensive public involvement and a thorough environmental assessment, the Commission granted OPG a licence to allow site preparation activities to support future nuclear generation. It concluded that new nuclear generation would not cause significant environmental effects given mitigation and commitments made by OPG.

Today, OPG is requesting to renew the licence as is. There is no requested increase in scope from the exiting licence granted by CNSC.

Despite this no increase in scope, OPG nevertheless has undertaken thorough reviews to ensure containing its strong confidence in its licence application.

Some examples include: OPG's review of codes, standards and practices, which demonstrates that there are no gaps vis à vis the original application materials and the geological environment remains unchanged; a review of potential hazards, human-induced events, and

security considerations, which concludes that the site is suitable for all stages of the new plan's lifecycle; finally, a review of the licence-based materials which confirmed there are no new risks to health, safety or the environment that would require new mitigation measures.

For these and other reasons set out in our written submission, Westinghouse Electric Canada is confident that the new project site evaluation and licence application will meet all applicable regulatory requirements, current codes, standards and practices.

Second, OPG's site preparation licensed activities will not therefore pose any unreasonable risk to the public, to personnel or to the environment.

Third, that the new project site will be safe and suitable for a new nuclear generating station.

Let me conclude with a comment. A safely constructed and operating new nuclear generating station is a key component of Ontario's and Canada's capability to attain the ambitious carbon emissions reduction targets we need to reach in the decades ahead.

As Canada's Minister of Natural Resources, Seamus O'Regan has said, we have not seen a model where we can get to net zero emissions by 2050 without nuclear. The fact of the matter is that it produces zero emissions. He repeated this most recently on June 3rd, before many of the

world's leaders at the International Clean Energy Ministerial, and he's absolutely right. We need safe and reliable nuclear energy to help us decarbonize and to reach net zero.

The Darlington New Nuclear Project is a step, and a very important one, towards this end which we all share.

Thank you. I'd be pleased to answer any questions you may have.

THE PRESIDENT: Thank you, Ms. Pineiro, for your presentation.

Let's start with Dr. Berube.

MEMBER BERUBE: Yes. Thank you for your presentation.

I have no further questions, thanks.

THE PRESIDENT: Dr. Lacroix?

MEMBER LACROIX: Thank you very much, Madam Pineiro.

Where do you see Westinghouse in the new technology that OPG is contemplating?

MS. PINEIRO: Westinghouse -- thank you for the question, Mr. Lacroix.

Westinghouse has a significant amount of capabilities to support from an engineering services perspective on the design site, as well as manufacturing

and innovation to prepare the most efficient and effective ways of delivering the project. We are confident that with our good relationship with OPG and our track record of delivering safe solutions for the utility, we'd be able to support the project as needed.

MEMBER LACROIX: Thank you.

THE PRESIDENT: Again, thank you very much, Ms. Pineiro and Dr. Barrett for appearing in front of the Commission today, much appreciated.

We will then move to our next presentation, which is from Hatch as outlined in CMD 21-H4.52 and 21-H4.52A, and we have Mr. Amar Jolly presenting this submission. Mr. Jolly, please over to you.

CMD 21-H4.52/21-H4.52A

Oral presentation by Hatch

MR. JOLLY: Thank you, Madam President, and thank you to the Commission. My name is Amar Jolly, and I am Global Director for Nuclear at Hatch.

I'd like to again, thanks our -- give our thanks for allowing us to appear. And I'll start off by saying that Hatch is very much in support of OPG's application to renew their site licence for the Darlington New Nuclear Program.

I'll keep my comments pretty thin. If there's any questions, you know, I'm happy to answer those at the end. Hatch submitted a response -- a written response along with this presentation and we'll do a brief summary.

For those of you who don't know about Hatch, just a very quick summary. Hatch is a proudly Canadian founded, employee-owned company. Started about six decades ago and currently employs about 10,000 people worldwide. Our global headquarters is here in Mississauga, Ontario, and our Mississauga campus has about 2,000 people, and in Ontario we have about 2,500, and across Canada about a third of the company, about 3,500 people across Canada.

We service three main sectors, mining and metals, infrastructure, and then obviously our energy portfolio, which I am representing.

Next slide. So as part of our submission we outlined the great -- the great benefits of nuclear and the great performance that nuclear has on the world stage. But I also want to outline OPG's impeccable -- impeccable standing and safe operation of nuclear reactors for, you know, many decades. We believe that that goes well and hand in hand with a strong and independent regulatory regime that is under your purview. And we believe that the potential SMRs promise even higher degrees of safety, due

to some of the advancements and safety enhancements, passive safety features in these reactors.

Next slide. As mentioned by some of my colleagues, we believe that there is no way to achieve some of the climate initiatives that we are embarking on without SMRs, or without new nuclear. In fact, the International Energy Agency recently put out a report, as I'm sure you know, that there is no way to achieve net zero without nuclear, and that was echoed by several Ministers as well.

We believe that this is the future, and we strongly support the -- the new construction of new nuclear. We're confident that the Darlington New Nuclear site, given the rigorous work that was put into the Environmental Assessment program, is well suited and will continue to be an excellent location for this initiative.

Next slide. A common value that we share with OPG is, you know, community and Indigenous relations. Being part of the community and being part of the conversations that need to happen and that are continuing to happen, is very, very important. And we believe that this opportunity has that ability to further that discussion and to bring, you know, more stakeholders to the table and involved in the program, and so we're very excited about the opportunities that are afforded by this opportunity going forward.

And lastly, we believe that this new opportunity with Darlington New Nuclear Program allows for great advances in innovation in the nuclear industry and the power generation industry in general. Lots of high skilled, lots of professional services companies such as ourselves will be impacted in a positive light and can bring know how that we can export to other communities. And we're proud to be part and supporting Darlington and OPG on this initiative, as well as many of the SMR developers that are currently engaged with them.

That's the end of my comments. I'm open to any questions.

THE PRESIDENT: Thank you very much for your presentation, Mr. Jolly. Let's see if Dr. Berube has any questions.

MEMBER BERUBE: Yes. Thank you, Mr. Jolly, for your presentation.

What contracted services are you currently participating in at the Darlington site?

MR. JOLLY: So previously we've done some work supporting OPG in the early phases, and currently we are working with all three of the down selected technology vendors and providing engineering services, professional services and consulting services.

