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THE ONTARIO ENERGY BOARD

Ontario Power Generation Inc.

Application for payment amounts for the period from January 1, 2027 to December 31, 2031

Technical Conference held person and virtually
at 2300 Yonge Street, 25th Floor, Toronto, Ontario
on Friday, May 29, 2026, commencing at 9:30 a.m.

Day 3

A P P E A R A N C E S

MICHAEL MILLAR IAN RICHLER THOMAS EMINOWICZ JEFFREY SAUER MUSAB QURESHI CHRIS CINCAR TYLER DAVIDS ADA LI FIONA O'CONNELL YAROSLAV PALIY ANDREW PIETREWICZ DANA WONG TINA ZHU ZUBIN PANCHAL MUHAMMAD YUNUS ASHLEY SANASIE TINA LI	Ontario Energy Board
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TOM LADANYI	Coalition of Concerned Manufacturers and Businesses of Canada (CCMBC)
LAWRIE GLUCK	Consumers Council of Canada (CCC)
TOM LADANYI	Energy Probe Research Foundation

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KEITH PINTO	Keith Pinto
DANIEL VOLLMER	Minogi Corp.
SCOTT WALKER	Ontario Association of Physical Plant Administrators
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DAN ROSENBLUTH BAYU KIDANE	PWU
MARK GARNER	Vulnerable Energy Consumers Coalition (VECC)
COLM BOYLE	WTFN Investment Holdings LP
KATHLEEN CAREW MOHAMED EL DEFRAWY PERRIK LE DREFF JOHN BLAZANIN DEREK KINDLON SCOTT NELMS JOEL PEREIRA	Panel 2 – Darlington Refurbishment Program, Pickering Refurbishment Program, and Nuclear Operations and Nuclear Projects
RYAN HOWARD DEREK KINDLON LINDSAY GREENLAND SCOTT NELMS ALEX KOGAN	Panel 3 – Darlington New Nuclear Program

I N D E X O F P R O C E E D I N G S

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E X H I B I T S

U N D E R T A K I N G S

U N D E R T A K I N G S

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U N D E R T A K I N G S

Friday, May 29, 2026

--- On commencing at 9:30 a.m.

M. MILLAR: Good morning, everyone. Welcome to Day 3 of the technical conference. We are going to get to CCC.

Before we get to CCC, I believe Ms. Zhu wanted to follow up on one matter to make sure we have got the right Panel for her questions, and Mr. Eminowicz may have a question as well.

T. EMINOWICZ: Yeah.

M. MILLAR: But, Ms. Zhu --

T. EMINOWICZ: So we just need a couple moments. Ms. Zhu has a clarification from one of the questions and responses yesterday and another question that we are not sure if it is for this Panel or for Panel 3, so we will just kind of start asking it, and then you can tell us how far this Panel can take it. Thank you.

EXAMINATION BY T. ZHU:

T. ZHU: Good morning. This is Tina Zhu, OEB Staff. I have a follow-up question from yesterday. Could we pull up F2-CCC-078, please. Could we move to the next page to see the table.

So yesterday I had a request to have OPG to provide all the external services costs, then OPG referred me to this interrogatory response. Then our question added at -- if the numbers provided in this interrogatory response is with the 20 million

threshold or no, and OPG was going back to double-check. So I just wanted to follow up with OPG's thoughts.

M. EL DEFRAWY: Good morning, everyone. Mohamed El Defrawy.

So, yes, we did confirm the values associated for the purchase services here exclude the 20 million, so there is no threshold.

T. ZHU: Thank you for the confirmation.

And I have one more question I will try to ask to this Panel, and you can let me know if this should be deferred to the DNNP Panel. This question refers to interrogatory F2-Staff-200. Could we look at part B of the response. Second paragraph, OPG responded that there are 45.3 million in planned contracting services for the 12-month cycle outage in 2031.

And could we also pull up the pre-filed evidence from Exhibit F2, Tab 1. Schedule 1, Table 1B, please. I will say that again. Exhibit F2, Tab 1, Schedule 1, Table 1B, please.

On the line number 2, it is showing that the DNNP outage OM&A in the 2031 plan is 48.6 million. My question, if we look at the percentage of DNNP outage OM&A to be purchased through external contracting services in 2031, the percentage seems high. So this percentage is the 45.3 million, as we just visited from the Staff-200 interrogatory response, divide by the 48.6 million which is showing

on the Table 1B. So that external purchased percentage is over 90 percent.

Could you clarify if this is the norm going forward for DNNP facilities outage OM&A, that it will mainly be fulfilled through external contracting services?

C. KEIZER: So can I -- just a clarification. Your question is clearly related to DNNP. So you initially started off with, "Is this a question for DNNP or this Panel?" So --

T. ZHU: Yes. Because part of the reason why I am trying to ask here is because the pre-filed evidence, Exhibit F2, according to the mapping that OPG provided, it is within the scope of Panel 2, but the interrogatory itself is with the Panel 3. Just before you go, I wanted to make sure that I don't miss the opportunity to get a proper answer.

C. KEIZER: No, no, that is fair game. I understand. I think it is -- I think what -- we have a witness who actually can answer that and -- even though it is a DNNP-related question. So we will have that answer for you now, I guess.

D. KINDLON: I can do my best right now. I have my other notes for the DNNP Panel. But, yes, the majority of -- the majority of the outage OM&A will be driven by external purchase services. Within that number, there is also some materials in there. And as OPG labour is required, we may see some minor

flexes within the base OM&A number, the 119 million, as well.

T. ZHU: Thank you for the answer.

And I have an undertaking request. Could OPG provide the external purchased services FTEs number in the outage OM&A in 2031 for DNNP?

D. KINDLON: Yes, we can provide on a best-efforts basis.

T. ZHU: Thank you very much.

M. MILLAR: That is JT-3.1.

UNDERTAKING JT-3.1: PROVIDE THE EXTERNAL PURCHASE SERVICES FTES NUMBER IN THE OUTAGE OM&A IN 2031 FOR THE DNNP. IF CANNOT PROVIDE EXPLAIN WHY

M. MILLAR: And were those your questions, Ms. Zhu?

T. ZHU: Yeah, that concludes my questions. Thank you for your time.

M. MILLAR: Mr. Eminowicz, you had something.

T. EMINOWICZ: We are good, thank you.

M. MILLAR: Okay. Great. We will now turn it over to CCC.

Mr. Gluck, are you starting us off?

L. GLUCK: I am, thank you.

M. MILLAR: Okay. Over to you.

C. KEIZER: I thought Mr. Walker had some kind of clarification question just because he had mentioned that at the end of the day yesterday.

M. MILLAR: Yeah. Mr. Walker, are you there?

S. WALKER: I am, Mr. Millar. I am at your disposal as to what time today you -- I just need a few more minutes with the Panel before you send them home for the weekend.

M. MILLAR: Do you have any time restrictions?

S. WALKER: I do not. Well, sorry, there is a family --

M. MILLAR: Yeah, Mr. Walker, why don't you -- why don't you just go ahead now. Family is always first.

EXAMINATION BY S. WALKER:

S. WALKER: Thank you, sir.

This relates to the follow-up question associated with Attachment 1. This is specific to L, E2-OAPPA-10, Attachment 1.

In reviewing this chart, I was surprised that the answers for all of the years were the same, that the terawatt hours were the same. And in the response you provided to IR E2-OAPPA-10 -- so L -- yes, thank you. That equation makes accountability for things like planned outages. So, you know, clearly, per our conversation yesterday, we have more outage time happening in 2027 than we would in 2028, so I was surprised that they were all levelized. And I just wanted to confirm that the calculations in that table conform to the equation that you provided, or if it was provided on another basis, what that

basis was.

M. EL DEFRAWY: So that is correct. The numbers that are shown in Attachment 1 conform to the equation that is shown in the IR. As mentioned in the IR, the -- this is done in an illustrative basis; however, even -- so overall, there will be some minor changes in the numbers based on, you know, a specific input such as planned outage days and changes associated with that because UCF is an output, not an input; however, overall, this does conform to the equation that is shown.

S. WALKER: Okay. Would it be possible to have this table provided as an Excel sheet with the formulas included and the calculations provided?

C. KEIZER: I guess I am trying to understand for what purpose with an Excel spreadsheet. I mean, you have got the formula, you have got the output table. I mean, the witness has indicated that the table, you know, conforms to the formula and UCF as an output, not an input, so...

S. WALKER: Yeah. And fair enough, Mr. Keizer. I guess I -- this IR was based on Exhibit E2, Tab 1, Schedule 2, Table 1B, and I just wanted to confirm that the calculations were predicated on the information that was provided in evidence.

C. KEIZER: I think the witness can confirm that.

M. EL DEFRAWY: I confirm that.

S. WALKER: Okay. Excellent.

Just last -- one last follow-up question, Mr. Blazanin. Yesterday in your conversation with Ms. Zhu, you had advised her in relation to some questions she had about the FTEs that the OPG Pickering plant would be shut down and shuttered as of September of this year. And I believe those numbers are reflected in that table that I just referenced. I just wanted to confirm that that is consistent, that you are, in fact, planning to shut down on September 30th or sometime in September.

J. BLAZANIN: Yeah, that is the commitment we have made, and the plant will be shutting down in September of this year.

S. WALKER: Okay. Why are -- that is an awful lot of -- your CNSC license goes until the end of the year. You have obviously made a decision to forego a significant amount of revenue. Is there a basis for that? Or what is the reason for that?

J. BLAZANIN: I would have to confirm, but I think there was an IESO implication to that as well and the shutdown dates. But September was the date that we established and communicated that we were going to shut down.

S. WALKER: Is that to accelerate the PRP program, or is it literally a system constraint issue?

J. BLAZANIN: It would not be to accelerate. In

fact, we would like to have more time, if we could, to plan the refurbishment, but it has nothing to do with accelerating Pickering.

S. WALKER: Okay. Thank you, sir. Those were my only follow-up questions. Thank you for the time today.

J. BLAZANIN: Thank you.

M. MILLAR: Thank you very much, Mr. Walker. We will turn it over to you, Mr. Gluck.

L. GLUCK: Thank you.

C. KEIZER: Sorry to interrupt, Mr. Gluck. Just one last administrative thing. Yesterday -- I might as well deal with it because I will forget otherwise -- when we were dealing with the undertaking numbering, I think we -- as the transcript revealed, there was an issue with -- around Undertaking 21. We gave it, then we withdrew it because we answered it in the process, and then I think the numbering may have got a bit mixed up. But I think we can continue with the existing numbering; we just will identify JT, you know, 2.21 or whatever it was --

M. MILLAR: JT-2.21 never got marked.

C. KEIZER: -- as we intentionally left blank or something like that, so we can keep the numbering as is.

M. MILLAR: Yes. And my apologizes for --

C. KEIZER: Oh, no. That's fine.

M. MILLAR: -- missing that. But you are right,

JT2.21 was marked and then was resolved, so I think you can just --

C. KEIZER: Yeah. Perfect. Thank you.

M. MILLAR: Okay. Thank you.

Anything further, Mr. Keizer?

C. KEIZER: I think we will let Mr. Gluck go ahead.

M. MILLAR: Okay. We will go to Mr. Gluck. Thank you.

EXAMINATION BY L. GLUCK:

L. GLUCK: Thank you. Good morning, Panel. My name is Lawrie Gluck, and I am a consultant for the Consumers Council of Canada.

My first set of questions are relating to the Pickering sustaining capital investments. So if we can open up Exhibit D2, Tab 1, Schedule 3, Table 4B, please. Thank you. And this table is setting out the in-service additions related to the nuclear operations capital.

And would you take it subject to check that the total in-service amount for the Pickering portfolio projects, both allocated and unallocated, over the 2027 to 2030 period prior to the first refurbished Pickering unit coming back online are approximately $426 million?

J. PEREIRA: Good morning. This is Joel Pereira. Subject to check, we can -- we will be able to confirm that.

L. GLUCK: Thank you.

And the operations and project support cost that is shown in this table, those costs are related to both Darlington and Pickering; is that right?

J. PEREIRA: Yes, that is true.

L. GLUCK: Thank you.

And a similar question. Over the '27 to 2030 period, before Pickering is returned to service -- or the first unit of Pickering is returned to service, those costs equal about 105 million between '27 and 2030; is that right? Would you take that subject to check?

J. PEREIRA: That is correct, subject to check.

L. GLUCK: Thank you.

And I don't think I have seen it on the record, but is there a breakdown of operations and project support, capital in-service additions between Pickering and Darlington stations?

J. PEREIRA: So if -- it would be looking at a combination of Exhibit D2, Tab 1, Schedule 3, Table 2. So we have listed all projects here between Darlington, Pickering, and the operations and project support, categorized by anything that was ongoing from the previous application and anything new in this application.

And then that in combination with Table 5, again, D2, Tab 1, Schedule 3, would give you a view of everything that is unallocated across those three

portfolios, Darlington, Pickering, and the operations and project support.

L. GLUCK: Thank you.

Would it be possible for you to undertake to just simply provide the numbers? The in-service additions between Pickering and Darlington over both the historical and forecast periods? The table we are looking at here, Table 5A, it doesn't even have dollars.

J. PEREIRA: So if I could take you to IR response CCC-44, to the Attachments. So Attachment 1 would include all of the tier 1 and 2 projects in the unallocated portfolio with their in-service amounts listed by year.

L. GLUCK: And these are the operations and project support projects?

J. PEREIRA: That is correct. So if you were to scroll to page 2 of the attachment, page 2 of 2, to the category below, to the advance inspection and maintenance program, it has got the projects there. Again, to clarify, these would be the tier 1 and 2 projects.

L. GLUCK: So are they going to add up to 105 million over the '27 to 2030 period? I went through all the tables that you brought me to. I could go project by project and add up everything, and they would end up equalling 105 million for those four years?

J. PEREIRA: So the only thing missing from here would be the tier 3 projects unallocated, and so we could undertake to provide that as a complete list, if you would like, on an annual basis.

L. GLUCK: Sure. It would be best for me if you would just provide the number, in-service addition number broken out between Pickering and Darlington in aggregate, for the historical and forecast periods.

C. KEIZER: Based upon your original request; is that right, Mr. Gluck?

L. GLUCK: That is right.

C. KEIZER: We will do -- well, I guess to the extent that we can split it out, we will provide the undertaking.

L. GLUCK: Thank you.

M. MILLAR: JT-3.2. Mr. Gluck, could you just repeat it? Because I got a little lost in going through the --

L. GLUCK: Sure. To provide the historical and forecast operations and project support in-service additions broken out between Darlington and Pickering.

C. KEIZER: To the extent we can.

L. GLUCK: Great. I appreciate that. Thank you.

UNDERTAKING JT-3.2: PROVIDE THE HISTORICAL AND FORECAST OPERATIONS AND PROJECT SUPPORT IN-SERVICE ADDITIONS BROKEN OUT BETWEEN DARLINGTON

AND PICKERING TO THE EXTENT POSSIBLE

J. BLAZANIN: If I can clarify one piece, some of this project work may be for the fleet. I don't know for a fact, but it may not be easily divisible between the two sites, so it might not be dedicated to a site. So we will separate it that way as well.

L. GLUCK: That is great.

J. BLAZANIN: Okay.

L. GLUCK: Thank you.

If we could go to D2-CCC-41, part D, please. Thank you. And in this response, OPG notes that most of the forecasted in-service amounts related to the Pickering sustaining portfolio are timed to enter service at the same time as the scheduled completion of Unit 5 refurbishment, but there are some projects that would be brought into service in advance; is that correct?

J. BLAZANIN: That is correct.

L. GLUCK: Thank you.

And in the response, you mentioned a couple of projects; the Pickering 5 to 8 second simulator and the Pickering cranes and hoist projects, which you say are required to support the execution of other projects; is that correct?