MEMBER BERUBE: And now, what's your

experience to date in working with OPG as a -- obviously as an employer I guess in this case, if you're doing contracted services?

MR. JOLLY: Excellent, as always. You know, we've been working with OPG for many, many decades across many of their service lines. Open and transparent and being able to work collaboratively is how we've found our relationship and, you know, I think that comes from the top all the way through to, you know, the engineers that we're collaborating with on design packages.

MEMBER BERUBE: And do you have any concerns at all with any of the issues you see in this particular application? I don't know if you've had a chance to review the whole thing. But --

MR. JOLLY: Sure. I'm sorry?

MEMBER BERUBE: Go ahead.

MR. JOLLY: Yeah, no. Yes, we have -- we have gone through it and, no, we don't have any issues. We believe that it is a well put together package and we are excited about the potential going forward.

MEMBER BERUBE: Thank you. I have no further questions.

MR. JOLLY: Thank you.

THE PRESIDENT: Thank you.

Dr. Lacroix?

MEMBER LACROIX: Yes. Indeed, I do have a question. Thank you very much, Mr. Jolly.

Could you say a few words about the Indigenous opportunities in nuclear program?

MR. JOLLY: Yes. So we've -- you know, I can speak to Hatch's involvement. And we've been, you know, interfacing with different groups looking for services that could compliment our services within -- within the community. We are a member of the Canadian Council of Aboriginal Businesses as a bronze member. The only engineering services firm to do that, and we reached out to the wider network and, you know, looking for subject matter expertise. We found some great success with environmental and procurement services and looking out to, you know, bolster some of the discussions and see if we can bring other companies involved.

MEMBER LACROIX: Okay. Is that a joint program with OPG, or is it a program specific to Hatch?

MR. JOLLY: I think this is a value, like I said in my presentation, this is a value that we share with OPG. It is -- I believe the right thing to do. It is part of the discussions that we've always had with OPG, and you know, how can we -- how can we involve community, local companies, Indigenous companies? And so, we've been really taking that to heart and seeing how we can actually do

that, and you know, reporting back with a success and different avenues.

MEMBER LACROIX: Okay. And this is a question for OPG. Is there a similar program at OPG? And what I'm trying to do here is to connect the dot to dots with the discussion that we had this morning about the reconciliation and the engagement with Indigenous people.

MR. MANLEY: Robin Manley, for the record.

Thank you very much for offering me the opportunity to comment on that. I would like to pass this off to Ken Ross on our team, and he'd be happy to talk about our Indigenous opportunities in nuclear program and training and employment opportunities. Ken, over to you, please.

MR. ROSS: Thank you, Robin. Ken Ross, Aboriginal -- sorry -- Indigenous Relations for OPG, for the record.

ION was developed in 2018 and launched through the opportunities that were available through the refurbishment program. And since 2018 we have placed, actually, 52 people in nuclear, basically looking for candidates that could work in a variety of functions. Many of these functions are with OPG and with its vendors and unions, partnering on refurbishment. Many of the roles are trades based. There's a high demand, as you know, for

skilled trades.

But increasingly we're also making placements in other roles, which include project management and engineering, and certainly as part of OPG's overall plan to bring in more Indigenous people into the company. With that as an adjunct, we have the John Wesley Beaver memorial awards, which have operated since the mid '90s, but have recently been enhanced through a partnership with Inspire, which has increased the total amount of scholarships over the next three years to \$200,000, which will benefit 20 Indigenous people, both male and female, with a connection to careers at OPG as part of their educational journey.

MEMBER LACROIX: Thank you very much.

THE PRESIDENT: Thank you. And Mr. Jolly, thank you very much for appearing in front of the Commission today. Greatly appreciated.

MR. JOLLY: Thank you.

THE PRESIDENT: So with that we will move to our next presentation, which is from GE Hitachi Nuclear Energy as outlined in CMD 21-H4.40, and we have Ms. Lisa McBride for presenting the submission. Ms. McBride, over to you.

CMD 21-H4.40

Oral presentation by GE Hitachi Nuclear Energy

MS. McBRIDE: Thank you. Good afternoon President Velshi and Members of the Commission. For the record, my name is Lisa McBride. I am the Country Leader of GEH SMR Technologies, a Canadian based subsidiary of GE Hitachi Nuclear Energy Holdings LLC which was established to support the deployment of the BWRX300 Small Modular Reactor in Canada.

With me today is my colleague, Douglas MacDonald, Product Manager of the BWRX300.

On behalf of GEH, I want to begin my remarks by respectfully acknowledging that I am gathered today in a traditional and treaty territory of the Mississauga's and Chippewa Nations, collectively known as the Williams Treaties First Nations. I want to acknowledge that the Williams Treaties First Nations have been stewards and caretakers of these lands and waters and that today they remain vigilant over their health and integrity for generations to come.

The original keepers of our lands host us today and every day and I wish to express my gratitude for the opportunity to meet and work on both unceded and treaty land.

I also want to take a moment to acknowledge the 215 innocent children who were found in an unmarked grave at a residential school location in British Columbia. I've been reflecting on the tragedy and injustice of this event and the abuse faced by all the children taken into the residential school system. I will continue to reflect on what this means for Indigenous people in Canada and how as a country we can build together a better future so that our future is brighter than our past.

President and Commissioners, thank you very much for the opportunity to participate in today's proceeding. To complement the written submission before you, I would like to highlight a few additional considerations for the matter of OPG's application to renew its power reactor site preparation licence for the Darlington site.

OPG's plan for the site presents significant opportunities for Ontario to deploy and evolutionary state of the art SMR. One of the design goals of the BWRX300 is to be capable of being licenced internationally. The design has been developed using a philosophy based on the IAEA Guidelines, which create a transparent design foundation for a licence application that can be adapted to individual countries regulatory

regimes.

To achieve this goal, GE is currently progressing with the Canadian Nuclear Safety Commission's pre-licencing combined Phase 1 and Phase 2 vendor design review process to validate our belief that there would be no fundamental barriers to licensing the BWRX300 in Canada.

OPG's licence to prepare site for the first SMR would lay the groundwork for future deployment in Canada and contribute to Canada's climate change commitment to achieve net zero emissions by 2050. Adding more baseload power, nuclear power generating capacity, to the energy mix is essential to electrifying carbon intensive industries for a low carbon environmentally responsible future.

Of particular note to the Commission, I would like to elaborate on the broader socioeconomic impacts of the deployment of the GEH BWRX300 as recently published in an independent report by PricewaterhouseCooper, which was commissioned by GE Hitachi. This report is available in full on our GEH website.

This impact would benefit Canada through our promotion of workforce, diversity and inclusion, engagement with Indigenous communities, development of worker's skills and sustainment of technical excellence.

GE demonstrates its commitment to diversity and inclusion through a number of ways. Promotion of women to leadership roles across GE Hitachi and its nuclear affiliates and appointing women to serve on GE's Board of Directors. Establishing policies to enhance supplier diversity and finding scholarships to encourage female participation in STEM fields of study, including nuclear science and engineering.

In addition, the deployment of the BWRX300 SMR in Ontario would create substantial economic benefit to Canada, estimated over a billion dollars in total economic value, including 1,700 manufacturing and construction jobs, and hundreds of millions of dollars in labour income.

Last but not least, GE's project experience and technical experience can contribute to educating the Canadian workforce on SMR design and operations to ensure safety of plant workers and the public, promoting SMR research and development opportunities, and building engineering talent in Ontario and Canada at large, and aligning with the Government of Canada's priority to become a global SMR leader.

Finally, GE is committed to strengthen the relationship and build trust with Indigenous peoples and community by respectfully engaging to gather, address, and incorporate their views in the SMR project; actively

identifying opportunities with Indigenous suppliers and service providers, particularly for the deployment of the SMR technology in Canada; ensuring our staff at GE are aware and educated of the history of Indigenous peoples in Canada, Indigenous traditions and cultures, and the importance of Canada's commitment to reconciliation.

OPG is one of the most experienced nuclear power reactor operators in Canada, generating much of Ontario's baseload electricity for decades, responsibly and safely, and GE would be proud to support OPG's commitment to continued safety and the security of workers and the public, and the protection of the environment in their New Nuclear development efforts.

Thank you.

THE PRESIDENT: Thank you very much, Ms. McBride.

Let's start with Dr. Lacroix.

MEMBER LACROIX: Thank you very much, Ms. McBride, for this presentation.

I do have questions concerning the BWRX300 technology, but I think that it's outside the scope of this licence. So I will wait for the next time. Thank you.

THE PRESIDENT: Thank you, Dr. Lacroix.
Dr. Berube?

MEMBER BERUBE: Thank you very much, Ms.

McBride, for your presentation.

I have no questions at this point.

THE PRESIDENT: Okay. Thank you. And neither do I, Ms. McBride. Thank you very much for appearing in front of the Commission today.

This concludes the oral presentations by our intervenors. Note that with respect to written interventions the Commission is now taking a different approach. Instead of the Secretary referring to each written intervention and asking Commission members if there are any questions, the Members will instead ensure that their questions arising from written interventions are addressed as part of the general rounds of questions that we're going to get into. The written submissions, however, are listed on the agenda.

So let's move to the general round of questions, and we shall start with Dr. Berube.

MEMBER BERUBE: Great. I've only got a few questions here that I am concerned with. The first one is for OPG, and that is a question on the actual access control measures that you intend to put into place over the next short period of time, should this licence be approved. Could you give me some idea or description of what it is? Anything of course that is considered to be sensitive material, please restrict that.

MR. MANLEY: Robin Manley, for the record.

So I understood the question was around security access control measures, but not anything security protected. So I'm going to ask David Dickey, who is our Director from Emergency Preparedness and Security Services to give an outline of the access control measures. Dave? Hopefully Dave is there. You are. You're on mute.

MR. DICKEY: Sorry, I was on mute. Sorry. Yeah, good afternoon. Dave Dickey, for the record.

Thank you for your question, Commissioner. Obviously, security is taken very seriously in a nuclear site, and in particular, at Ontario Power Generation. I've been with the company for 21 years now and my background is security, so I can certainly speak to it. And certainly, you respect -- as Mr. Manley has said, we will respect confidentiality.

Essentially the -- because this is the original licencing for preparation was done a number of years ago, we essentially put a fence up in that side of the -- of the site, the existing site and have been maintaining access control to that area over the years and maintaining it in -- to ensure the integrity of the area.

Obviously, as we, you know, do our threat and risk assessment reports for this particular preparation piece, as well as for construction and then operation,

we'll have various phases of threat risk assessment which will inform us in terms of how we want to attack the access control to that area moving forward. So there's -- so there is some work to do.

We've done an activity report, which is prescribed information and submitted to the Commission in regard to our security program, and we will be taking the appropriate measures, and obviously we are working with the CNSC, within the regulatory framework and we'll ensure with meet the CNSC requirements and codes and standards.

Thank you.

MEMBER BERUBE: Thank you. I don't have anymore questions on that.

THE PRESIDENT: Okay. So let me turn to Mr. Leblanc. There was a question from an intervenor yesterday that we didn't have an opportunity to table, so maybe I'll turn to Mr. Leblanc to just provide us some details on that, please.

MR. LEBLANC: Thank you very much, Madam le President.

Yes, this was a question in the context of the intervention by Durham Nuclear Awareness, presented by the Canadian Environmental Law Association and their expert, Dr. Ramana. And the question comes from Dr. Ramana, it's addressed to CNSC Staff, and the question

reads like this:

Given that the plant perimeter envelope should specify among other things, the limiting, IE worst case radiological dose consequences due to gaseous releases from both postulated, that is design basis accidents, and severe beyond design basis accidents submitted by OPG as part of its original licence application.

And, too, since that application involved three water cooled reactor designs, that is two light water and one heavy water designs, the PPEA parameters presumably were drawn from the many studies and regulatory documents involving these reactor designs.

OPG's current plans involve three SMR designs, none of which have been licensed by the CNSC or any other regulatory agency. In particular, there is no analogue of terrestrial IMSR designs that has been constructed anywhere in the world, so there is no accepted list of design basis and, beyond this, these accident scenarios to evaluate for this IMSR design.

And there is no basis for any assertion about radiological dose consequences due to gaseous releases from this reactor design.

The question reads as follows:

As a result, how can the CNSC accept the claim that any design under consideration will fit within

the planned parameter envelope developed for a completely different set of reactor designs?

Thank you.

THE PRESIDENT: Thank you, Mr. Leblanc. Staff, over to you.

DR. DUCROS: Caroline Ducros, for the record.