J. BLAZANIN: That is correct. So cranes and hoists would be there to support other project work potentially that is going on in the plant as part of the sustaining portfolio. But the second simulator

would be for the authorized training staff to be trained and ready to return those units to service and commission those units and start them up. And so that simulator needs to be in place and operational for that staff to be trained.

L. GLUCK: Okay. Thank you.

If we could go to D2-1-3, Table 1C, please. Thank you. So the projects -- I am just trying to map the projects we just talked about to this table. So my suspicion is that the -- those two projects are on line 56 and 57 of this table; can you confirm that or correct me?

J. BLAZANIN: That looks to be correct.

L. GLUCK: Okay. And then can you talk to me about what line 55 is; what that project is just in general and what it does?

P. LE DREFF: Good morning. Perrik Le Dreff. So the Project 89535 focuses on cranes that are in the boiler room that is the main reactor building, as well as some cranes that are in the reactor -- sorry -- in the turbine hall. The purpose of these upgrades is to essentially address some of the aging and degradation with these cranes and to ensure that the controls and some of the electrics are brought up to current standard.

L. GLUCK: Thank you.

So are those -- is that project -- or those cranes, I guess I should say, are they used as part

of the refurbishment? Like, are they helpful to the work that you are going to do as part of the Pickering refurbishment, or are they used post-refurbishment?

P. LE DREFF: Both.

L. GLUCK: Okay. Thank you.

Can we go to D2-CCC-44, Attachment 1, page 2, please. Thank you. So we did look at this table before, and this lists all the unallocated Pickering-related portfolio projects -- is that right -- on this page?

J. PEREIRA: So as per my earlier comment, it includes all of the unallocated projects at Pickering except the tier 3s.

L. GLUCK: Perfect. Thank you.

And I just want to ask a few questions about individual projects here and their purpose. So if we could talk about -- it is at -- there is no lines there. It is called the Pickering Channel Inspection and Gauging Apparatus for Reactors, life extension upgrades. I think it is -- the acronym is CIGAR. Can you tell me about what that project is and what the asset does.

K. CAREW: Kathleen Carew. So the CIGAR system is required for channel inspections performed to verify the fitness for service of the pressure tube.

L. GLUCK: Thank you. And is that something you need to do as part of to get ready for the

refurbishment, or is that useful after the refurbishment is complete?

K. CAREW: It will be useful after refurbishment.

L. GLUCK: Okay. Thank you.

And with respect to the -- there is a project called the Ajax pump replacement. It is a similar question, what is that project, and whether it is -- the asset is useful for refurbishing Pickering or it is useful after Pickering is refurbished and as part of the operation of Pickering.

K. CAREW: Pickering Ajax pumps will need to be in service for the commissioning and readiness of the fuel-handling systems. So subject to check on the scheduling of those commissionings and whether those pumps will be used for additional pressure tests of the heat transport system, will need to be in-serviced to make sure readiness during the project and afterwards.

L. GLUCK: Okay. So what I would like instead of going through every project here now, I would appreciate if you would undertake to provide a description of what these projects are, the projects related to Pickering, and whether they are useful or needed in the refurbishment of Pickering and as part of doing the work for refurbishment or whether they are useful after Pickering is brought back online.

C. KEIZER: Just a question about the amount of

description that you are looking for. Like, you know, these projects, obviously, have a lot of detail and information associated with them, and there is a lot of projects on this list. So -- and I am not quite sure what you are going to be doing with the technical parameters of it in terms of evaluating it for the purposes of the question. So I just would need to understand what you mean by when you say "a description of the project."

L. GLUCK: Sure. A very short summary of the project, not a lot of technical detail. And the key piece is, is it useful for the refurbishment of Pickering? You need -- you need to do that project before you are refurbishing or while you are refurbishing, or is it useful for the operation of Unit 5 once it comes back online?

C. KEIZER: Or could we say, and it may be both?

L. GLUCK: Then you could say both. And with it, and why it is useful before or after refurbishment. But to your point, if you have to say both, you will -- you can say both.

C. KEIZER: Yeah, I guess I just -- I understand the nature of the undertaking. It is a lot of projects to do. It will take a lot of time to do. Can I just have a moment?

L. GLUCK: Sure.

J. BLAZANIN: Can we go to SEC-56. My colleague is asking to turn that up. It might provide some of

the information already, so let's take a look there. The second part about whether it is used for refurbishment or post-refurbishment or both, I don't think is there, but I just want to -- this may have some of the descriptions.

J. PEREIRA: So if we can go to the attachment, Attachment 3 and 4, but we can start with Attachment 3. So the attachments here, Attachment 3 and 4, provides a list of our unallocated projects. For the Pickering ones, in addition to sort of their estimated investment value, there is a justification and detailed description of the project. I want to see if this may be useful in helping sort of clarify your questions.

L. GLUCK: Well, maybe we can find the channel inspection, the CIGAR project on the list.

J. PEREIRA: So that would be line 51, I believe.

L. GLUCK: Okay. I mean, if you would like to recycle the description, that is fine. But the key point that I would like you to answer in this -- in my proposed undertaking is whether it is useful and needed as part of the refurbishment project to refurbish Pickering or it is useful after Pickering returns to service.

P. LE DREFF: So subject to check, but looking at the description, the way to think about it is before Pickering refurbishment was decided, this

plant was being managed to an end-of-life. And so this toolset was basically obsolete already a number of years ago and was being maintained to a minimum level, knowing that the life -- like, remaining needed life of that toolset was extremely limited.

And so the purpose of having this toolset, because it is tried and true, is that after a unit comes back online, this will be the method to perform the fuel channel inspections that the CIGAR toolset performs until such time as the new system, because we have flagged a new project start in the Pickering rapid delivery machine system, comes into place. And so because this is tried and true, the idea is you will have this as your backup toolset.

C. KEIZER: So why don't we, then, just to -- so you can move on, Mr. Gluck, we will -- based upon the descriptions that are here, we will then identify, as you have asked us to identify, those which were useful for refurb and those which are continuing, ongoing, or both.

L. GLUCK: That is perfect. Thank you.

M. MILLAR: Okay. So that is JT-3.3.

UNDERTAKING JT-3.3: ADVISE, FOR EACH PICKERING PROJECT, WHETHER IT IS USEFUL AND NEEDED AS PART OF THE PICKERING REFURBISHMENT PROJECT OR WHETHER IT IS USEFUL AFTER PICKERING RETURNS TO SERVICE OR BOTH

L. GLUCK: Can we move to D2-CCC-42, part D,

please. Thank you. And it is a similar line of questions. But with respect to the Pickering water treatment plant lease, I understand that its purpose is to support ongoing post-refurbishment operation; is that correct?

J. BLAZANIN: That is correct.

L. GLUCK: And, similarly, this is -- the answer there is that this is really only needed after Pickering is brought back online?

J. BLAZANIN: This is needed for station operations, correct.

L. GLUCK: Okay. Perfect. Thank you.

Can we move to CCC-73, please -- F2-CCC-73. Sorry. So in response to part A, OPG explains that the base OM&A cost for Pickering are primarily related to regular labour cost with -- related to the nuclear operator training program; is that right?

J. PEREIRA: That is correct.

L. GLUCK: And I could take you to the table where this shows up, but I would ask that you would take it subject to check that over the 2027 to 2030 period prior to Pickering re-entering service, there is $70.9 million of base OM&A costs. If you would like to see the table, it is in F2-2-1, Table 1A.

J. PEREIRA: So line 2 on the table displayed between '27 to 2030 is what you would be referring to?

L. GLUCK: Yes.

J. PEREIRA: That is correct.

J. BLAZANIN: Sorry. Maybe we missed something. Is there a question?

L. GLUCK: Well, it was just -- originally, I was hoping you would just agree that it is $70.9 million of base OM&A cost for Pickering.

J. PEREIRA: Yes, that is correct.

L. GLUCK: Okay. Thank you.

And so what I am trying to reconcile is that there is $70.9 million of cost over four years, and this is primarily related to a nuclear operator training program. So what I am trying to understand is how many -- I would like additional details about that program; how many operators in the program, how does the cost of a training program add up to $71 million over 4 years.

K. CAREW: So I will speak about the details of the training program while my colleague looks for numbers, as appropriate. But the nuclear operator training program for our authorized staff is a CNSC-licensed position for which there is a full 36 months of in-classroom/simulator training and then additional time in classroom as well as on-the-job training and co-piloting portions. That is a significant amount of resource, both for the individuals who are being trained, the individuals who are providing the training, the individuals who are maintaining and operating the simulator, and the

individuals who are creating and delivering the appropriate exams for those classes.

Given the end-of-life plans for Pickering and the wind-down of authorized classes to prepare for that, we do need to perform training at a slightly accelerated pace to make sure that we have adequate staffing in place to support the station operations once Unit 5 comes back online, and as well, to allow us to support the other key operational positions within the organization, as the knowledge and experience that the authorized staff gain as part of this training program is essential and useful in other parts of our business as well such as our leadership positions and other work management-type operations planning positions as well.

So that, in general, explains the basis and how important that program is to nuclear power plant operations. I will turn it over to Mr. Pereira to add further details.

J. PEREIRA: I can confirm the number of FTEs of the operators in the plants. We provided this in F2-SEC-167, Attachment 1.

L. GLUCK: Okay. Thank you for that.

If we can move to A1-CCC-9, Attachment 23, please. Thank you.

So the long lead materials procurement internal audit was completed in July of 2024; is that correct?

K. CAREW: That is correct.

L. GLUCK: And if we go to page 4, please, the target completion date of the management action plans in response to the audit were expected to be complete at various points in 2025; is that correct?

K. CAREW: I see that. It looks correct.

L. GLUCK: Thank you.

And one of the observations from the audit is that there are no tools in place to capture early demand signals from future investment and condition to provide reliable data to facilitate supplier capacity mitigation activities.

P. LE DREFF: Can we pull up the Board Staff interrogatory number 15, please. I believe that question was answered in section "Delta" or "Echo."

And the reason I wanted to point folks here under "Echo" and "Foxtrot" is as it relates to our panel on projects or operations that the audit findings were not directed to any specific project area, and so we don't have specific detail on the actions raised in the audit.

L. GLUCK: Okay. So if we -- in the audit, excuse me, one of the observations was that there were no tools in place; is that right? The audit said that?

It is under -- it is the first bullet under "systems and tools."

P. LE DREFF: That is correct as noted.

L. GLUCK: Thank you.

And my understanding is the concern with deficient supplier capacity risk mitigation is that it can cause delays to schedule and production related to vendors' projects -- products, excuse me, which could adversely impact OPG's projects; is that fair? Generally, that is what the concern would be?

P. LE DREFF: That sounds accurate.

L. GLUCK: Thank you.

And during the '22 to '26 historical period, did OPG experience any problems with procuring certain products with long lead times which caused OPG's projects to be delayed or adversely impacted?

P. LE DREFF: I don't have any specific examples to cite; however, one of the things I could stress is from the project's point of view, from early identification of a project, we have a dedicated supply chain team that is mapped to the projects teams, and they work with the broader supply chain functions that include functions like category management, that focus on key category areas like large assets, like transformers, and so on.

And through our vendor relationships and relationships with direct OEMs, original equipment manufacturers, we engage early, even before we have, like, finished specifications or finished engineering, to get a sense of the -- of the market dynamics. And so that is information that is fed in when we are laying out our early scoping, definition

phase works of our projects.

L. GLUCK: Thank you.

So just back to the original question. Were there any projects that experienced delays or adverse impacts related to procuring certain products with long lead times?

C. KEIZER: I think he indicated that he didn't have any particular examples that came to mind.

Is that correct, Mr. Le Dreff?

P. LE DREFF: That is correct. One notable category is -- that is applicable in the rate period is we did have COVID-related impacts that affected a number of projects. That is the main, I would say, like, global category that jumps out.

L. GLUCK: Would you be able to undertake to check if there are any projects during the historical period that were impacted by long lead time materials that led to delays or other cost overruns related to those projects?

J. BLAZANIN: I think that would be a bit of an onerous task to go back project by project and understand why something was delayed. If it was COVID-related and there was a global shortfall it didn't have anything to do with the early demand signals or otherwise, so I think it would be pretty onerous to try to do that.

L. GLUCK: Would it be possible to do it if you were to ignore COVID-related ones? So perhaps a

little bit --

J. BLAZANIN: Again, you would have to look at all of the projects, understand what the delays were, and then start to eliminate those. So you would have to go project by project by project to try to do this.

L. GLUCK: I would like this undertaking.

C. KEIZER: Well, I think the witness has indicated, given the significant number of projects that exist at OPG, that you are asking them to go through and look for particular detail, which may take a significant amount of time given the extent of the projects, the complexity of them, and the number of them. And so, I mean, OPG's position is that that is an unreasonable undertaking given the amount of time that would be required to -- given the timing we have to be able to respond to the undertaking.

L. GLUCK: Where this is coming from is that there is an audit suggesting that there was some deficiencies with respect to the governance related to the procurement of long lead materials, the -- those deficiencies can lead to problems related to the projects themselves which could lead to cost overruns that are now showing up in rate base for recovery from ratepayers going forward. So I think it is important to understand whether the procurement of long lead materials caused any problems.

C. KEIZER: Yeah. Are you referring to the

sentence in the audit that says "the demand data supporting the suppler capacity risk mitigation issue may be incomplete"? Is that what you are saying? Is that what you are asking about, that particular sentence?

L. GLUCK: Yes.

C. KEIZER: So it may be incomplete, which means the audit is inconclusive. So you are asking us to take on significant amount of work to review all of the different projects, define particular rationale made, which may be a predominant issue in any of these projects, for an audit finding which is not conclusive.

L. GLUCK: I mean, the top of that table says:

> "End-to-end processes, responsibilities, and use of systems to enable the development of procurement strategies for demand identification from potential investments are not clearly defined or accepted by business units." (as read)

And the risk is high. And that is the summary of the audit with everything in it, not just one sentence.

C. KEIZER: Yeah. And I was looking at the finding of the audit.

So at this stage, Mr. Gluck, the answer to your undertaking request, unless we discuss it further at lunch as to whether or not it is doable or not

doable, is the answer it -- giving you the undertaking is no.

L. GLUCK: Okay. Thank you.

T. EMINOWICZ: Mr. Gluck, may I?

L. GLUCK: Of course.

EXAMINATION BY T. EMINOWICZ:

T. EMINOWICZ: Yesterday with the witness panel, OEB Staff asked about a TRF major component replacement program, and from what I recall, there was a mention of long lead materials for that program. We also discussed the deferral or movement of a Unit 2 outage. Just wondering if the undertaking could be taken for those two things specifically.

P. LE DREFF: Maybe I could offer something that would help address your concern. So what this audit is identifying, the way that I read it, is that there aren't top-down processes that are essentially saying, buy this now, and, buy that now.

But fundamentally, the way that we operate the portfolio isn't trying to time the market of when it would be a good time to procure something, but it is based on condition of assets. And then that is when, through the asset management process and then the portfolio management processes, we have the ability to identify, like, when is a project going to start. And it is quite a long time gap between when a new start is identified to when it is executed. And so

that generally is giving the teams adequate time to assess the market, look at options, and so on.

So I would offer that this top-down trying to drive, like, a demand to purchase is not how we operate our portfolio.

T. EMINOWICZ: I guess what I am trying to understand is it is my understanding that the TRF facility was at its end of nominal life. It started in the '80s. I think the late '80s it came into service and had a 30-year service life. And work was moved from 2026 to 2027 on the -- at least somewhat on the basis of long lead materials. And I guess I am just curious if any of these audit findings could have contributed to a missed opportunity to do that work that was originally presented as 2026 and got moved into 2027.

P. LE DREFF: The answer to that is no. So the project that we spoke about at the end of the day yesterday, the CRS compressor, there was one manufacturer that is the original equipment manufacturer, and discussions were initiated very early with that vendor. And we actually just completed the factory acceptance test on time this year for that -- that component.