So, I'm just going to put some context and answer the question. The JRP recommendations and the Government of Canada's response to them can be found in Appendix E of CNSC staff's CMD, on the CNSC website under the Joint Review Panel, the OPG website, and the Canadian Environmental Assessment website.

These recommendations are now commitments that apply across the lifecycle of the DNNP project. So, that is to say that not all apply at each stage and, therefore, not all have to be met at each stage. It's a phased approach to licensing that was recognized by the Panel in its assessment of the environmental assessment.

I would just like to read the JRP Number One recommendation, which is now a commitment:

"The Panel understands that prior to construction the CNSC will determine whether this EA is applicable to the reactor technology selected by the

Government of Ontario for the project. Nevertheless, if the selected reactor technology is fundamentally different from the specific reactor technologies bounded by the plant parameter envelope, the Panel recommends that a new environmental assessment be conducted".

The government response was to accept the intent of this recommendation.

So, to clarify, the CNSC is not stating that this recommendation has been met at this time, nor does it apply to this phase of licensing. It will be a key consideration in a licence to construct application review, and in the recommendations that staff provide to the Commission at a future licensing stage when and if there is a submission application from OPG for a licence to construct.

OPG's application for a licence to construct will need to include how its chosen technology meets this recommendation. And CNSC staff would assess that this is the case. It's a key consideration of that phase.

So, if it is in its licence to construct

review and CNSC staff are not confident that the technology does not fall within the bounds of the predictions and conclusions of the environmental assessment and the licensing basis, a new EA determination would need to be done to determine which type of environmental assessment or impact assessment would be required.

We have staff here to talk a little bit more about how the safety analysis is done, if you want that level of detail.

THE PRESIDENT: I don't think we need that at this stage. Thank you.

And I see Mr. Vacchiarelli has something he'd like to add. So, over to you.

MR. VACCHIARELLI: Good afternoon. Thank you. Jack Vacchiarelli, for the record. I am the Vice-President of Nuclear Regulatory Affairs for Ontario Power Generation, and I was involved in the original licensing for the site preparation licence and took part in the hearings at the time, and actually was a signatory on the PPE report itself.

The way that accidents and malfunctions were addressed was through some high-level safety analysis considerations which actually worked within sort of the bounding regulatory requirements. Part of the assessments for site evaluation took the safety goals for the limiting

frequency and the representative large off-site release, and demonstrated that the intent of the safety goals and the regulatory requirements for off-site releases were met.

And then with respect to the PPE, the way that that was captured in a bounding sense was that any source terms associated with the selected reactor technology, they will be addressed through the detailed safety analysis as part of the construction licensing phase. So, that's written right into the PPE report. It's all tied to the overriding regulatory requirements and limits and safety goals. And with the said evaluation environmental assessment had shown using some representative information from some large-scale reactors at the time that were being considered is that the intent of these safety goals can be met.

Now that we're looking ahead at smaller SMRs, I see no problem whatsoever in terms of staying bounded within that -- that context.

Thank you.

THE PRESIDENT: Thank you very much.

Let's turn to Dr. Lacroix.

MEMBER LACROIX: Yes, I do have two questions. The first question -- well, the first question is directly -- is directed to OPG. One question that we asked yesterday, I think that it was one of the very first

questions, is that the President asked OPG why apply for a renewal to renew the site licence now? And, the first part of the answer was climate change. Mr. Manley mentioned that it's a question of an emergency. While, it's urgent they also want OPG to participate in the decarbonization of the Canadian economy.

Even though nuclear power is a very reliable source of energy, it is also resilient to climate changes. The Achilles heel to nuclear power is -- is cooling itself. In probably in the near future, we will -- well, it is a possibility that we change the environmental regulations and we will no longer allow the cooling of reactors with large bodies of water.

In this case, OPG will have to rely on new cooling technologies such as cooling towers, and I was wondering, will this site be suitable for cooling towers if it comes down to this solution?

MR. MANLEY: It's Robin Manley, for the record.

I'd like to give Mark Knutson an opportunity here to -- to provide our preliminary response. Mark is both the licence-holder for this licence as well as our Chief Nuclear Engineer. And I don't know, Mark may choose to also engage Dave Tyndall to talk about the cooling tower versus once-through cooling option.

Mark, over to you, please.

MR. KNUTSON: Mark Knutson, for the record.

Just to identify the -- I was going to address the later part of your question to start with, Commissioner.

In terms of climate change, we do have a team of engineers that -- that work that today. We have a department that works climate change. We are continuously monitoring climate change and the effects on our existing reactors. And, also, that carries over to any new designs that we -- we develop.

So, the responses and some of the design changes we've made over time with existing reactors adjust for that.

So, you've taken it to the extreme where lake temperatures have gotten to a level or a degree where we can no longer cool, that method. There are other technologies that we have that Dave Tyndall may speak to more of those, is, where you can have not necessarily a cooling tower, but a more power vented tower, which is much smaller and lower to the ground, less obtrusive, to address that.

But I would say, as our normal course of business, we are monitoring the changes in climate even as

well as tornados and the size of tornados and all the other external impacts that could occur, we are agile and developing and working and monitoring that was we go.

But I'll -- maybe I'll let Dave Tyndall speak a bit more about the cooling tower.

MR. TYNDALL: Dave Tyndall, for the record.

So, as part of the original project planning and original submission, OPG had completed a commitment to evaluate various cooling water technologies using the -- what they call a BETEA, best available technology economically achievable type of assessment and underwent a significant amount of participation from Indigenous communities and stakeholders from the community, and ultimately the conclusion was that once-through cooling was the preferred method of cooling for the DNNP site at the time.

In 2020 we actually revisited that assessment factoring in things like climate change, where we were heading, the abilities of the various technologies, and that again reaffirmed that once-through cooling was the preferred option for the DNNP site at this time.

However, what I can also tell you is that we have looked and reviewed various cooling technologies, and I can tell you that it is possible to implement

alternate cooling water technology such as mechanical draft cooling towers for any one of these types of reactors. In fact, if you looked at the -- or if you look at the original assessment it actually facilitated large cooling towers. The site could facilitate large cooling towers if it was required.

So, that to say, the current planning assumptions we are going through are -- is for once-through cooling, however we have not made that final determination as of yet, and we will choose that optimal cooling water technology as part of the design efforts in respect of both the technology as well as in respect to the environmental considerations for things like drawing the water and the intake structure design for which the current licence has commitments to submit that and get the necessary permitry.

So, with that, end of comment for me.

MEMBER LACROIX: Okay, thank you very much. Yeah, you've answered my question. Yeah, that's great.

Can I ask my second question?

THE PRESIDENT: We'll come around for the next one.

MEMBER LACROIX: Okay, that's great.

THE PRESIDENT: Thank you.

So, maybe I'll turn to staff and ask you a

question on the *Licence Condition Handbook* and the site-specific requirements that are in there under Section 15, and this is 15.1 and 15.2. And I want to make sure that I understand how this is going to play out. So, if I look at page 58 of 113 of the *Licence Condition Handbook* it says OPG has committed that all implementing documents required for site preparation, etcetera, will be in place prior to the licensed activities. And then later on is the list of all the documents. And, as we've heard over the last couple of days, there is also the layout of site structures.

And we've also heard from OPG that there will no kind of spade in the ground until the technology is selected. That there will be no spade in the ground until there is confirmation that the technology fits within the plant parameter envelope of the EA.

So, my question to staff is, and I know the discussions around what needs to happen for the construction licence application is, how does the staff -- does staff confirm before approving the commencement of the site preparation activities that it actually -- the activities or the technology fits within the envelope of the EA?

Are these hold points, here?

DR. DUCROS: Caroline Ducros, for the

record.

Yes, some of these documents are what we would call lower tier documents that we need to see in order -- as a compliance verification step. But I would like to pass it to Dr. Miller to give you an example of what those are. And, yes, they are hold points, in effect. We need those documents prior to a spade going into the ground.

DR. MILLER: Yes, it's Doug Miller, for the record. Through the commitments, DP1 through DP18, the commitments report illustrates what information is to be submitted, the CNSC is to review as part of compliance verification to assess that the provisions are -- are correct.

There are, for example, while the site layout is DP18, and that will be looked at in terms of does the layout make sense in terms of optimizing -- optimizing the layout to minimize impact on the environment.

Another example is through say the Round Whitefish Action Plan is that they will look at the aquatic studies done, and in view of the arguments with regards to cooling technology, to verify that the appropriate studies are done and that the aquatic habitat is adequately protected. So, that's another.

Another example is, say, onsite emergency

preparedness where the focus for site preparation is conventional accidents on the DNNP site, and are there appropriate measures being put in place by the engineering company? And that will be verified and validated by OPG and submitted to us for review.

THE PRESIDENT: So, again, Mr. Miller, coming to my specific question, as part of your review do you confirm that the technologies selected for some of these are --

DR. MILLER: Yes.

THE PRESIDENT: (indiscernible)
technologies.

DR. MILLER: Yes. Within the licensing basis and within the LCH there is a specific aspect that there will be an assessment of the impacts of accidents and malfunctions on the environment, is addressed in the safety analysis section of the LCH, and that is to be done in accord with REGDOC 1.1.1 in the Accidents and Malfunctions section, Appendix F.

So, there is an early check that is the first step in the analysis that will build towards the more detailed review, to address the future commitments.

THE PRESIDENT: Okay, so maybe in terms that I can understand, prior to the construction licence application staff will be validating that the technology

selected fits within the envelope of the EA?

DR. MILLER: That is correct. There is a --

THE PRESIDENT: Tell me where on the LCH is that?

DR. MILLER: It's in the Safety Analysis section of the LCH. I don't quite remember exactly the page, but it is under the Compliance Verification Criteria section of the LCH under Safety Analysis.

THE PRESIDENT: Okay.

DR. DUCROS: Caroline Ducros, for the record.

I just -- in order to pull this together, your question was, is it a hold point? In effect, it's a hold point from a compliance verification documentation perspective.

It's not a hold point in that we do have all the information to make a recommendation to the Commission.

It's more of a compliance verification step, like a follow-up program would be. So, 15.1 is the JRP commitments that they are tied -- that OPG is tied to. Section 15.2 is the follow-up monitoring program under the environmental assessment. These are things that we need to see and then we verify that they are meeting those

commitments prior to being able to move forward.

THE PRESIDENT: Dr. Ducros, help me understand what does that verification mean? I think you know exactly what I'm trying to get at in here, is, does staff verify that the technology that's selected fits within the PPE prior to the construction licence application review?

DR. DUCROS: Okay. Caroline Ducros, for the record.

The level that is needed, the degree of information, or the depth of information that is required at this stage is for the preparation activities.

There is more detail required for a licence to construct stage for the PPE, for OPG to demonstrate that the plant parameter index continues to meet or is within the predicted effects of the environmental assessment and the conclusions of that. So, they are different.

THE PRESIDENT: Well, let me just tell you specifically what I'm getting at.

DR. DUCROS: Okay.

THE PRESIDENT: Before the site prep activities start, whatever those activities are planned under the licence that's being requested right now, staff will confirm that those fit in within the bounds of the EA,

with the technology that's been selected?

DR. DUCROS: Caroline Ducros, for the record.

Yes, staff will affirm that they are within the bounds of the EA for the Licence to Prepare a Site. However, the Commission will have to make the decision to accept the technology.

THE PRESIDENT: Yes, but that's part of the construction licence, I believe?

DR. DUCROS: Correct.

THE PRESIDENT: I'm just -- I'm focussing still on the site prep. That, yes, we've got this envelope and you know and it will fit within that. And I just want to know, is staff going to be verifying it fits in before there's a shovel in the ground?

DR. DUCROS: Caroline Ducros, for the record.

Yes, staff will verify that it fits in within the bounds of the environmental assessment and we will look at all aspects that are required for those commitments with the -- with the experts in those particular areas which is, I believe, why Dr. Miller mentioned different examples. Those examples would go to the proper experts to assess that they remain within the bounds of the EA.

THE PRESIDENT: Okay.

Mr. Manley?

MR. MANLEY: Robin Manley, for the record.

I guess it might be at risk of confusing things, so I hope I will not, but I guess the way I would look at it as a licensee and operator is that the CNSC's licensing process splits activities, licensed activities into different phases, and the EA JRP process split the commitments into those separate licensing phases in a deliberate -- in a deliberate way, because certain things are site preparation, and others are construction, and others are operations. And so just as the CNSC's Act and Regulations contemplate through experience, and they were constructed to -- to enable, that there are different kinds of risks and activities that occur in different phases of a project.