There is another very complex component that is being installed in 2029, and, again, we have had purchase orders out in good time with no impacts. Again, it is specialized equipment dealing with

hydrogen. And so, again, no impacts there. And this is the value of identifying those scopes very early, to be able to engage with these equipment manufacturers early.

T. EMINOWICZ: Thank you, Mr. Le Dreff. Thank you, Mr. Gluck.

EXAMINATION BY L. GLUCK:

L. GLUCK: Thank you.

If we could open A1-Staff-15 again, please. In this question OEB Staff asked for the specific major projects and the proportion of the smaller hydroelectric and nuclear projects over the forecast period that involved long lead materials across various parts of that question.

We asked that for each year of the '22 to 2031 historical and forecast periods, that the dollar value associated with capital projects involving long lead time materials for each of the regulated hydro and nuclear operations businesses be provided.

C. KEIZER: Sorry, Mr. Gluck, can you just repeat your question. Sorry. I missed part of it.

L. GLUCK: Sure. This response lists a number of projects and proportion of projects that involve long lead materials, and what we would like is the dollars related to the projects that are impacted by long lead materials for the historical period and the forecast period.

C. KEIZER: Sorry. And you are talking about

this for the -- obviously for nuclear, you are saying -- is that what you are saying?

L. GLUCK: I was asking for hydro and nuclear. This response speaks to both. I asked my questions to the nuclear Panel because it seemed more nuclear focused, but this response speaks to both hydro and nuclear businesses. And this is the kind of thing that would need to be done by an undertaking.

C. KEIZER: And you want, what, a dollar value related to the project; is that what you are asking?

L. GLUCK: It is an aggregate number.

C. KEIZER: Of the --

L. GLUCK: Long lead material projects for each year, '22 to 2031.

C. KEIZER: So total project costs for those projects that have long lead time materials?

L. GLUCK: That is right.

C. KEIZER: Is that something we could take away at the break? Just, I think there is a bit of confusion on the panel there. We might want to have a discussion at the break about what we can and cannot do.

L. GLUCK: Sure.

C. KEIZER: And also whether we can commit the hydro folks at the same time. I think that is the other element here.

L. GLUCK: Okay. That sounds good. Thank you.

If we could go to D2-AMPCO-28, please,

Attachment 1. And here, this table shows that the Darlington water treatment plant interconnections project experienced a cost overrun of about $42 million, or 80 percent; is that correct?

C. KEIZER: Is there a line number, sorry, that you are pointing to?

L. GLUCK: Sure, yeah. It is line 4.

C. KEIZER: I see it.

P. LE DREFF: That is correct.

L. GLUCK: Thank you.

And the water treatment plant interconnection project went into service in December of 2024; is that also correct?

P. LE DREFF: That is correct.

L. GLUCK: Thank you.

Can we go to D2-AMPCO-57A, please. Thank you. And I understand from part A to this response that 23.2 million of the cost overrun was caused by the need to address unidentified buried services; is that correct?

P. LE DREFF: That is correct.

L. GLUCK: And if we can go to D2-AMPCO-59, please. In this response, OPG discusses the activities it undertook to identify the buried services prior to the start of construction. And one of the cited activities was a review of site drawings and OPG notes that the buried services were not shown on the site drawings; is that right?

P. LE DREFF: That is correct.

L. GLUCK: And those site drawings would have been completed by OPG itself; is that correct?

P. LE DREFF: Yeah. Then Ontario Hydro at the time of construction.

L. GLUCK: Okay. Could we go to D2-AMPCO-62A, please. And this is with respect to the Darlington digital control project.

And my understanding is that in EB-2020-0290, the cost of that project was expected to be 77.5 million, and the current estimate is 156.4 million; is that right? I think it is in the question, those -- that is where I got those numbers from.

P. LE DREFF: That is correct.

L. GLUCK: And one of the reasons for the increased cost estimate is that there has been a 7-year project extension and additional contingency requirements; is that right?

P. LE DREFF: That is correct.

L. GLUCK: And in part B to the question, I think down a little bit on the page -- thank you -- OPG explains that the project has experienced challenges regarding specialized external resource availability. Do you see that?

P. LE DREFF: Yes, I do.

L. GLUCK: And could you explain that further, what is being referred to there?

P. LE DREFF: Yes. So these computers are of a

vintage of the early 1980s, and as a result, the modern industry with hardware and software has moved on many, many generations ago. And so as an industry, we have faced challenges with having that skill set available. You are talking about pretty antiquated hardware that no company offers as an off-the-shelf component.

It does involve, like, a small set of experts that have to do reverse engineering on the original equipment, and OPG has tried for several years to find more expertise. OPG is also investing in its own resources with additional staffing to be able to not just deliver these Darlington-specialized computer projects, but also the future Pickering projects.

L. GLUCK: Thank you.

And similarly, there is a discussion regarding unanticipated equipment failures, which has reduced the number of spares for critical components within the project scope. Can you discuss that as well? Is that similar?

P. LE DREFF: That is definitely similar in that the early estimating for the project was based on it is these boards that we need to reverse-engineer, update the design, find a manufacturer that can manufacture these boards. And so as the project continued to be scoped and evolved, then in the field, you had more failures that then expanded the

scale of what the project then needed to take on.

L. GLUCK: Thank you.

Can we go to D2-CCC-55, part C, please. I think it is -- oh, it is there. Thank you. In this response, OPG sets out the levelized cost of energy for each of the four unit DNNP, the PRP, and the recalculated LCOE for the substantially completed DRP. And my understanding when you say that it is the recalculated LCOE, it was based on a request I made to include the Darlington turbine rotor replacement project as part of that cost; am I understanding it correctly?

C. KEIZER: I don't know if we have the right IR up, do we?

L. GLUCK: Well, I was going to ask a question here, but I think the -- where the response is 45. I think you are right that we should look at CCC-45 first.

Should I ask the question again?

C. KEIZER: Yeah, that would be preferred, please.

L. GLUCK: Thank you.

So the LCOE for the substantially completed DRP inclusive of the -- in -- this calculation now includes the Darlington turbine rotor replacement project, the 9 cents per kilowatt hour; is that right?

J. BLAZANIN: That is my understanding, that it

included that extra cost in the calculation -- or that extra scope project.

L. GLUCK: Thank you.

And the recalculated DRP LCOE of 9 cents per kilowatt hour is shown in -- sorry -- 2015 dollars; is that correct?

J. BLAZANIN: I think we have to scroll back up, yeah.

C. KEIZER: Yeah.

J. BLAZANIN: It is in 2015 dollars restated back to the time of the release quality estimate for Darlington refurbishment.

L. GLUCK: Thank you. Thank you.

And if we could go to -- back to 55, CCC-55 C, please. Just trying to get the numbers on the same basis as each other. The other -- the DNNP and the Pickering refurbishment are using 2024 dollars; do you see that?

J. BLAZANIN: I do.

L. GLUCK: Thank you.

And I attempted to do the math, and I come up with -- if I were to convert the 9 cents per kilowatt hour in a 2015 value, moving it to a 2024 dollar value, using a CPI-based escalation rate, which is, I think, what you have used, I come up with $114.50 per megawatt hour; is that correct? Or could you undertake to provide the number in a -- on the basis of 2024 dollars?

C. KEIZER: I don't think that is -- I don't think that can be confirmed by this panel in terms of how you have calculated it.

L. GLUCK: Okay. So can you take an undertaking to provide the value in 2024 dollars?

C. KEIZER: No. We don't believe it is an appropriate calculation to do, that the proper reference amount back for DRP is the original RQE, based on the calculation we provided in the previous -- previous IR that you refused to -- referred to.

L. GLUCK: So can you explain how you -- just in terms of the methodology, how you deflate or inflate dollar values from year to year? Is it a CPI-based calculation? Is it GDP? IPI? It is just a percentage. Like, what percentage are you using and on what index is applied?

C. KEIZER: Sorry, Mr. Gluck. Can I just have a moment?

L. GLUCK: Sure.

C. KEIZER: Mr. Gluck, I mean, first of all, I don't think this is the right Panel to put that question to. So we would have to consider that further, but we believe that it is Panel 4.

L. GLUCK: Okay. That is fine.

C. KEIZER: Or the next panel. But -- so maybe what we could do is just clarify at the break as to which the appropriate Panel is, and then we can address that question. But at the same time, we may

reserve our right to refuse it, depending on the way in which the question is posed. But let's clarify at the break as to whether it is the next Panel or the Panel after that.

L. GLUCK: That is good. Thank you.

So my last -- this is my last question, but my colleague Mr. Buonarguro will have some questions as well. And I am not sure if this is the correct Panel.

I -- if we could go to F2-CCC-71, please. And my questions really relate to the rate framework and the stretch factor, but the nuclear benchmarking appears to be mapped to this panel, so I guess I will try here. Can we go to part L at Chart 5, please. And I want to make sure that I understand the table.

So the middle column titled "2025 study using 2021 to 2023 data," and when you include all four normalizations, so the bottom row in the table, is that the basis for the stretch factor in the nuclear rate-making framework?

C. KEIZER: I don't think the question relating to stretch factor is appropriate for this Panel. So it is -- it is Panel 4. This Panel can only address the benchmarking itself.

L. GLUCK: Okay. So if I have questions about this table -- most of my questions are about this table -- it should go to Panel 4?

C. KEIZER: If the question is related to the

benchmarking that was done, then this Panel can address the benchmarking. If your question is related to the stretch factor, then that is Panel 4.

L. GLUCK: Okay. Let me try one question here.

The far-right column, the 2025 study, 2022 to 2024, is that the most updated information -- the most up-to-date information that OPG has? And you have run -- because I understand that OPG provided the response to this question, not ScottMadden. So is this OPG running the ScottMadden normalizations to the 2022 to 2024 actual results for Darlington?

M. EL DEFRAWY: That is correct. This is OPG applying the ScottMadden methodology for 2022 to 2024, as requested in the IR.

L. GLUCK: Okay. And when you do that, you have done what ScottMadden does, not just in terms of the normalizations, but also the peer group; right? Like, you are -- you are sort of -- OPG itself is doing what ScottMadden did entirely in their study, which is the middle column is -- I understand the middle column represents ScottMadden's study. That is the results from it. And then you did the exact same thing that ScottMadden does but used an additional year of data?

M. EL DEFRAWY: That is correct. So we added an extra year, 2024; however, we removed 2021, as this is a three-year basis.

L. GLUCK: Okay. And so you would have used the

same starting point that they used for the full data set, which I understand is they go all the way back to 2006 in the data set. So you are using that as well?

M. EL DEFRAWY: So to clarify, what we do is we take the coefficients that ScottMadden has determined for the various drivers, such as technology, age, whatnot, based on the ScottMadden model, and those are applied as adjustments to the various TGC components.

L. GLUCK: Okay.

M. EL DEFRAWY: So this is -- maybe if I could just add, so overall, yes, that would include the 2006. So it is the same methodology and it is the same adjustments that are factored in for the 2021 to 2023.

L. GLUCK: Okay. Thank you.

And in A1-Staff-002, I don't know that we necessarily need to pull it up, but ScottMadden provided all the working papers that underpinned its study. Do you have the same calculations done for the '22 to 2024 version of the run?

M. EL DEFRAWY: So I am not entirely certain on that aspect.

L. GLUCK: Do you have working papers and calculations that show what you did?

M. EL DEFRAWY: We do, yes.

L. GLUCK: Can we -- can we undertake to provide

them?

M. EL DEFRAWY: Perhaps maybe prior, I will try to maybe offer up some additional clarification.

So overall for the '21 to 2023 values that are calculated via ScottMadden, these adjustments are then escalated to obtain the 2024 adjustments amounts and then escalated as well on a forward-looking basis. So it basically factors in the adjustments that are calculated based on the methodology and the model by ScottMadden and then applied for the forward-looking years, if that helps explain it. So it is really a function and a factor of escalating these adjustments that ScottMadden determined.

L. GLUCK: When you say, "escalating the adjustments," can you just help me a little bit?

M. EL DEFRAWY: So, for example, the technology adjustment, that 539 million.

L. GLUCK: Yeah.

M. EL DEFRAWY: If we want to determine what that would be in 2027, for example, we escalated that based on a 2 percent basis. So overall, that adjustment is just an escalation that is applied not only to OPG, but other industry as well, and that all goes into determining the various quartiles.

C. KEIZER: So rather than going down the technical road, is it helpful for you, Mr. Gluck, if we just show you the calculation that was done for the far-right column, 2022 to 2024?

L. GLUCK: Yeah, that would be helpful, but we want to see the -- sort of the live Excel spreadsheets that show how the calculation was done so we can follow along.

C. KEIZER: Yeah, I guess to the extent that we can provide those, we will; if we can't, we will explain why we can't. But effectively, the undertaking would be to show you the calculation was done -- how it was done so you could understand the basis of the calculation, sure.

L. GLUCK: Okay. Thank you.

M. MILLAR: Okay. That is JT-3.4. And it is to show the calculation for the right column there, the numbers for 2022 to -- the 2025 study for 2022 to 2024 for three-year TGC megawatt hour. Okay. JT-3.4.

L. GLUCK: I didn't hear in that -- are we getting the working papers, or really you are just going to give us an output?

C. KEIZER: I am giving you the basis of the calculation. I don't know if there is working papers. The witness already indicated he wasn't sure whether there were or were not. So I think we are indicating or demonstrating to you the calculation, how it was done, so you can understand the basis of how it was done so -- as you say, so you can follow along.

L. GLUCK: And if there are working papers, can

you provide them?

C. KEIZER: Well, that part I would have to take under advisement, given what they were and what the nature of those working papers were. But if we can provide them, we will; if we can't, we will explain why we can't.

L. GLUCK: Okay. Thank you.

UNDERTAKING JT-3.4: PROVIDE THE CALCULATION FOR THE 2025 STUDY FOR 2022 TO 2024 FOR THREE-YEAR TGC MEGAWATT HOUR AND PROVIDE WORKING PAPERS, IF POSSIBLE

L. GLUCK: And I have one related question, and it is an -- it is an -- I would like ScottMadden to take an undertaking, so I will just put it to this panel, and you can tell me it should go somewhere else.

So in F2-CCC-71, part B, if you go to the table, please, you will see that the coefficients for the model change quite significantly depending on the starting date of the data set, so whether you start in 2006 or 2009. And you can see that, like, as an example, using age as an example, it basically shows that if you use 2009 as the starting point, the age coefficient becomes negative, which implies that older stations actually cost less to operate than newer stations.

And if you use 2006, the number becomes positive, implying that older stations cost more to

operate. So there is a big change depending on what year you use to start the study, and I would like -- and I would like ScottMadden to undertake to explain why and what is driving that change to the coefficient.

C. KEIZER: Can I just have a moment?

L. GLUCK: Yes.

C. KEIZER: I guess only one caveat, because we are speaking on behalf of ScottMadden, and you are asking the undertaking from them, so to the extent -- subject to any comments or considerations from ScottMadden, then we will provide the undertaking on that basis.

L. GLUCK: Thank you.

M. MILLAR: That is JT-3.5.

UNDERTAKING JT-3.5: EXPLAIN WHY AND WHAT IS DRIVING THE CHANGE TO THE AGE COEFFICIENT DEPENDING ON STARTING YEAR IN F2-CCC-71, PART B

L. GLUCK: Okay. Those are my questions. Mr. Buonarguro has some questions as well.

M. MILLAR: Thank you, Mr. Gluck. We are actually pretty close to a break time. So, Mr. Buonarguro, is it okay if we take our morning break? Okay. Let's come back in 15 minutes at 11:10.

--- Upon recessing at 10:55 a.m.

--- Upon resuming at 11:13 a.m.