So, it would be my interpretation that as OPG submits packages of material relevant to activities under site preparation, that I would imagine that the CNSC staff would perform compliance verification activities to validate that OPG is staying within the bounds of the site preparation licence and the EA requirements relevant to the site preparation phase, and that we would then progressively step through the remaining licence phases and that where the Commission's specific approval is required

such as before we could construct a nuclear reactor, all of the analysis and safety packages have to come before the Commission.

But they don't have to come before staff for me to build a road. And, so there is that distinction that certain things come before staff for me to build a road, and certain things come before staff for me to dig a nuclear hole and pour nuclear concrete and put a reactor in.

And then certain things come back before staff and the Commission before I can put fuel in it.

So, I just wanted to try and clarify my perspective. I think that is aligned with what Caroline Ducros has said.

THE PRESIDENT: Yeah, I don't think you confused it, but I don't think the examples you gave -- I think it's left a question for me, so I understand that phased approach. Remember, the biggest concern we've been hearing over the last two days is that the site prep activities seem to be agnostic of the technology, and that's not true. You're not going to be putting a hole in the ground until you've assessed -- you selected a technology based on an assessment that fits within the envelope, and staff will make sure that 90 days before, or whenever you're going to get the documents before you start

you know clearing land or lake fill, or whatever it is, there are some activities that staff will have to verify that fit within the envelope of the EA. It's not just, you know, putting a road into the facility. It's actually what are you going to do with the site, the site layout? You've heard about optimization? Well, optimization means a whole lot of things. Northwatch was very clear on how optimization of the site layout has safety implications, as well.

So, anyway, I think I've got the answer I was looking for, but I see Dr. Ducros may have something else to add to it.

DR. DUCROS: I think just to clarify.

The commitment itself D-P-12.1 and that commitment reads: Once the specific technology is selected and design information is available, OPG will comprehensively review the Environmental Impact Statement to ensure the results of the Environmental Impact Statement remain valid. If this review indicates either a gap or a condition not bounded by the EIS, OPG will initiate corrective actions as required. And this may include mitigation options.

So Condition 15.1 is that they meet the commitments report and it is D-P-12.1 that they need to meet.

THE PRESIDENT: So what is the timing for 12.1?

DR. DUCROS: Well, the timing has to be, I believe, three months before they do any activities.

THE PRESIDENT: Yes, thank you.

Okay. So moving back to Dr. Berube.

MEMBER BERUBE: A last question from me is for CNSC.

It has to do with the financial guarantee. Right now I believe it's valued at zero, which kind of makes sense considering there's nothing there really.

At what point does the financial have to be re-evaluated? Does it include non-nuclear facilities, anything that's put on site, or is it strictly pertaining to nuclear facility builds? Where are we? Right now you have a five-year re-evaluation period but in five years a whole lot of stuff could happen there if all of this moves forward should this licence be approved at this point.

DR. DUCROS: Caroline Ducros, for the record.

I will pass it to the Waste and Decommissioning Division to explain at what point it will have to be approved by the Commission prior to any set activities.

Mr. Patrick Burton is here to respond.

MR. BURTON: Good afternoon, everyone.

For the record, my name is Patrick Burton. I'm the Acting Director of the Waste and Decommissioning Division at the CNSC.

As you pointed out, the financial guarantee as it stands is zero and this is a bit of an unusual occurrence. As you say, it's in proportion to the amount of work that has been done on the site thus far.

So looking back to the Commitments Report which we were just talking about, if you look at Commitment No. 13.2, there is text in there saying that prior to OPG seeking to commence more substantive site preparation work they will need to re-evaluate both their preliminary decommissioning plan and their financial guarantee.

MEMBER BERUBE: Yes, I understand what you're saying. I read that provision and I understand that.

From a practical standpoint, what are you using as a basis to establish that financial guarantee? Is it basically an estimate of the cost of the project or the structures or the actual cost of demolishing whatever they do? Exactly how is that being done?

We're going now through, potentially going through a new build and a new build we haven't done for a while, and financial guarantees of course have to shift

with the actual cost of demolition, should that be necessitated at some point.

So how is that being accounted for?

MR. BURTON: It comes back to the idea of the desired end-state for the site. That is described in the Preliminary Decommissioning Plan which is linked to the financial guarantee.

For a bit of further detail on that I will pass to Mr. Gavin Steedman, who is one of our subject matter experts in financial guarantees and decommissioning.

MR. STEEDMAN: Gavin Steedman, for the record.

Just to add some more detail about that, with respect to the amount of funds necessary for the financial guarantee at the Licence to Prepare Site phase what we are looking for or what OPG needs to propose is a satisfactory end-state in order to return the site to that end-state that covers the activities covered under a Licence to Prepare Site, so whether that be grading, road construction, certain things like that.

That will then have to be expanded upon should licensing progress to a possible Licence to Construct.

For the purposes of the Licence to Prepare Site, what we're looking for is the activities covered

under that licence, the activities for decommissioning that will return it back to a desired end-state.

MEMBER BERUBE: And just to get very clear, how do you determine what that number might be?

MR. STEEDMAN: Gavin Steedman, for the record.

What we would do, what CNSC staff would do is we would evaluate -- I hate to repeat myself, but to verify or look at the end-state that OPG has proposed, we look at the activities that would be necessary to return that site back to that desired end-state and then both through the PDP and the FG, financial guarantee, part of the assessment is to look at the activities necessary to do that, things like potentially hiring contractors, removal of material, things like that. And we look to see that costs are realistic and adequate.

Then for the financial guarantee what we look at is that the funds that OPG proposes they will need to cover those activities are available and can be accessed by the CNSC should they be needed.

MEMBER BERUBE: That's good, thank you.

THE PRESIDENT: I think we've got a couple of hands up to supplement what's been said.

Let's start with Mr. Jammal and then Mr. Manley after.

MR. JAMMAL: Thank you, Madam President, Commission Members and colleagues. I have a bad signal so video is off for me.

In plain language, Dr. Berube, you were asking a very, very broad question, of course always a valid question.

The point I want to clarify is the fact that at every stage of a licence activity -- let's take a hypothetical example. OPG decides not to continue with a Licence to Prepare Site. Then there will be a dedicated financial guarantee for that activity to render that part of land, we're calling it site, to a state by which we determine and we approve via what colleagues are calling the decommissioning plan.