M. MILLAR: Charles, any preliminary matters?

C. KEIZER: I have one preliminary matter.

M. MILLAR: Okay.

PRELIMINARY MATTERS

C. KEIZER: Actually, could I ask -- Mr. Blazanin, he is going to make some clarification with respect to an exchange that took place relating to CCC-41, I believe.

J. BLAZANIN: Yes. I don't know if we need to call -- should we call up the -- I don't think we are on.

M. MILLAR: Okay. There we go.

J. BLAZANIN: Yeah, so CCC-41, I think it is part D, the reference, we were having an exchange about these projects, and when they come into service, are they for refurbishment.

The timing of these assets coming into service is timed such anticipating Unit 5 will be operational returned to service, which is May 2031 in [indiscernible] date. Anticipating potentially that these units could come in a little bit sooner or otherwise, these assets are timed to be able to be tested and commissioned well in advance and be useful for operational purposes, and so that is why some of the timing for most of these is related to that.

So I just wanted to make that clarification. It seemed to me that it was a discussion around they need to be available when Unit 5 returns on service, at that point in time, but they have to be ready in advance. I just want to make that clear distinction

there. Okay. Thank you.

M. MILLAR: Okay. I think we can turn now to Mr. Buonarguro.

EXAMINATION BY M. BUONARGURO:

M. BUONARGURO: Good morning. My name is Michael Buonarguro. I am counsel with the CCC. I don't have a lot, but there are some questions I just have to ask because I am just too interested. If we could start with Exhibit C2, Tab 1, Schedule 1, page 30.

I am waiting for it to pop up on the screen.

C. KEIZER: Yeah, I don't think the witnesses necessarily would have that because I think it is a cost of capital --

M. BUONARGURO: It is decommissioning costs.

C. KEIZER: I think this -- if it is getting into the nature of decommissioning, that would be Panel 4 but --

M. BUONARGURO: Well, if I can ask the question and then if --

C. KEIZER: Yeah.

M. BUONARGURO: -- it seemed to me it was -- the reason I am asking is because of some of the discussion yesterday that made me think of this, so I thought I would ask. It has to do with the heavy water.

If you see at the top of the page, it explains that -- and I will summarize. It explains since

units 1 and 4 at Pickering were decommissioned, the heavy water from those units has been transferred to the D20 facility and used in various ways. Do you see that?

K. CAREW: Just a moment. I am looking for it on my own screen. Is it page 30?

C. KEIZER: I think you are around line 1 to --

M. BUONARGURO: Page --

C. KEIZER: -- 1 to 4. Is that where you are, Mr. Buonarguro?

M. BUONARGURO: Yeah. The top paragraph summarizes the entire thing.

K. CAREW: I see it.

M. BUONARGURO: So my question is, my understanding is that the plan or what actually happened, which is take that water after decommissioning and -- and put it in the -- or store it in the D20 facility, my understanding is that that not -- is not necessarily what was planned originally. That is something that happened recently.

So I am trying to understand or I would like to understand what -- what did OPG assume was going to happen with the heavy water from decommissioned units 1 and 4 from Pickering as part of the ONFA funding -- so when ONFA is figuring out what they are going to do on decommissioning, what was assumed in that plan versus what is happening now?

C. KEIZER: I don't think that is for this panel, Mr. Buonarguro.

M. BUONARGURO: Okay. I can -- it sounds like I can ask Panel 4?

C. KEIZER: You can give it a try, yeah.

M. BUONARGURO: Thank you.

If we can go to Exhibit L, F2-CCC-76. And at part B, what I asked was, the first part of the question:

> "Please confirm that the scope and timing of outages and cyclical maintenance included in this category of cost are defined regulatory requirements --" (as read)

Talking about outages:

> "-- and that neither the scope nor the timing of either can be changed without regulatory approval." (as read)

And then what -- the answer that I got was:

> "Partially confirmed. A portion of the scope of each outage and the timing of each outage is defined by regulatory requirements, and the remaining portion of the scope of each outage is within OPG's discretion. As discussed in part A, outage timing is defined by regulatory requirements for preventative maintenance and inspections and requires regulatory approval to change. This typically represents 40 to 60 percent of each outage's scope; the remainder

is comprised of additional preventative maintenance, corrective maintenance, and projects to sustain and improve plant reliability." (as read)

And so when I read that in the context of the questions I was asking, it sounded like this -- and I will use the 2027 planned VBO outage as an example.

It sounds like from this answer any time we do an outage, there is a regulatory requirement. So in this case, a VBO in 2027 that is driving the timing, and we have do it in 2027 in this case. And then we layer on other requirements which may extend the outage, but we all do it all at once. So there is an initial required outage, and then we tag things onto that. And it seemed to be describing that to be the case in every time you do an outage.

So that is how I read that answer, but I don't think that is precisely true, so I wanted you to -- to give you my understanding of the answer, and then maybe you can help me understand whether that is true or whether it is slightly different than that.

K. CAREW: So as stated in part "Bravo" about the question being partially confirmed, the outage frequency is tied to license requirements, and many of those license requirements will be inspections and preventative maintenance that are required to important station systems, tied to the license. So that is 100 percent true and informs how we schedule

our outages and the major scope that goes into them that are licensed requirements.

We typically will set that particular scope as that bounding critical path. And we also look for those opportunities -- because there will be other important works that would impact production versus, I will say, nuclear safety, those production works are sought to fit within the scope of the licensed requirements.

Now, in the upcoming rate period, there are important works there, like the primary moisture separator work, that is significantly longer and will be tied to a fitness for service for the boilers in the upcoming case, for which there are license requirements as well. So in that case, you see that significant work impacting that outage schedule.

But barring something like that, you will find the normal suite of work such as pressure tube, feeder inspections, et cetera, become the bounding scope of an outage, and the remaining works that are not that licensed requirement work fit within the time frames.

M. BUONARGURO: Thank you.

From that answer, it sounds like I so far got it right for the most part. Most of the time, you have a planned outage, which is timed because of regulatory requirements, and then you will build out the scope of that outage to do other work that you

need to do at the same time?

K. CAREW: Yes. But I would like to make the distinction that we don't build out the scope to extend the length of time.

M. BUONARGURO: So let's use the 2027 as an example because it is -- there is three things going on in the -- at least that I understand it, there is three things going on with that with respect to Unit 2 at least. There is the VBO; correct? The vacuum building outage that has to be done on a 36-month cycle?

K. CAREW: Vacuum building outages are on 12-year cycle.

M. BUONARGURO: Sorry. 12-year cycle, so -- but that is -- the reason that is in 2027 is because that is the 12th year?

K. CAREW: Correct.

M. BUONARGURO: Okay. So you have to do that one. You mentioned the PMO, I think is what you called it. What is it -- well, what is the other part -- what are the other parts of that outage that are happening at Darlington Unit 2?

K. CAREW: On Unit 2?

M. BUONARGURO: Yes.

K. CAREW: Unit 2 has a normally-scheduled outage that is running concurrent with the vacuum building outage and, as stated in our evidence, allows us to only actually shut down three units

because the Unit 2 outage, also at its normally scheduled time, is running concurrent with the vacuum building.

M. BUONARGURO: So what is that -- tell me more about the normally occurring outage that you are talking about. I think you already -- what did you call it before?

K. CAREW: So in 2027, Unit 2 has a planned outage for which we are executing two major scopes of work also in our evidence. One is the primary moisture separators.

M. BUONARGURO: That is it.

K. CAREW: And the other is the turbine controls upgrade.

M. BUONARGURO: Right. For the primary moisture separators work, is the timing of that dictated by regulatory requirements? Does it have to be in 2027?

K. CAREW: The primary moisture separator work is scheduled in 2027. Associated with the fitness for service condition for the boilers on Unit 2, our inspections conducted, following, I will say, awareness of the degradation on the boilers revealed that we did need to act, and we have scheduled it in 2027 to reduce the risk on operations and safety for the Unit 2 steam generators.

M. BUONARGURO: Thank you.

But it is not the same as the VBO? The VBO, you have to do every 12th year. The PMO is more

circumstantial. We have discovered a circumstance we have to deal with, and we are going to plan -- you, OPG, are going to propose to plan it for 2027 for various reasons including, presumably, the fact that you can overlap it with the VBO; is that fair?

K. CAREW: So the Unit 2 outage in 2027, I would just like to state, is also the licensed mandated time frame of 36 months, and the condition of the primary moisture separators as revealed during our inspections does drive the need to perform that work.

And during every outage, every full scope outage that is scheduled, we are required to perform fitness for service assessments which are submitted to the CNSC for their acceptance, which provides approval for the continued operation of those steam generators.

M. BUONARGURO: I think what you are telling me is that the revealing of the condition with respect to the PM -- and I keep forgetting -- PM -- primary moisture separators fits within this 36-month cycle? It is related to the 36-month inspection cycle?

K. CAREW: That is not what I said.

M. BUONARGURO: Fair enough.

K. CAREW: I said the 2027 outage --

M. BUONARGURO: Yeah.

K. CAREW: -- needs to occur. It is a normally-scheduled, licensed-required 36-month frequency outage.

M. BUONARGURO: Okay.

K. CAREW: During that outage, we will conduct the primary moisture separator replacement work as the degradation discovered previously provided us the information to know that we have that need.

Following any outage we do, all of our -- all of our boiler inspections are required to be -- I will say we analyze them, and we provide a fitness for service declaration to the CNSC. The condition of primary moisture separators will be part of that. And given what we know about its degradation, we need to perform that work so that we are in a position to demonstrate fitness for service of the Unit 2 steam generators.

M. BUONARGURO: Okay. So currently, the primary moisture separator work is scheduled for 2027. The CNSC, I presume, knows about it and is now requiring you do it; is that the right way to put it?

K. CAREW: No, that is not the correct way to put it. I can assure you the CNSC is well aware of it.

M. BUONARGURO: Sure.

K. CAREW: And we do have fitness for service. It is a time bound thing. So we do have fitness for service supporting our safe operations at this time, but we need to address the degradation mechanism. We cannot wait until it degrades to such a point that it causes an event. And so to make sure that we can

demonstrate fitness for service following the next scheduled outage, we need to perform the project to replace them.

C. KEIZER: Sorry. Maybe I can -- can you just clarify the reason for the 36-month regulatory outage? Because it is not the moisture separators that are causing it, but is that -- and maybe that is the point of confusion.

K. CAREW: That is correct. The 36-month frequency is not tied to primary moisture separators. It is tied to other component assessments, and there will be various pieces of equipment including relief valves, obviously pressure tubes, feeders, many of those pieces of equipment that drive the frequency of our outages.

M. BUONARGURO: Okay.

Okay. So there is a third part to the outage in 2027 for Unit 2, which is the turbine control and auxiliary systems upgrade; is that right?

K. CAREW: That is correct.

M. BUONARGURO: Now, that is the -- that is the outage that was -- sorry -- that was the work that was originally scheduled for 2025?

K. CAREW: Correct.

M. BUONARGURO: And maybe that is a good example to try and clarify the difference between what is happening in 2027 and 2025. Because in 2025, that was -- there was an outage planned for just that, as

I understand it?

K. CAREW: That is not correct.

M. BUONARGURO: Okay. I am not banding very well here, but I am learning, so thank you. Maybe you can explain why I am wrong on that.

K. CAREW: We will -- we do not schedule our outages solely for the execution of a project; it is, in fact, the opposite, where we can. Unless there was a situation that actually forced you to shut a reactor down for safety reasons, we will schedule our projects during normal scheduled outages.

M. BUONARGURO: So maybe you can help me. What was the normally scheduled outage that -- in 2025 that wasn't driven by the turbine control upgrade?

K. CAREW: So the Unit 2 2025 outage was moved to 2024 and executed at that time.

M. BUONARGURO: Sorry. So there is the turbine control and auxiliary systems upgrade work which was scheduled for 2025. I think you are telling me originally there was a separate required outage in 2025 that was going to be used or combined with the upgrade work. The upgrade work was moved to 2027, and the work that it had been tied to in 2025 was moved up to 2024? You have nodded, but yes? Sure.

K. CAREW: Yeah, I will correct your premise there.

M. BUONARGURO: Sure.

K. CAREW: So we did move the outage to 2024,

including the turbine controls work; however, in reviewing resources, grid constraints, and concerns with the execution of the TG controls at that time, we then made the decision to execute the Unit 2 outage in 2024 and move the turbine controls upgrade project to 2027.

M. BUONARGURO: Was there another Unit 2 outage in 2024, or does this become the only one in 2024?

K. CAREW: So let's pull up E2-SEC-141, Attachment 1. So if we scroll down to the 2024/2025 time frames, you will see the Unit 2 planned outage 2521 did not occur in 2025, but 2421 occurred in 2024.

M. BUONARGURO: Okay. So in 2025, the original planned outage was 182, 182 days; right?

K. CAREW: That is correct.

M. BUONARGURO: And that encompassed the upgrade work, the controls upgrade work; right?

K. CAREW: That is correct.

M. BUONARGURO: And something else. Can you tell me what the "something else" was? We haven't talked about it yet, so I don't know.

K. CAREW: Okay. So the "something else" in a Unit 2 outage is the normally scheduled suite of work such as pressure tube inspections, various relief valve replacements, and other equipment reliability work required to be performed.

M. BUONARGURO: Is that the 36-month cycle?

K. CAREW: Correct.

M. BUONARGURO: And so you took the 36-month cycle that was originally planned for 2025, and you moved it up to something like 24 months-ish, depending on exactly when it was done in 2024?

K. CAREW: So I will work backwards from 2027 --

M. BUONARGURO: Sure.

K. CAREW: -- which is the 36-month frequency from the 2024 outage. You will note on the chart that we did take an outage on Unit 2, a shorter outage in 2022. That work was -- allowed us to perform bridging activities for a few things -- a couple of things; one would be the preventative maintenance work that I mentioned that is requirements for our license; and the other is mitigation work for the turbine control system to make sure that it could be reliable without having performed the turbine controls upgrade. With the -- with the taking the brief outage in 2022, that did allow us to not have a 2023 outage.

M. BUONARGURO: Sorry. Can I interrupt you just for a sec. The 2023 outage would have been the normal 36-month cycle?

K. CAREW: Following the return to service --

M. BUONARGURO: Okay.

K. CAREW: -- of Unit 2 from its refurbishment.

M. BUONARGURO: Okay. So Unit 2 comes into service. 36 months would have been 2023?

K. CAREW: Correct.

M. BUONARGURO: Would have done an outage there. Coincidentally, or for obviously good reasons, you did an outage in 2022 for the reasons you described to me. That allowed you to avoid the 2023 maintenance outage; I have it right so far?

K. CAREW: That is correct.

M. BUONARGURO: Now, to avoid the 2023 outage, did you need CNSC approval?

K. CAREW: I do not have the specific details at my fingertips on CNSC correspondence at that time.

M. BUONARGURO: I ask because my understanding is that you have a 36-month cycle that you have to adhere to unless the CNSC tells you you don't need to. I am assuming there would have been some sort of approval. Perhaps you can take an undertaking just to explain what happened that allowed that 36 cycle to go from '23 to -- to go from '23 to '24 in this case originally; right?

C. KEIZER: That is fine. To the extent we can, yes.

M. BUONARGURO: Thank you.

M. MILLAR: That is JT-3.6.

UNDERTAKING JT-3.6: EXPLAIN WHAT HAPPENED THAT ALLOWED THE 36-MONTH CYCLE TO GO FROM '23 TO '24 IN THIS CASE ORIGINALLY

M. BUONARGURO: I am not trying to recap the story. So there was a '23 maintenance cycle outage

for Unit 2. Because there was a somewhat similar cycle done or outage done in 2022, you were able to push to '24 -- or to '25, I should say.

Then leaning in presumably sometime in '22 or '23, you decided to move the '25 maintenance cycle up a year to '24 and take the upgrade that was supposed to be in '25 and push it back to '27; do I have that all right? I think so.