So for every licence activity there will be a corresponding financial guarantee.

So hypothetically if OPG tomorrow decides I am not going to do a Licence to Prepare Site, then they must give us a final state of that part of the land which the financial guarantee will apply towards it if they do not fulfil the requirements under what we call the decommissioning plan from a language perspective.

So every licence activity must have its corresponding financial guarantee and that's why I'm trying to put it in that perspective. So it's not just the full

site.

In addition with the risk assessment for the financial guarantee, OPG is an existing licensee, even though it's another part of the overall site. But we will hold them to it with respect to if they decide, for example, tomorrow not to continue with the licensing for the site, there will be a financial guarantee in order to put back the site to a state that we will agree upon with them.

And the Commission will have to approve the financial guarantee, by the way.

THE PRESIDENT: Thank you, Mr. Jammal.

Mr. Manley?

MR. MANLEY: Robin Manley, for the record.

I'm going to call upon Jack Vecchiarelli to give me a hand in a moment if I get any of this garbled.

First off, at this time the financial guarantee is zero dollars as there are no site preparation activities undertaken that would require decommissioning activities.

We imagine that the bulk of the site preparation activity that we will carry out will be work that OPG will use obviously for site preparation. However, if the project should not proceed, that we would use said infrastructure in support of our existing Darlington

licensed facilities over the course of time, and we would maintain the site accordingly; and that the site would be suitable for industrial use without risks or hazards that would require decommissioning.

But if substantive site preparation work activities would be undertaken that would require decommissioning, so prior to us seeking a licence amendment, work such as lake infill or removal of the bluff or construction of the wharf, as detailed by the Commission in its previous record of decision, that OPG would update the preliminary decommissioning plan and the cost estimate and seek the Commission's approval for commensurate financial guarantee.

I should also note that we have a significant highly funded financial guarantee for our other nuclear licensed facilities at this time, more than sufficient to cover a site preparation decommissioning.

I'm going to pause there and ask Jack Vecchiarelli to elaborate on anything, and he might also call upon other members of our team.

MR. VECCHIARELLI: Jack Vecchiarelli, for the record.

I would just like to echo what Robin just outlined there. That is an accurate characterization of our financial guarantee arrangement.

I will point, though, to Section 6.5 of our Commission Member Document, which basically describes what Robin just outlined.

And just to quote a bit from there: that should the project be cancelled during the course of the proposed licence then OPG would use the site to support the ongoing operation of the existing Darlington facility and maintain the site in accordance with that usage without specific risks or hazards.

So we have established guarantees for the Darlington Station that includes decommissioning of that site, of course, and we have already as part of the current licensing basis for the Darlington New Nuclear Site Preparation Licence, we have the licensing basis document which is a letter from 2010 which rationalizes what we just described around the zero dollar current financial guarantee.

And as Mr. Jammal noted, there is an expectation to revisit and update financial guarantees in accordance with the regulatory requirements and we do have a commitment, as we indicated in the opening presentation yesterday, that once the technology is selected and prior to construction we will revisit the financial guarantee.

So those will go before the Commission, as appropriate, for approval. But at this time as part of the

current licensing basis, our financial guarantee is captured. And should there be anything materially different that's beyond the scope of what that was accepted to be, then we would need to revisit this with the CNSC.

I hope that helps.

MEMBER BERUBE: Yes.

THE PRESIDENT: Good. Thank you.

Dr. Lacroix.

MEMBER LACROIX: My questions have been answered and my concerns have been dissipated. Thank you very much.

THE PRESIDENT: Very good. Thank you.

Maybe I can ask my question around OPG's commitments. I wish I had the slide handy here. I know there is only after all the Gap analysis done there is only one new commitment that has been added, which is around the site layout.

As I was reading through OPG's CMD, or maybe the staff CMD, and there were all these GRP recommendations, I saw many of them were either not initiated or initiated and there were no completion dates given. And I can totally understand that because the start date has not really been established and you are just reactivating all those activities.

Remind me if the licence renewal does take

place, is there then a detailed plan that is sent to staff that says for these commitments here are the target completion dates and here's what you can expect when?

So I will ask OPG.

MR. MANLEY: Robin Manley, for the record.

I'm going to see. Sevana Bedrossian, our Licensing Manager for the project, has graciously volunteered to take this question.

Thank you, Sevana.

MS. BEDROSSIAN: No problem. Sevana Bedrossian, for the record. I'm Manager for Regulatory Affairs for DNNP Licensing.

So yes, as the commitment report lays out, we are required to submit the documentation to close these commitments 90 days prior to start of site preparation activities for CNSC staff review and acceptance. We will be communicating with them our plans for the timeline, where these commitments will be submitted to them to allow time for that review and acceptance prior to any activities in order to seek that authorization.

Thank you.

THE PRESIDENT: Thank you.

Okay, back to Dr. Berube.

MEMBER BERUBE: I have no further questions; thank you.

THE PRESIDENT: Maybe I will ask our colleagues from other governments and departments, give them an opportunity to give us their thoughts on OPG's licence application. If they have any concerns or any suggestions for the Commission, that would be very helpful.

Maybe if we can start with Department of Fisheries and Oceans, please.

MS. EDDY: Sara Eddy, for the record.

We are experiencing Internet problems today, so I hope you can hear me.

THE PRESIDENT: Yes, we can.

MS. EDDY: Thank you. I have no concerns at this time.

THE PRESIDENT: Okay. Everything is moving as per your expectations then.

MS. EDDY: We have not seen the site plan, what the clearing plan is. I don't see any work in water.

THE PRESIDENT: Okay, it's a little early then.

How about Environment and Climate Change Canada?

MS. ALI: Thank you for the opportunity to comment.

Nardia Ali, Manager, Compliance Promotion and Expert Support with Environment and Climate Change Canada.

I know I've said several times in many hearings, we have an MOU with the CNSC under which we are involved in almost every application and every licence application where we provide expertise to the CNSC in areas of our mandate, which is quite broad: air and water quality, soil quality, wildlife. We are involved in the waste management and policy development that's happening now.

ECCC was involved in the original Environmental Assessment. I was actually at the Panel hearing. And most recently we've reviewed several documents with content relevant to our mandate, such as the 2020 baseline characterization study and other EA follow-up monitoring studies. We also review the annual barn swallow monitoring done by OPG.