K. CAREW: That is correct.

M. BUONARGURO: Okay.

And in terms of dates, the original '25 outage was planned for 182 days, according to the chart on the screen?

K. CAREW: That is correct.

M. BUONARGURO: And when you split it between a 36-month cycle maintenance outage that was being done early compared to what you had just planned in 2024, that was only 86.5 days?

K. CAREW: We did complete the Unit 2 outage in 2024 in 86 and a half days.

M. BUONARGURO: Right. But it would have been planned for something around that?

K. CAREW: I do not have the details of the plan --

M. BUONARGURO: Okay.

K. CAREW: -- that we had for that outage handy.

M. BUONARGURO: Perhaps you can -- well, I know, for example, the 182 days that was planned for 2025

included both scopes of the outage, the upgrade and the 36-month maintenance; right?

K. CAREW: Correct. The full-scope outage.

M. BUONARGURO: And when I asked at -- when I asked at E2-CCC-65, part A, I asked, what was the value -- incremental generation value associated with moving the upgrade from '25 to '27, and the answer was 179.5 million.

Presumably, you were able to attribute some level of that 186.5 original planned outage to the upgrade, and so -- or did you happen to capture the entire value? I don't know how the calculation was done so...

M. EL DEFRAWY: So overall, the 179.5 million, that reflects the shortened duration of the 2024 outage, as well as removal of the TG contingency that we had planned for 20 days in EB-2020, as well as inclusion of any losses we may have encountered from '24 onwards.

M. BUONARGURO: Okay.

So that is -- you took the original 186.5 days outage, you deducted from that the 86.5 for the maintenance, which was an actual number. That is what actually happened in 2023 -- '4. I should say '4. And you also deducted the 20-day contingent planned outage that you might have done on the upgrade had it been done in 2025, plus some other things?

M. EL DEFRAWY: Sorry. Plus -- plus what?

M. BUONARGURO: Plus the other things you are talking about. You said contingent losses, something --

M. EL DEFRAWY: Plus other losses, correct.

M. BUONARGURO: Yes, right. Okay. Thank you.

Last question on this. When you have been talking about moving the upgrade outage from 2025 to 2027, you mentioned a few times, and it is in the answers, to support grid reliability and manage resource constraints. You never mentioned the fact that there was incremental revenue associated with that to the tune of $179.5 million. Are you -- am I incorrect that that would have some role in the decisionmaking?

K. CAREW: I would say you are incorrect that the individuals who were executing this work and planning this work were thinking of the revenue impact that, I would say, the bias of station staff would be to implement this upgrade, given the challenges we have with operations. So the preference of station staff would be to execute the project.

M. BUONARGURO: I see. So from an operational perspective, you would have preferred to do it in 2025 as opposed to 2027?

K. CAREW: Personally -- I will speak for myself -- I would have preferred to have an upgraded system,

correct.

M. BUONARGURO: Thank you. Those are my questions.

T. EMINOWICZ: Sorry. This exchange just kind of confused what I thought I understood from yesterday. So may I please follow up? Thank you.

So my first question is on this idea of moving what I understand to be kind of the regulatory requirements from the D2521 outage to 2024, when -- approximately when would OPG have made that decision to advance that work to 2024?

K. CAREW: I don't have the details of exactly when the decision was made.

T. EMINOWICZ: But, like, generally, would it have been in 2024, 2023, just on the basis of previous discussions about scope freeze, milestones? I am just looking for, like, a year.

K. CAREW: Yeah, I would prefer not to generalize.

T. EMINOWICZ: That is fair. Thank you.

So my other question relates to what is on the screen, so just to avoid going back and forth. In the first sentence of the response to part A, it states that the Unit 2 outage would have been -- the Unit 2, 2027 outage would have been 15 days shorter, and the sentence is quite specific to the turbine control and auxiliary systems upgrade.

And so yesterday I had tried to understand about

kind of all potential work that could have moved between outages, and I -- from what I recall, I was pointed to these 15 days.

If we could please just go back to the SEC -- I think it was 141, just the previous table we were looking at. Yes, this one. I don't even think you need to scroll. So I see a D2321 planned outage for Unit 2 that looks like it is a reduction of 82 outage days. I see the D2421 that is an addition of 86 outage days and a D2521 that is effectively a reduction of 182 days. So without getting hung up on the exact math, like, where did those outage days go? Like, there has been a net reduction over three years, so where did those outage days -- like, the work that would have driven those outage days, where did they go?

C. KEIZER: It may be that rather than trying to -- oh, sorry.

K. CAREW: So your question is where did the scope go from Unit 2?

T. EMINOWICZ: Yeah, just generally, I see what looks to be about 180 days' worth of work on Unit 2 that did not occur across 3 years. And yesterday when I was trying to understand the migration of scope that could have gone into the 2027 outage, I had understood that there was no additional kind of outage days due to previous work. So it looks like a lot of work was deferred or cancelled, and I just

wanted to confirm what generally -- generally what happened to that work.

K. CAREW: Yeah, I can clarify yesterday's comments for you in the context of the 2027 upcoming outage. The 2027 upcoming outage includes all four steam generators' primary moisture separator replacements. Those replacements were not part of these plans from the 2020 -- EB-2020. So that work is happening in 2027. The length of that work is 360 days approximate -- or slightly less, and that is in our evidence as well. And the turbine generator work is the scope of work that has moved into 2027, for which there is an impact of 15 days.

Any other work from Unit 2 that would be normally scheduled routine work will fit within the duration of the primary moisture separator work of the 350-plus days.

So additionally, the normally-scheduled outage in 2024 occurred and performed the works that are typically performed during our outages such as regulatory PMs, preventative maintenance, as I have mentioned.

The work that we will perform in 2027 will be the next iteration of performing preventative maintenance coupled with the two projects, as I have mentioned, so the primary moisture separator work and the turbine generator work. So there is no other works that are pushing the length of the 2027 outage.

T. EMINOWICZ: Thank you.

I think I am starting to understand the nuance. So then, again, generally, all this work that was planned over the three years that, in this table, was approximately 180 days, there is some portion -- there is a portion of that work that fits within the window of what is now planned in 2027?

K. CAREW: The portion of the turbine generator controls upgrade project that will be executed with the turbine offline, such as pulling all the wires, installing the cabinets, et cetera, and the static commissioning that -- where we test all of the systems before we actually input energy into the turbine, that will all fit within the primary moisture separator duration. And the only portion that extends that outage is the online testing and commissioning that we perform of the turbine controls upgrade system, which is the 15 days.

T. EMINOWICZ: Yes. I am sorry, I am very self-conscious about how much time I am taking here. But I am not trying to ask specifically about, like, the turbine and the moisture. I am asking in general, there was 180 days' worth of work over three years. I just --

C. KEIZER: Maybe what we should do is take it as an undertaking because we have taken a few runs at it already. So maybe you can state your question, then we can take it as an undertaking to clarify.

T. EMINOWICZ: I would like to have an understanding of what appears to be about 180 days of outage work on Unit 2 from 2023 to 2025 that was not performed, and I would like to know how much of that work was -- is now in a 2027 Unit 2 outage.

K. CAREW: Can I just clarify. In the outage or extending the timeline of an outage?

T. EMINOWICZ: In. So from my perspective, ratepayers paid, in some sense, for work to be done -- about 180 days' worth of work to be done, and it was not done, based on what I see on this table. And I would like to know how much of that conceptually is in the 2027 Unit 2 outage.

C. KEIZER: All right. We can take the undertaking.

M. MILLAR: It is JT-3.7.

UNDERTAKING JT-3.7: ADVISE HOW MUCH OF THE 180 DAYS OF UNIT 2 OUTAGE WORK ORIGINALLY SCHEDULED TO HAPPEN IN 2023 TO 2025 IS NOW IN A 2027 UNIT 2 OUTAGE

M. MILLAR: Ms. Grice, can you take us for about 10 minutes or so? Is that okay? 10 or 15 minutes.

S. GRICE: I can if you help me just mark that time. Okay. Thanks.

EXAMINATION BY S. GRICE:

S. GRICE: Good morning. My name is Shelley Grice, and I am the consultant for AMPCO. Okay. I just have a few questions.

The first question I have is D2-AMPCO-29. Thank you. So in this question, we asked OPG to provide project closeout reports for projects that were in D2-1-3, Table 1A

And in the response, you provide the project closeout reports, and there is just one thing that I am just interested in. You referred to level A projects, level B projects. I wondered if you could just -- if you could characterize what the difference is between level A and level B projects and if there are any other levels to be aware of and what they mean.

J. BLAZANIN: In our project governance, when we establish the project management office and all of our project controls, project management governance, we recognize that if you apply the same level of detail to every type of project, it might be -- start to become very bureaucratic, if you will.

So we took a graded approach to the project management governance and defined what was required for the different levels, if you will, A through D. We also have a category of strategic projects which are programs, typically a refurbishment, Pickering refurbishment, Darlington refurbishment, or anything major of that scale.

Category A projects are more significant projects, they are more complex, longer in duration, the dollar value attributable to them.

Category B requires the same level of discipline and rigour in many cases, but maybe to a slightly lesser extent.

A Category D project, for example, might be a $2 million or a million dollar project. It could be a simple, straightforward project like we have to repave a parking lot or something. We are not going to apply all of the -- get a basis of estimate, basis of schedule, all of that associated with it. It is not necessary.

So we apply a graded approach to guide project managers in terms of what they are required to do to effectively manage those projects.

S. GRICE: Okay, that is very helpful. Thank you.

Okay. My next question is AMPCO-30. So in this question, we asked for OPG to complete an Excel spreadsheet, and you have attached it in the PDF. Now, it may be me, but I couldn't find the Excel on WebDrawer.

C. KEIZER: Maybe that is something that we can check on, Ms. Grice, and get back to you about whether it should or shouldn't be there or...

S. GRICE: Okay. That would be great. And it may be me, and I apologize, but I couldn't find it.

C. KEIZER: Sorry. Could you just give us the IR again.

S. GRICE: Sure. It is D2-AMPCO-30.

C. KEIZER: AMPCO-30. Thank you.

S. GRICE: Okay. Thank you.

M. MILLAR: So is this an undertaking to look into that, or is this something you will come back after the break?

C. KEIZER: I mean, I think we can try to do this, you know, over the lunch break.

On the lunch break, Mr. Millar, I know we just kind of resumed, and we have had a few kind of extensions of time on some things. I don't know if it helps the schedule if we go until -- you know, subject to the Panel and whether they give me the evil eye, whether we go to 12:45 or not. I don't know. I don't know if it helps or hinders the efficiency of the matter.

M. MILLAR: We will be taking our -- we will be taking a lunch break at one point. I think we have it marked for around 12:15. I am fine for -- I actually don't care that much. I am not sure it adds a bunch of time to the day either way.

M. BUONARGURO: You still have SEC after AMPCO, so --

C. KEIZER: Okay.

M. BUONARGURO: -- doesn't matter when we take --

C. KEIZER: Doesn't matter. Okay.

M. MILLAR: Yeah. We won't finish this Panel before lunch, unfortunately, if that is what you were

--

C. KEIZER: All right. We will have to take Mr. Rubenstein on with a full stomach, then.

M. MILLAR: Okay. Let's carry on. Ms. Grice, I actually noticed now our lunch break was for around 12:15, so you have still got another 15 minutes.

S. GRICE: Okay. Maybe I will be done.

M. MILLAR: Oh. There we go.

S. GRICE: AMPCO-33, please. Okay. In this question, we asked for OPG to provide change control forms for project variances greater than 10 percent. And I just have a question with respect to Attachment 12, which is where OPG provided your updated project control document. If we can go to page 10 of that document, please.

So it says at 2.2.16 that:

> "For complex changes, the review may include an assessment of the alternatives that were considered and why the option was selected." (as read)

So I just wanted to understand. If that scenario were to occur, would a change control form be used for that situation? Or would it be some other document?

J. BLAZANIN: I guess you have to look at the scale of the project, the scale of the change and -- in concert with the complexities of what is being addressed, right. So this is intended to be a guide.

It all depends on the scale. So below there, we talk about greater than a million dollars as well. And so it all depends in terms of whether this is needed exactly or not.

S. GRICE: Okay. So if it was a level A project, and the review required an assessment of the option that was selected, would you do that in a change control form, or do you do it -- is it significantly an issue of magnitude that it requires some other process?

J. BLAZANIN: Typically, the governance, as it is stated here, we would look for a change control form to support the decision to change. Depending on the scale of it, we may bring that change to a project management oversight committee for review and challenge before it gets implemented, et cetera. So that is how we would manage these types of changes.

S. GRICE: Okay. So just overlaying that on top of the change control forms that were provided in this interrogatory, am I to take it from that that none of the projects on Tables -- I think it was 1A and 1B, then had this situation where a review of the option was required?

J. BLAZANIN: The way I would characterize a lot of these projects, the change was something that was addressed at a project management oversight committee [indiscernible] identified and that we need to proceed on a certain basis to address the problem.

That would have then ultimately been documented in a change control form and processed to ensure that everything was documented.

In a lot of these cases, there are no other alternatives but to proceed, and so that is where that discussion happens in terms of what is the impact, what are the options, just to validate that that is correct, that the path forward -- the one being identified -- is the right one. And then we move forward on that basis.

S. GRICE: Okay. Okay. Thank you.

My next question is AMPCO-34. So we asked a similar question in Panel Number 1 with respect to the same types of projects with -- under hydroelectric. And so Tables 2A to 2G that are referenced in the question refer to projects that are 10 million to 30 million. And when we look at the spreadsheet that was provided with AMPCO-34, there are a few projects that have cost overruns.

And so my question is we have limited information on the record with respect to those projects, so would OPG be willing, as it was in the hydroelectric panel under JT-2.9, to provide any business cases, superseding business cases, project over variances, project control forms, and post implementation reviews for those projects that have cost overruns greater than 20 percent?

C. KEIZER: Can I just have a moment?

J. BLAZANIN: I have to refamiliarize myself with this table. I can't recall how many projects are on this list.

C. KEIZER: Sorry. And just to clarify, it is only for those with variances of what? Sorry.

S. GRICE: Of greater than 20 percent.

C. KEIZER: Greater than 20 percent. So I am just looking at the total number of projects here. But I think what you are saying is we might have something less than what is on the Excel spreadsheet.

J. BLAZANIN: Yeah. I presume it is something less that is on -- that is on -- than is on this list. So we would have to take it back and look at the level of effort it would take to do what you are asking. And so can you clarify again all the documentation that you want to support this response?

S. GRICE: Okay. So it is only for projects where the cost variance is greater than 20 percent. And then --

J. BLAZANIN: From the original execution business case?

S. GRICE: Yes, the original execution business case. And then any project over variance reports, superseding business cases, project control -- or sorry, project control reports, and post-implementation review reports.

J. BLAZANIN: Okay. I don't know about the project control reports, what specifically you are

asking for there --

S. GRICE: Sorry --

J. BLAZANIN: -- we have all kinds of different reports --

S. GRICE: Sorry. Closeout -- I am sorry. Project closeout reports.

J. BLAZANIN: Closeout reports? Okay. And then post-implementation review will depend on the timing of when that PIR needed to be done, so if it -- depending on the timing of these projects, it may not even be available yet.

S. GRICE: Correct, yes.

J. BLAZANIN: And some of these projects may not require a PIR. But to the extent we can, we will take this back and let you know what is involved.

C. KEIZER: Yes.

S. GRICE: And then -- and just one last thing is it is just -- and I am looking for stuff that is not already on the record. Like, if someone has obviously asked a question about this, and you produced any of these documents, then -- so it is incremental to that. And maybe I have just confused the issue.

C. KEIZER: I think we have what you are asking for, and so let us take it at lunch, and then we will be able to come back and advise you after lunch. Is that fine, Ms. Grice?

S. GRICE: Okay. That is fine.

M. MILLAR: Okay. So you are not giving an undertaking at this point? This will be a --

C. KEIZER: No. Just in case there is some kind of modification we have to suggest to it. But -- just given the number of projects that are here.