So to date we are satisfied with the work that's been completed and the ongoing work, the proposed commitments and the overall conclusions regarding the site preparation application.

So ECCC has reviewed the updated baseline and environmental studies in support of the OPG commitment, and we believe that they confirm the conclusions of the

DNNP EPA and over the hearing process we've heard CNSC assure us, and OPG, assure all the stakeholders that when the technology is selected, any additional environmental protection needed will be requested by the CNSC.

So therefore we are confident that with the CNSC's regulatory process and the continuing engagement with other departments, like ECCC and DFO, we will ensure safety for the environment and Canadians.

And finally ECCC is of the opinion that the scenarios considered in the original EA will still ensure environmental protection since they sort of assumed worst-case scenarios and looked at maximum effects and things like that. So we are confident.

And the last point I want to say is that there's a lot of work going on on climate change and adaptation. There are no fixed results yet. But we are tracking that research and keeping the CNSC informed as we get results on things like any rise predicted for lake temperatures and things like that.

Thank you very much.

THE PRESIDENT: Thank you, Ms. Ali, for giving us that reassurance.

Then Office of Fire Marshal and Emergency Management. I know we heard from you yesterday. Anything else you would like to add today?

MR. KINCHLEA: Richard Kinchlea, for the record.

No, we have no concerns at this time.

THE PRESIDENT: Thank you.

And the Regional Municipality of Durham?

I'm not sure if they are here with us.

MS. ROCHON: Good afternoon. Caitlin Rochon from the Durham Region.

We have no further questions.

THE PRESIDENT: Thank you.

I don't know if we've got anyone from the Municipality of Clarington. But if you're here, here's your opportunity.

MAYOR FOSTER: Madam President, it's Adrian Foster, for the record, Mayor of the Municipality of Clarington.

No. Thank you for the ability to present and thank you for the work that you are doing today on this file. It is deeply appreciated.

THE PRESIDENT: Thank you for being here.

Before concluding the hearing, I will turn the floor to OPG to provide you with an opportunity to make any final remarks.

Mr. Mark Knutson, over to you, please.

MR. KNUTSON: Thank you. Mark Knutson,

for the record.

President Velshi and Members of the Commission, on behalf of OPG I would like to thank you for your fair and balanced conduct of this hearing.

I would also like to thank Louise Levert and other CNSC support staff for organizing these proceedings and pivoting to successfully conduct them in a virtual manner as a result of the ongoing pandemic.

Commissioners, as we heard from the Intervenors throughout these two days of hearings, there is a strong interest from the participants to be involved and apprised of the New Nuclear Project at Darlington. To that end we will certainly continue to listen and remain engaged with them on the status of the project. We truly value the insights and perspectives shared by various participants of the last two days and throughout the project so far.

Open and transparent discussions are a pillar of OPG's social licence, a licence that involves daily engagement and dialogue with our neighbours, Indigenous communities and stakeholders.

In this hearing there has also been discussion about climate change and the need for new nuclear is now.

Madam Chair, OPG shares this view. Canada must have a diverse clean portfolio of energy production in

the future to combat the effects of climate change and this must include nuclear power.

Nuclear power has an essential role to play in fighting climate change by providing safe, reliable baseload energy to enable a low carbon future comprised of variable renewables.

The Site Preparation Licence continues to be an asset for OPG and the people of Ontario. Its successful renewal will be a crucial next step towards a clean energy future through new nuclear generation within Ontario and Canada.

Reflecting on what we've heard during this hearing from the Commission and from the Intervenors, I would also like to mention a few items and how we plan to proceed following this hearing.

We commit to working further with Indigenous communities and stakeholders to seek their traditional and Indigenous knowledge and to include it, where applicable, in order to further understand the potential impacts of the project and strengthen our assessment and decision-making.

OPG will continue to meet its commitments associated with the JRP process and we will continue to engage with CNSC staff through the staged approach for undertaking the site preparation activities.

Moreover, OPG will ensure that the reactor technology selected is within the bounds of the EA and licensing basis, with detailed demonstrations during the subsequent licensing process for the construction phase of the project.

Before I close, I would like to revisit why we have been meeting over the last two days.

In August of 2012, OPG received a 10-year licence to prepare a site for new nuclear at Darlington, following acceptance of an Environmental Assessment by the Joint Review Panel of the CNSC and the Canadian Environmental Assessment Agency.

With the application before you, Commissioners, we are requesting its renewal for another ten years and we note that there is no requested increase in scope of any licensed activities.

To support our licence renewal application, OPG has updated baseline environmental data, reviewed the applicable codes and standards and reviewed the environmental impact studies completed to support the EA.

All of these assessments serve to confirm that the Darlington site remains suitable for new nuclear.

Our history of excellence in operations, project execution and planning, safety performance, public

engagement and environmental stewardship is demonstrative of our company's values and commitments. OPG maintains that we have through this application to the CNSC demonstrated that OPG is qualified to carry on the site preparation licensed activities, that the Darlington New Nuclear Project site remains suitable for new nuclear generation, and that OPG's site preparation licensed activities would not pose any unreasonable risk to the public, personnel or environment.

Commissioners, it has been a pleasure and an honour to speak on behalf of OPG in support of the Power Reactor Site Licence renewal for Darlington New Nuclear Project, and we look forward to your decision.

Thank you.

THE PRESIDENT: Thank you very much, Mr. Knutson.

And thank you to the entire OPG team, to CNSC staff and to all our Intervenors for all of your great effort, for your patience for answering our questions so thoroughly and completely. It is very much appreciated.

With that, I will turn it over to Marc for closing remarks in this hearing.

MR. LEBLANC: Thank you, Madame la Présidente.

In addition, the Commission would like to

thank the representatives from the different Ministries for having taken the time to assist us with the questions, and also to thank the Interpreters, the Secretariat staff, the CNSC technical staff, the transcript and webcast staff. Thank you for your support for the last four days of Commission proceedings.

This brings to a close the public hearing on Ontario Power Generation's application. With respect to this matter, it is proposed that the Commission confers with regards to the information that it has considered and then determine if further information is needed or if the Commission is ready to proceed with a decision.

We will advise accordingly.

Thank you. Have a nice rest of the day.

--- Whereupon the hearing concluded at 2:38 p.m. /

L'audience se termine à 14 h 38