S. GRICE: Okay. Thank you.

Okay. I just have a quick project question on AMPCO-45. So this was with respect to Project 87808, Darlington SmartOps sensor integration project. And I apologize, I made an error in part A of the question. I was looking for the total number of sensors, but I assume based on the response to part B -- or, sorry, part A that the total number of sensors being installed in this project is 2,994, that there are thousands of sensors in Darlington; is that -- am I assuming that correctly?

P. LE DREFF: That is correct. The 2,994 was referring specifically to the number being installed by Project 87808.

S. GRICE: Okay.

And then you say in part C that -- if you look at Tab 50, that there are three other ongoing sensor projects at Darlington right now, and I found two, and I am sorry I can't locate the third. If you could -- maybe this is an undertaking -- just list the other sensor projects that are being undertaken right now.

P. LE DREFF: Can we see Attachment 1, Tab 50.

S. GRICE: Sure. Sure. So I believe it is in the second paragraph there. There is a reference to Project 83828 and then 83 -- 87342. I just couldn't find the third project.

P. LE DREFF: Okay. I believe that is something that we can take back.

M. MILLAR: That is JT-3.8.

UNDERTAKING JT-3.8: ADVISE OF THE OTHER SENSOR PROJECT THAT IS CURRENTLY BEING UNDERTAKEN

S. GRICE: Okay.

Then I just have a general question about this kind of work. So this is -- obviously, this project has a business case, and it is in your investment plan. If this was an unallocated project, is this the type of project that OPG could safely defer? Like, if you -- if OPG had a cash flow crunch and you couldn't do everything, could you defer a project like this?

P. LE DREFF: I think short answer is yes; however, what this is supporting is overall reliability and modernization of the plant. So at Darlington, we are supported by an OPG monitoring and diagnostic centre, and what these sensors allow you to do is -- using various technology, software technologies and so on -- is aim to predict when parts are more -- like, components are more susceptible to failure and also help predict what the optimum maintenance intervals need to be.

And so I would suggest deferring that, you are just increasing the risk to the plant, and this is part of a global trend to -- from a modernization point of view, of making more -- making more, say, like, smart plants. You have instrumented all of your equipment to the extent possible to be able to improve its reliability.

S. GRICE: Okay. Okay. Thank you.

AMPCO-50, please. So this question -- we just asked you a few questions about Project Number 89281, which is the Darlington Unit 1 and Unit 2 generator stator rewind project. I don't actually have questions on the interrogatory, but there is just one -- there is just one reference that you -- sorry.

When -- in the responses, you -- we asked for -- I am sorry. I just -- I am a little lost in my notes. Will you give me one second. Pardon me. Pardon me. I am back. Okay.

Part B, you provide -- because we were asking about the basis of the estimate of the project, and you say that you provide the basis of estimate document supporting the BCS in Attachment 1. So I wondered -- I just had a question. I am just -- I want to flip over to the Pickering refurb. I just couldn't find this on the evidence, but did you -- did you file or have you filed a basis of estimate document for Pickering?

J. BLAZANIN: We did file a basis of estimate

document and basis of schedule document.

S. GRICE: Okay. Okay. Thank you. I just wanted to double-check. Okay. Thank you.

Okay. This is my last question, and it is on AMPCO-58. So in part A of the response where we talked about projects that have a planned execution window to undertake the work, you reference a document here. It is a planned outage management document. What is in that document? Can you just describe what that document is saying and what it does.

P. LE DREFF: So in PROC-MA-13 planned outage management sets out -- it is primarily milestone-driven, working backwards from the time of execution of a major outage. And the way to think about it, we typically start with what is called a T-minus 24 milestone, which is 24 months ahead of the planned outage start date, and that lays out major scopes.

You then advance to -- I am just providing you some of the flavour of some of the milestones in the document -- to a T-minus 12 milestone where you have essentially locked in the scope. And then you have a -- within those 24 months, a whole set of milestones around procedures are ready, materials are on site, resources are confirmed, contracts in place, et cetera. And so it is a -- call it, like, a runway, a roadmap that we can use repeatedly to plan outages.

S. GRICE: Okay. Okay. That is great. Thanks.

And then I just have a couple questions on part B, which is where we asked you to list projects where the execution window was unavailable when required and to quantify the impact. So you list in the response 5 projects there, and the range of costs is from 1.7 million to 35.8 million. And I just added up the -- and it is a total of about 60 million.

So I just wanted to understand, like, what happens when you are managing a project and then the execution window is unavailable? Is the project paused? Do you reallocate resources? I just wanted to understand, sort of in the life of the project, what happens.

P. LE DREFF: I would say there is a pretty wide range of possibilities there. From a tiered approach in terms of who is involved in a project, you have OPG, project management resources, PG station resources, vendor resources, which we group in what is called PMT, project management team. So those are typically, like, managers, engineers, that type of thing. And then you have craft labourer, trades resources, like millwrights, boilermakers, et cetera. And so when -- and then, I would say, the last tier is materials.

So typically, we are able to, since we have a large portfolio, allocate management staff, professional staff to other projects because our vendors carry multiple projects for us, same with

OPG. Sometimes we do need to keep a core contingent of resources that do bill to that individual project for longer where they can continue readiness activities, et cetera. And the trades that you otherwise would have called up, like, to perform that execution, well, then they are not called up, so then you are not incurring those costs.

Materials, we generally don't defer the material delivery unless there is a very compelling reason. And so some of those compelling reasons are that the care and control that is required for those materials are very, very complicated, so that is -- say, like, a large transformer is a good example of that. There is oils, there is seals or things that need to be circulated and checked, and so then we would move, then, those deliveries closer to being just in time for that consideration.

S. GRICE: Okay.

So it sounds like a -- if, say, a project was delayed two years, it sounds like the costs that are being incurred are project management and materials?

P. LE DREFF: I would say that is fairly typical.

S. GRICE: Okay.

And then I just -- just on the theme too of -- so when a project is available for service and there is an equipment issue, and, say, to deal with that, to address that, you need an outage, and there isn't

one available, what happens with the project then? Like, in terms of costs, where does the funding come from if the business case summary hasn't accounted for that? I just -- I just want to understand that particular scenario because I think I saw some of that in your evidence that a project is not available for service, and it requires an outage, and then there is a delay.

P. LE DREFF: And just to clarify the question, you are saying that at a future instance of when that work can get performed, you are asking, then, how does it get funded at that time?

S. GRICE: So this would be a project -- so it is done, and you are -- you know, you are trying to close out the project. You want to sign off that it is available for service, but you end up you have an equipment issue. And to deal with that, you have to delay the project because you got to wait for an outage to do the work.

So I just want to understand, I assume the same costs are incurred, project management, anything else that you need, but if there is incremental funding needed to carry the project and then do this extra work to have it available for service, how do you fund that?

C. KEIZER: I think the question is a bit of a hypothetical, so I am not sure how -- the frequency of it or the -- maybe the witness can help with

respect to clarifying the hypothetical and the validity, I think, of the scenario that you are putting forward.

S. GRICE: I saw the scenario in the evidence. It was -- I believe it was in a project closeout report where that scenario occurred.

P. LE DREFF: I think I can help with a distinction. If it is prior to the availability for service, then the costs remain with the project. If the project was completed where the availability for service was declared, so it is in service, and any future issues we do have, depending on the contract, on how that was set up, there are warranty provisions that could be enforced. And if we are outside of those warranty provisions, then those works would need to be assessed, whether it could be performed in-house, whether it would need to be a project, then -- then there is a whole range of potential outcomes.

S. GRICE: And are the costs tracked with that project, so then that would just contribute to a cost overrun?

P. LE DREFF: If the availability for service was declared and the project is closed, then it wouldn't be reopened and costs reassigned to that project.

S. GRICE: Okay. Okay. I think I understand. Thank you. Those are my questions.

M. MILLAR: Thank you, Ms. Grice.

We will take our lunch break and return at 1:25 with you, Mr. Rubenstein. Okay.

--- Upon recessing at 12:24 p.m.

--- Upon resuming at 1:25 p.m.

M. MILLAR: Commencing the afternoon session of day 3 of the technical conference. Any preliminary matters, Mr. Keizer? I know there were some things you were going to take away over the lunch break.

PRELIMINARY MATTERS

C. KEIZER: Yeah, there was a couple; one, Ms. Grice had asked about a spreadsheet that couldn't be found in the filing, and I understand it was misfiled. It is going to be loaded on to the Board's RDS later today, so that will be provided.

And then there was also -- we took away AMPCO's request for an undertaking related to projects -- list of projects where there were variances greater than 20 percent, and we are prepared to provide that information. And then I think there was one -- I don't know if we marked that.

M. MILLAR: I don't think we did. So if you or Ms. Grice could clearly state what the undertaking is, and then I will mark it.

C. KEIZER: Maybe I will leave it to Ms. Grice to give a run at it, and we will --

S. GRICE: Not again. It is painful.

C. KEIZER: Actually, I think Ms. Zadeh has note --

M. MILLAR: I think your mic just --

C. KEIZER: Yeah, maybe she can refer to her notes, and if Ms. Grice can then indicate whether she agrees or not.

S. ZADEH: Ms. Grice, I believe you were referring to the projects listed in AMPCO-34. For those projects listed there with cost variances greater than 20 percent as compared to the original execution business case summary for OPG or the Applicants, to provide project over variance reports, superseding BCS, PCR, and PIR to the extent that that information is available and incremental to what is otherwise already on the record. Is that fair?

S. GRICE: Yes. Thank you very much. The only addition I had was the original business case summary.

S. ZADEH: Sorry, Ms. Grice. Just to confirm, it is the original execution business case that you are looking for?

S. GRICE: Yes.

S. ZADEH: Okay. That is fine.

M. MILLAR: Okay. The undertaking is JT-3.9.

S. GRICE: Thank you.

UNDERTAKING JT-3.9: PROVIDE PROJECT OVER VARIANCE REPORTS, SUPERSEDING BCS, PCR, PIR AND THE ORIGINAL EXECUTION BUSINESS CASE SUMMARY TO THE EXTENT THAT THAT INFORMATION IS AVAILABLE AND INCREMENTAL TO WHAT IS OTHERWISE ALREADY ON

THE RECORD FOR THE PROJECTS LISTED IN AMPCO-34 WITH COST VARIANCES GREATER THAN 20 PERCENT AS COMPARED TO THE ORIGINAL EXECUTION BUSINESS CASE SUMMARY FOR OPG OR THE APPLICANTS

C. KEIZER: I think that is the -- oh, wait. I think Ms. Zadeh has another one.

S. ZADEH: Sorry. Going back to Ms. Zhu's undertaking, which was marked as JT-3.1, and I believe in repeating back that undertaking, the witness clarified on a best-efforts basis, but I would like to -- if possible, similar to the undertaking that we took in relation to augmented staff, if we are not able to provide those FTE numbers, then we will explain why not in the undertaking response. So it is the same language and provision that we included in the -- and I apologize. I don't remember the undertaking from day 2, but it was in relation -- similar question in relation to augmented staff.

T. ZHU: Yes, that is correct. Thank you.

S. ZADEH: Thank you.

M. MILLAR: Okay. With that, I think we can turn it to you, Mr. Rubenstein.

EXAMINATION BY M. RUBENSTEIN:

M. RUBENSTEIN: Good afternoon, Panel. I have a number of questions on a number of areas. But I just want to start by following up on a discussion that was had earlier on today with both CCC and Staff.

There was a discussion that you had with Mr. Buonarguro about a 2025 planned outage where some of the work was pulled into 2023, and then some of the maintenance work, as I understand, was deferred to 2027. Do you -- I have that correct? I think this was Unit 2 of Darlington.

K. CAREW: The Unit 2 outage was conducted in 2024.

M. RUBENSTEIN: Sorry. It was 2024. But I think there was a discussion -- sorry. There was a planned 2025 outage that was pulled into 2024?

K. CAREW: That is correct.

M. RUBENSTEIN: And I think you were asked, roughly speaking, you know, when does this decision get made, and I think, Ms. Carew, you said you didn't know exactly. I just want to just -- putting aside that specific outage, when you are planning outages or when you are planning to defer an outage or move an outage forward, how long in advance does that occur, generally speaking, from the planned outage? Can you speak to -- I mean, this is a -- back up.

We talk a lot in this case -- a lot of business cases about the costs, but sort of the planning of outages, can you just speak to the process of how that works? Is there a -- I don't want to say a business case, but sort of a similar analysis that the company has to go through when it is deciding to defer or to bring forward? Can you just talk about

that generally?

M. EL DEFRAWY: So overall, we follow our generation planning process which is tied to our business planning process. So generally throughout this process, we conduct various meetings to look at, overall, the outages that need to be conducted during the business plan horizon. Within that, we review any risks, and then potentially, you know, there could be items pulled in, items pulled out, but that is generally when the -- any decisions would be made.

M. RUBENSTEIN: For the purposes of a project, we have the business case summaries, different phases that lead up to the execution. For outages, what is the -- is there sort of an equivalent document, so to speak?

K. CAREW: There is an equivalent document. It is N-PROC-MA-13. And that is referenced in one of the IRs we previously spoke about. That -- and my colleague mentioned using the milestones for readiness. So major scope milestones are the first ones, and they are approximately two years out, or T-minus 24. And you work through all of the planning, including project readiness, documentation, parts, et cetera. Final scope freeze, approximately one year out. And further planning milestones continue thereafter all the way up to readiness.

M. RUBENSTEIN: Okay. I want to first start off with some questions on the DRP, so can we go to D2-

SEC-63. Pull that up, please.

So in this question, we had asked you to reconcile the 12.7 final budget for the DRP with the government's view that the project was 150 million below budget. And what -- as I understand, your response is at the time of the application, you had expected it to be at about 100 -- I think there -- and there was 50 million in -- contingency that you had set aside or for risks. And ultimately, obviously, that didn't occur. So am I correct, it is $150 million below budget?

J. BLAZANIN: Our latest forecast is on the order of $150 million under budget. Of course, we are still completing all the demobilization costs, which will continue through the course of this year, and we will true things up early next year. It will be finalized and closed out early 2027 or by no later than mid-year 2027. But every indication is we will be on the order of 150 million underspent.

M. RUBENSTEIN: But built into the application costs, though? I understand truing it up, but built into the application is $100 million below budget; correct?

J. BLAZANIN: Let me just confirm.

It is based on the 12.7, correct.

M. RUBENSTEIN: Now, my understanding is even though the project is 150 million below budget, OPG is seeking to collect about 270 million in the CRVA

related to the DRP. And as I understand, it is primarily related to the difference between forecast and actual in-service dates of the various units; is that about right?

C. KEIZER: I think that is actually best addressed by Panel 4.

M. RUBENSTEIN: Well, it is just a general question. I am not going to get into the specifics. But am I right, sort of at a high level, that is the driver of the balance?

C. KEIZER: Could you just repeat your question. Sorry.

M. RUBENSTEIN: My understanding, there is about a $270 million balance in the CRVA related to the DRP. And this is from page 11, Table 15 and 16. And my understanding, the driver of the balance, being a debit balance as -- when the project is 150 under budget is a relation to the -- the in-service dates; right? The project -- most of the units came into service earlier than you had expected, and so that is the driver of the balance. Am I right, at a high level, that -- about that?

C. KEIZER: I don't think this Panel is in the best place to answer about the balance that is in the CRVA. I think you can ask them about the in-service dates, but I just -- I prefer that -- I think it is someone on the finance Panel that would be -- given you are also referring to H1-1, so I think it is

better that Panel 4 deal with that issue.

M. RUBENSTEIN: Well, I am -- it is just sort of a lead to a set of other questions, and I am not asking for anything more than just sort of at a high level, that is one of the drivers, at least; right? Am I correct about this?

C. KEIZER: Well, I mean, if you can disassociate it from the driver of the balance. Because I think in order to understand the driver and the balance, you have to look at both things together, and I think the people that are best able to articulate the basis of the balance are on Panel 4.

So if you have a question that you can disconnect those two from what this Panel and Panel 4 can answer, then, yeah, you should give that a try.

M. RUBENSTEIN: Okay. Well, I am going to work on the assumption that that is correct, and you will -- Panel 4 will be the first to correct me, presumably.

Now, as I understand, one of the implications of having DRP units serviced earlier than forecast -- and am I correct that they were brought in mainly earlier than forecast? Three of the four, I believe?

J. BLAZANIN: Correct. Units 3, 1, and 4 were brought in earlier.

M. RUBENSTEIN: And one of the implications of bringing it in earlier than forecast and -- and its

forecast and what was ultimately approved -- is that the company is earning additional revenue since it is generating earlier?

J. BLAZANIN: There would be increased generation associated with bringing the units in earlier which would translate to revenue for that generation.

M. RUBENSTEIN: Can we bring up -- SEC circulated tables to my friends. I am just wondering if we can bring up SEC Table 1.

And so this is our table. So this is a table that we created based on what we can derive from the evidence. If you zoom out, you can see the numbers are sourced to various pieces in the evidence. If you just sort of zoom out a bit -- or just scroll over just for a second so you can see that -- where the numbers are coming from.

And what we are attempting to do is understand the impacts of the additional revenue that may be derived -- that were derived as compared to the OEB approved as a result of bringing it in early. And so if we can -- sorry. If we just scroll back.

So the first part of the table shows the variance in production against the OEB approved, and it is sourced to the evidence, and then multiply that by the base payment amounts in any given year to give you the total revenue.

And then in the second part of the table, you

will see outage OM&A. These are parts of the evidence behind where there is -- outage OM&A has been adjusted because of changes in the DRP refurbishment schedule. And then in the last -- so those are additional costs compared to the OEB approved.

And then in the third grouping here, we have fuel costs. So obviously, if I am correct, if you are running the -- you know, the generators are generating more than expected, there is higher fuel costs than would have been approved; correct?

J. BLAZANIN: Yes. You would incur higher fuel costs when the [indiscernible] is generated.

M. RUBENSTEIN: Yeah. And so in the third part, we are trying to - utilizing the information that is available to us on the record about fuel bundle costs, what would be essentially an estimate of the variance in the fuel cost because of the units running based on the -- the variance in production against the OEB-approved.

So can I ask by way of an undertaking if you can review this document, provide any corrections or additions or subtractions. This is based on what we could derive from the evidence. There they be some other things. There are obviously some estimates. The fuel costs are based on your average fuel cost. That is just based on the information. Obviously, Pickering and Darlington don't have the exact same

amount of fuel cost per megawatt hour. So can I ask you to undertake to do that by way of undertaking?

S. ZADEH: We can do that by way of undertaking. Mr. Rubenstein, just to note, in our initial review of the spreadsheet, we have noted some material errors resulting in an overstatement of your total revenue number in the bottom right-hand corner.

Just by way of examples, the errors relate to things such as there was an addition of a Darlington Unit 4 outage and the associated outage OM&A costs in 2021 which -- relating to the cascading effect of the Darlington refurbishment schedule from the change in timing of Unit 3 because of COVID. So we will, in that undertaking response, provide those corrections.

M. RUBENSTEIN: That is exactly why I am asking.

S. ZADEH: Fantastic.

M. RUBENSTEIN: I am just driving what I can pull from the evidence. The evidence is not perfectly meant to do this, so that is why I am asking you to do that. So thank you very much.

M. MILLAR: The undertaking is JT-3.10.

UNDERTAKING JT-3.10: REVIEW EXHIBIT KT-3.1 AND PROVIDE ANY APPROPRIATE CORRECTIONS, ADDITIONS, OR SUBTRACTIONS

C. KEIZER: Mr. Millar, should this table be marked? Or is it --

M. RUBENSTEIN: Yeah. How about we mark that as --

M. MILLAR: Yeah, why don't we do that. So that will be Exhibit KT-3.1. And what do you want to call it, Mr. Rubenstein?

M. RUBENSTEIN: Table 1, DRP net revenue.

M. MILLAR: Thank you. KT-3.1.

EXHIBIT KT-3.1: TABLE 1, DRP NET REVENUE

M. RUBENSTEIN: I would like to talk now about nuclear operation, nuclear projects. Can we go to D2-SEC-61.

And in this interrogatory in part A, we asked to explain how the unallocated budget was determined and how the OEB can assess the reasonableness of those projects where no supporting information besides a project name has been provided regarding potential expenditures.

And in the -- you provide a response, and you provide some explanations. And what I am left with is still not understanding how the overall budget is determined. Because as I understand -- and I had a similar conversation with your colleague with respect to the hydroelectric -- is I understand the unallocated budget and how the process works is there is a budget for a given year, you have unallocated projects that you run a value framework to prioritize, you know, there are other possible -- other constraints, and that depending on how much money is available, you pull projects up. But what is never -- so do I have that right at a high level?

J. BLAZANIN: The elements of what goes into it, you have spoken to, but not completely.

M. RUBENSTEIN: Okay. Well, is there -- do you want to correct me, then? Tell me where I am...

J. BLAZANIN: Yeah. So maybe I will -- can you hear me okay? Maybe I will provide the context around how we come up with the unallocated project listing through the asset management process, et cetera.

So if we step back a little bit, we have a number of comprehensive engineering processes and programs. We have system health reviews, plant health reviews, and all of those things which determine or identify the health or condition of our assets, our systems, our components. We conduct component condition assessments and other things on certain frequencies as well.

And so all of those things contribute into or inform potential asset -- our investment options that we need to invest in plant equipment. And so system responsible engineers on a annual basis will take the information that they have. They will prioritize within their areas of responsibility the higher priority risk areas, if you will, associated with their systems. They will put forward candidate investments for consideration and review and approval.

As part of the asset management process, we have

-- those system responsible engineers will develop asset optimization templates. So they will provide the baseline failure risk associated with that asset, and they will put forward whatever options are available to mitigate the risk in the timing of that risk.

So all of that then gets reviewed as part of our governing body, the asset management oversight committee. So that is a cross-functional Panel of operations, engineering, finance, et cetera. And they will review all of those candidate investments together, and then all of those candidate options will get approved or recommended to move forward.

Those options get put into Copperleaf. We talked about that yesterday, I think. The RG team talked about Copperleaf. All of that goes into the Copperleaf system. There are financial constraints that are established in the Copperleaf system for the nuclear division, and they run an optimization based on the risk profiles that have been established and based on the candidate investments that move forward.

And so once that optimization is run, that final product gets reviewed by the asset management oversight committee in conjunction with the project management oversight committee, and then those candidate projects are put forward into the business planning process overall for review and recommendation. So in subsequent IRs, we have

provided the full list of candidate projects with the cost estimates that are included in the business plan.

So I need to back up a little bit because for each of these candidate projects, we also have an estimate that is associated with it, and that goes into Copperleaf as well, against the different risk areas, to see if there is a positive or negative net value associated with that investment option.

M. RUBENSTEIN: But as I understand, and I think it is the same for the nuclear business, the projects on the candidate investment list are not all the projects that are inputted into Copperleaf; correct?

J. BLAZANIN: As I mentioned, when the system responsible engineers and through those plant health reviews and otherwise, they will pre-screen and put forward the high priority projects that they believe need to move forward based on the risk profile, and those are the ones that get entered into the Copperleaf system.

M. RUBENSTEIN: So are you doing every project in the Copperleaf system in a given year? No. There is constraints. And so I guess my question is what are the constraints on?

J. BLAZANIN: Typically, there are -- well, there are financial constraints, so there is a financial -- established for every year of the plan. And then the project or candidate projects are run

and optimized against that -- against that envelope of funding. And in some years, they may shift or move some projects around a little bit, so if it was supposed to start in, say, year 1 of a 5-year plan, it might move to year 2 or 3, depending on the risk and what is affordable within that limit.

M. RUBENSTEIN: And with respect to the financial envelope, how is that determined?

J. BLAZANIN: So we get financial targets established by finance as an initial input into the business plan and the optimization process to determine the unallocated portfolio for us. And then based on those targets, then we look at all of the candidate projects, understand the risk associated with operations, and if for some -- if, for example, we have to put forward a plan that exceeds those target limits based on the need and the risk associated with the business, then that will be a consideration into the business planning, and then subsequent reviews and challenges will occur, and business planning envelopes will get approved.

M. RUBENSTEIN: But I think your starting point, you said, was, you know, finance gives you the targets; did I get that right?

S. ZADEH: Sorry. Mr. Rubenstein, we took an undertaking, JT-2.6, yesterday where we said that we would put in further detail how these funding constraints are incorporated in the build-up of the

unallocated portfolio for hydro. Can we wrap in similarly for nuclear into that same undertaking so you have a full picture?

M. RUBENSTEIN: Yeah, for sure.

S. ZADEH: Okay. So let's -- let's do that by way of that same undertaking -- or I don't know if you have to mark it as a new undertaking, but I think we can do it all in one spot.

M. MILLAR: I don't need to mark it if it is all part of the same undertaking and if you are all good with that.

M. RUBENSTEIN: Sure. But I just want to -- I just want to ask from your perspective. You are given a target. Is that -- really, that is the financial constraints; right? At the sort of primary level, finance is providing the nuclear business the targets, financial targets?

J. BLAZANIN: Initial targets are established, and then through the business planning process in looking at all the risks and the needs for the business, the operational challenges, then the nuclear business will put forward a recommendation into the business plan to be considered in the final decision in terms of the business plan approval.

So if we exceed the financial targets, our initial targets that we had that we were working with -- in, then we would put that case forward for approval. And if it meant that the business needs

required additional funding to execute certain scopes of work, then that would be approved through that business planning process.

M. RUBENSTEIN: Okay. And I guess this is -- just to make sure I understand, then, what is going to be provided in the undertaking, is it going to be an explanation really of how the target is set?

S. ZADEH: So I think that undertaking -- the words specific to that undertaking were "advise as to the selection or the build-up of the unallocated projects or hydro," and we will add "and nuclear," and "how the associated funding constraints play into the makeup of that portfolio."

M. RUBENSTEIN: So I am not sure that is the same question. Maybe it is; maybe it is not. It is a bit unclear to me. I guess I am interested to understand -- as we hear from the evidence, finance gives a target. This is the initial constraints, and then I guess the nuclear says not enough or it is too much, probably not -- probably not the latter.

But -- but I am just not clear to me how that target is set, how that is determined. Presumably, you are providing some -- the nuclear business is providing input, what it thinks it needs? I guess that is the question I am trying to get at and understand.

S. ZADEH: Sorry. My apologies. If we are talking about the setting of the targets, from the

top-down perspective, that question should go to the last Panel, which is the business planning Panel.

M. RUBENSTEIN: Okay. Just because the nuclear experts are here. Presumably, the nuclear business is providing input in some way to the finance team and the executive leadership who are setting those targets -- correct -- in advance?

J. BLAZANIN: Yeah, I think AMPCO-23 talked about a lot of the inputs that go into the business planning. And the nuclear business, like all lines of business, provide input into the business plan, for sure. And so part of it is the project execution that we are -- have in place, in-flight projects that we have that we are executing. We talked about outages and changes that occur with outages. We talked about unallocated projects and the asset management program and the risks associated with that.

So all of those things are taken into consideration in inputs in terms of what the business needs for the final decision regarding the business plan.

M. RUBENSTEIN: Okay. Thank you.

Can we go back to D2-SEC-56. Yeah, my apologies. And as I understand, and just going back to the value framework, I know you provided information of the -- I forget exactly what the language the hydro group used, but essentially these

are the potential or probable projects that would be part of the -- that will end up ultimately making up the unallocated spend?

J. BLAZANIN: The output is the unallocated project list, yes.

M. RUBENSTEIN: But as I understand from the hydro group, not all those projects will [indiscernible], at least in this period?

J. BLAZANIN: So what we put forward in the business plan, in the annual business plan, is our best projection in terms of the work that we need to undertake. Certainly as we go through the business planning process and look at other constraints, restrictions of movements, and things like that, there will be movement in that portfolio.

And so that is how we manage it. We manage it on an annual basis and look to see what other inputs or constraints may cause some projects to move or new emerging projects that will need to be considered.

M. RUBENSTEIN: Let's just assume for a second that the allocated projects, when you go through the further process, you have gotten the budgets exactly right. There is no other emerging needs that were not -- that you didn't expect to happen.

Is the value framework list that you provided in, I think, Attachment 3 here -- is that going to be the list of projects that ultimately make up the unallocated -- they will be done in this term?

J. BLAZANIN: As per our plan, these are the projects that we are expecting to transition to in-flight projects with -- and definition business cases and be executed as per -- as we provided. That would be the plan.

M. RUBENSTEIN: And so when I look at the in-service additions for unallocated projects in some of the information here, there is a one-to-one link, and I am not going to ask you to do it. So -- but there is a one-to-one link between the in-service additions for unallocated projects for each of '27, '28, '29, '30, '31 to the -- what would ultimately be in-service addition for these projects for those years?

C. KEIZER: I just want to clarify your question before, which you made the presumption that said that there is no other emerging projects; is that -- is your current question based on the same basis?

M. RUBENSTEIN: Yes.

C. KEIZER: So, in other words, this is the totality of all projects that OPG could arise or will arise within the period, nothing else.

M. RUBENSTEIN: I heard the evidence to be, you know, subject to those sorts of things, we may change. So I am just trying to say assume that didn't happen. Is -- is the -- are those projects exactly -- do those match the in-service additions for the unallocated projects for the rate term?

C. KEIZER: Yeah, and the only reason why I ask

that question, just so -- you know, it is an assumption you are making, I know, but whether or not that is a reasonable assumption, I would leave that to the witness, I guess.

J. BLAZANIN: CCC-44, if we can call that up for a moment. And I think there is an attachment -- just let me confirm. So this is that direct link. The asset management Copperleaf tool informs not only the cash flow that we are expecting to expend, but also the in-service amounts that are predicted to go in-service aligned with that initial trajectory of that project and its lifecycle.

So this IR does provide that list, so that is the direct link of all those nuclear projects. So the asset management tool has the estimate and the projected in-service amount that tied back to this rate application. The only caveat I would give you here is that this is all the tier 1 and 2 projects, so there is a sublist of tier 3 projects that make up the balance.

M. RUBENSTEIN: So just for an example, if we went to 2031 and we added up the estimated in-service dates for all those projects and we added up the tier 3 ones, those would equal the in-service additions for unallocated projects that you are seeking to put into rate base in this proceeding?

J. BLAZANIN: For nuclear, with the exception of the tier 3.

M. RUBENSTEIN: Just to back up for a second. Sorry. Just to clarify. I just want to make sure. My question is, if we took all the -- if we used 2031 and we added up all the tier 1 projects, all the tier 2 projects, and whatever the tier 3 projects would be, that would equal the unallocated projects in the -- that you are seeking to add to rate base? That would be -- there is a one-to-one match here. There is no additional funding, or there is less amount of money? I am just trying to make sure I understand that part.

J. BLAZANIN: So maybe we go back to the IR and we explain it there so we can go back to the actual question before the attachment and the response. And so I think under B, it is true. It is the total value there, with the exception of the tier 3 projects. And you will note on the bottom, there was a $10 million adjustment to that total amount, so that would be the only difference.

M. RUBENSTEIN: Okay. And if we can go back to D2-SEC-56. Will this list -- let me just stay here on the attachment here. For the tier 1, I know this is only a tier 1 and 2, I believe. But I think in the value framework, this is just the ones you are doing? There is a larger list of candidate projects that we put -- that are involved in the Copperleaf system?

J. BLAZANIN: As I mentioned earlier, in the

nuclear side of the business, we pre-screen a lot of the project -- lower-priority projects out so they never get into this. So these are the ones that make it into the Copperleaf system.

M. RUBENSTEIN: Okay. So that is different than my understanding.

So I understood the hydro Panel, how it worked for them was there is candidate projects, there is a number of constraints, and these are the ones that they have -- it is a bit more complicated than that, but these are the ones they are doing, but the system had more projects. For you, that is not the case?

J. BLAZANIN: That is correct. Not in the system. There may be one or two, but not in -- not --

M. RUBENSTEIN: And then so what is the purpose of Copperleaf in that scenario? Is that just simply an optimization tool -- primarily an optimization tool as opposed to prioritization?

J. BLAZANIN: It is used to optimize those potential projects, and the candidates, understand the risk profile associated with operations and a feed into the business line, correct.

M. RUBENSTEIN: Okay. Thank you very much. That is helpful.

Can I ask you now to go to F2-SEC-160. And so in this interrogatory, we had asked you for the current fleet-wide improvement initiatives for the

nuclear business, to provide information for 2025 to 2031, the annual cost to quantified benefits, and to provide all the calculations, and you take us to F2-Staff-178B.

Before you go there, if we can go to SEC-161. And here we were looking for similar information with respect to fleet-wide initiatives in the last proceeding and similar information, and there you point us to F2-Staff-178A; do you see that?

K. CAREW: We do.

M. RUBENSTEIN: Can we go to -- now to -- sorry -- F2-Staff-178. If we can scroll down right to the question. Just make sure which part we are talking about here. So let's just start in part A. You provide a response beginning on this page, and what you do say -- and you see this -- you say, "the following is --" in the last sentence:

> "The following is a summary of the cost savings or cost avoidance for each initiative --" (as read)

Do you see that:

> "-- where available or an explanation of why OPG has not quantified such cost savings or cost avoidance." (as read)

Do you see that?

K. CAREW: We see it.

M. RUBENSTEIN: And so the first one is "right work, right time, right value." And what you say

there is "while such --" and this is sort of in the middle:

> "While such various performance improvements have been realized, OPG is unable to attribute discrete cost savings or cost avoidances to this initiative, as overall performance reflects the interacting effects of multiple initiatives and other operational factors." (as read)

Do you see that?

K. CAREW: I do.

M. RUBENSTEIN: And so I take it from that is you can't quantify those savings for that initiative?

K. CAREW: Just the -- we can't. That is what you said, "can't"?

M. RUBENSTEIN: Yes. We can't, yes.

K. CAREW: Agreed.

M. RUBENSTEIN: Okay. And then the next one is the "leaders driving business results." You see the same thing -- you essentially say the same thing?

K. CAREW: That is correct.

M. RUBENSTEIN: So I want to first discuss the "right work, right time, right value." And can we turn to A1-CCC-9, Attachment 5. It is A1-CCC-9, Attachment 5. So this is an audit of that initiative, as I understand?

K. CAREW: That is correct.

M. RUBENSTEIN: And if we can go to page 3. And

scroll down. Yeah. In the first sentence under "background," you will see in the last -- in the first paragraph, last sentence says:

> "The expected benefits of the RWRTRV initiative were to increase station productivity by 25 percent, contributing to an overall target of reducing maintenance costs by approximately $30 million on an annual basis." (as read)

Do you see that?

K. CAREW: Yes.

M. RUBENSTEIN: And then if we go to page 5, we see under "positive observations," there is discussion of the savings on a per task metric. Do you see that?

K. CAREW: Yes.

M. RUBENSTEIN: And then if we go down to the key findings, the first one, as I read it, is essentially that you didn't meet the productivity -- or at least the audit at this time was you hadn't met the productivity targets; do you see that?

K. CAREW: That is correct.

M. RUBENSTEIN: So can you help me -- because I am seeing -- there is measurement of savings in the productivity benefit. When we go back to Staff 178, you say you can't do it. So can you reconcile that for me?

K. CAREW: I can. So the "right work, right time, right value" initiative was designed to have a

cultural impact on how we do work in the station and optimizing our maintenance resources to impact station performance.

As you will note in the audit, there were targets set -- and I will say aggressive targets, and it is noted within that audit report aspirational in nature -- and identified during this audit that, to date, at the time here, we were unable to demonstrate that we had reached those targets.

One of the things we found as part of execution of this initiative was that the data was challenging. And you will note in the audit itself, it also calls out some of the challenges. I would use the term "confounded," where there are so many variables that go into how we execute work in the station that it can be difficult to isolate the variables that are impacting and then ultimately have the correct measurement in place to measure that performance. And so that really speaks to the challenges we have right now with providing the savings that we can see.

That said, what we have talked about is the benefits that we have seen from the initiative, and those show up in overall plant performance. So one of the key places that you see that is in station backlog. And station backlog measures four particular types of maintenance -- or, I will say, deficient or corrective maintenance that needs to be performed. It is a very important key metric, and it

is one that is actually tracked in the high indices across the industry. And we use it to compare ourselves within the industry because it is known that when those backlogs are low, that equipment reliability and, therefore, plant reliability will be stronger.

That overall improves our cost saving -- or I will say results in cost savings. We reduce the cost of having to do more corrective maintenance, which then prevents us from doing the preventative maintenance, which you can see the circle where if you can't do the preventative maintenance because you are always doing corrective maintenance, then you just end up in the cycle of more equipment failure, which overall has that bigger impact on cost.

So for those reasons, it is very difficult to sus out -- or that is not a great word, but to pull out the exact cost savings to share here.

What we can see is the overall impact on our performance in the station and the -- and that shows up -- so the efficiencies and the ability to execute the scope of work that we have had at Darlington, especially in the '22 to '26 time period, it is significant. It was a -- it is a very busy station, and you can't get done what we got done without having the efficiency from this initiative.

M. RUBENSTEIN: So what happened after the audit? Because as I understood, there were -- you --

the right time -- sorry, "right work, right time, right value" initiative had KPIs. So the audit comes out. What happened, do you still -- the KPIs were jettisoned? Or were you still using the KPIs? Or what happened?

K. CAREW: Yes. So we attempted to continue to use those KPIs to -- and you will see it, it mentions that we kind of narrowed down the number that we were using. But we still struggled with truly finding, like, that this was correct. And also even comparing station to station became difficult just due to some natural differences in planning of work, et cetera.

So we -- while we kept, I will say, the key tenets, the things like having a strong fix it now team and having efficiency in how we plan work, those tenets and the initiatives that go behind it remain and, I will say, continue to grow. But we did not rely as strongly on those KPIs to measure our performance as we closed out the initiative.

M. RUBENSTEIN: Okay. And so for the second initiative on that -- back on that Staff-178 was the "leaders driving business results" initiative?

K. CAREW: That is correct.

M. RUBENSTEIN: And were there KPIs for that initiative that related to cost savings, productivity, quantification of any of that?

K. CAREW: So if we could go to F2-1-1, Attachment 1, and page 3 of 6. Yeah. And you will

see the section where "leaders driving business results" is addressed.

So broadly in this area, there is a discussion around the description of the initiative and the results achieved, the benefits realized. And so you will see not KPI-focused in this area, but this initiative worked in a couple of ways around a cultural improvement to how we run the business.

One of the things that is a tenet of a McKinsey method for cultural change, one of them is ensuring that leaders have the key tools to execute their tasks, and, in this case, making sure that our managers and leaders had the information available to truly implement their part of the business no matter how large. So as small as a first line supervisor, all the way up to, you know, a business unit leader.

With a simple few clicks, you have immediately at your fingertips all the data you require, whether it is managing the overtime of your business unit, you know, sick time, you know, if you think about a supervisor, all the way up to things like the cost of materials in the case of, say, a department manager for maintenance. And so that is a key part of this where we implemented and put the tools in place.

And then the other parts of the cultural change is really role modelling as well as building consensus around the need for the improvements. And so this initiative did things like recognition cards

where we could celebrate a small innovation they might have resulted in savings, and overall built that cultural performance for the station. So in this attachment here is where the benefits are outlined.

M. RUBENSTEIN: Sorry. I understand. My question was a lot more narrow than that. It was just there was -- were there KPIs for this that were focused on cost savings, productivity improvements, anything like that, that were quantified? Much like there originally were for the "right work, right time, right value" one?

K. CAREW: There was not a KPI established here.

M. RUBENSTEIN: Okay. And then back, if we go to 178, the last one, "powering people for the future." And I think you pointed us to some information that is discussed F4-SEC-194, and it is related to the use of PWU-represented term employees?

K. CAREW: That is correct.

M. RUBENSTEIN: Am I correct -- and correct me if I am wrong, but there is no -- you are transitioning out of term employees for PWU employees; correct?

K. CAREW: That is correct.

M. RUBENSTEIN: Okay. And in part B of this response -- this is about the initiatives on a going-forward basis. And you can see this on page 3, line 4. You say:

"OPG is unable to attribute discrete cost savings or cost avoidances to individual initiatives as the overall performance reflects the interacting effects of multiple initiatives and other operational factors." (as read)

Do you see that?

K. CAREW: I do.

M. RUBENSTEIN: So if we go through all the initiatives, are there any -- well, first of all, are there -- at a high level, are there KPIs for each of these initiatives?

K. CAREW: So the initiatives here penetrate down within our organization to the station level, department level, et cetera. And these business units do have, I will say, targets and KPIs that are mapped to these sorts of initiatives through excellence plans. And those KPIs are tied to meeting the business plan targets that we have in place, both for things like safety, as you see, and productivity, or I will say our -- you know, things like the backlog performance. All of those things that are mentioned throughout our evidence is where you will find the KPIs tied.

M. RUBENSTEIN: Are there any KPIs that are specifically about productivity, cost savings, quantified -- does that exist?

K. CAREW: No.

M. RUBENSTEIN: Okay. Thanks.

Can we go to F2-SEC-157. And so in this interrogatory, in part C, we had asked you for the value for metrics used for the benchmarking to provide the underlying calculations and references to the evidence where we could see those. And if we can go to part C -- which you did, and I thank you very much for that. It is very helpful. Sorry, if we can go up. It is -- you -- sorry, you provided a -- there is a number of pages. Sorry, go up. Further up. Further up. Maybe I have the wrong one. I apologize.

If you can go to page 8 of 9. Yeah, there we go. So here you are providing the source for the information. And if you can go to page 9. So the first row is showing the OPG nuclear facilities capital, and you make an explanation of where that information comes from. And it is D2-1, Table 2, columns G to L, and then line 22, and then you say DN/PN portion.

That table doesn't break out into Darlington, Pickering, and especially the operations and support capital. I was wondering if you could provide -- if you could provide that information to show what of the operations and support is allocated to Pickering and for Darlington for the purposes of this calculation.

I know Mr. Gluck asked you sort of a similar question on the in-service additions component, but

for the purposes of capital expenditures, I scoured the record, and I couldn't find that information.

M. EL DEFRAWY: Yes, we can provide that information.

M. RUBENSTEIN: Thank you.

M. MILLAR: JT-3.11.

UNDERTAKING JT-3.11: PROVIDE INFORMATION SHOWING HOW OPERATIONS AND SUPPORT CAPITAL IS ALLOCATED BETWEEN PICKERING AND DARLINGTON FOR THE PURPOSES OF THE CALCULATION IN F2-SEC-157, PART C, PAGE 9, AND EXPLAIN THE BASIS FOR THAT ALLOCATION

M. RUBENSTEIN: And then in doing so, it would be helpful if you could explain how you allocate the operations and support capital between the two stations for the purposes of this metric.

M. EL DEFRAWY: We will look to explain our methodology.

M. RUBENSTEIN: Thank you very much.

Can we go to now F2-1-1, Table 1A. And this is your operating cost summary. If we could just scroll down to footnote 2, where it says:

> "Actual and budget amounts in the other new nuclear OM&A category primarily relate to impact assessment preparation for potential new nuclear generation at OPG's strategic sites. No amounts related to new nuclear generation projects is included in the revenue requirement

for OPG's nuclear facilities." (as read)

Do you see that?

M. EL DEFRAWY: I do.

M. RUBENSTEIN: And am I correct that any of those amounts, both actual and budgeted, would be recorded in the nuclear development variance account?

M. EL DEFRAWY: That is correct, to my understanding.

M. RUBENSTEIN: Thank you very much.

Can we now go to E2-SEC-147. If we can go to attachment -- no, that is definitely not the right answer -- that is definitely not -- yes. One second. Sorry. 137, my apologies. Can we go to page 2 of Attachment 1.

As I understand, this table is showing the revenue deficiency based on approved versus actual production for each of the stations?

M. EL DEFRAWY: That is correct.

M. RUBENSTEIN: Can I ask you to provide an updated version of this table that separates out the deficiency calculation for Pickering and Darlington? And the reason it is not easy for me to calculate is because you are making a fuel adjustment for each of those stations, which are just not obvious of how you do that. Is that something you can do?

C. KEIZER: Can we just have a moment. I think we have to consider whether we can do or not, so we would need to take it back for consideration, Mr.

Rubenstein. We can get back to you after the break. Thank you.

T. EMINOWICZ: Mr. Rubenstein, may I ask a question on this table?

M. RUBENSTEIN: Please.

EXAMINATION BY T. EMINOWICZ:

T. EMINOWICZ: I just wanted to confirm, the line that says "revenue rate," is that the base payment amount, or does that include the rate riders for that year?

M. EL DEFRAWY: That would be the base payment amount.

T. EMINOWICZ: If it is possible in a sentence or two, can you explain why you are not considering the payment amount riders to determine the revenue deficiency?

C. KEIZER: I think we just take that as part of the consideration as well.

T. EMINOWICZ: Thank you very much, Mr. Keizer.

EXAMINATION BY M. RUBENSTEIN:

M. RUBENSTEIN: All right. I have a couple questions on the Pickering refurbishment project. Can we go to D2-SEC-66. As a bit of background, my understanding from the evidence, generally speaking, the contracting strategy is similar to the DRP; is that correct?

S. NELMS: Good afternoon. This is Scott Nelms. And, yes, I can confirm that is correct.

M. RUBENSTEIN: And so in this interrogatory, we had asked you if you had undertaken any reviews of the strategies and implementation of the contract for the DRP and to provide details of if they have been included in the contracts for the PRP.

And you say, yes, OPG undertook a review and assessment of the Darlington refurbishment program contracting strategies, including contracting, framework, pricing structures, risk allocation, and limitation, and then there is some discussion about the changes. Can I just ask, when you talk about a review in the context of this, how did you -- what does it mean when you undertook a review?

S. NELMS: So we have decade-plus experience working with CanAtom on the retube feeder replacement agreement, as a -- for example. Similarly, for some of the other scopes, we have quite a bit of experience, lessons learned, from a commercial perspective. So it was a combination of our team on the commercial side, working with our project colleagues to understand what worked and what didn't, build that into our contracting strategy, and then execute on that basis.

M. RUBENSTEIN: Was the review component -- is there a formal review? Is there a document that, you know, talks about the formal review of the DRP contracting strategies?

S. NELMS: Yes, there is. We have a contracting

strategy document that lays out how we determined the approach for a Pickering refurbishment.

M. RUBENSTEIN: Sure. But I am going back to the review of the DRP. Is there a formal review document that sort of someone summed that up in a document, the review of the DRP contracting strategies? Is that -- was there sort of a formal process like that that ended up in a document of some sort?

S. NELMS: It was part of the Pickering contracting strategy. That was where we assimilated all of the lessons learned.

M. RUBENSTEIN: Thank you. And so I take it, then, the answer is, no, there isn't a formal DRP contracting strategies review document?

S. NELMS: As I said, the -- all the lessons were built into the go-forward agreements for Pickering. There is not a separate in-isolation Darlington refurbishment only. We took it in the context of how we would apply it going forward.

M. RUBENSTEIN: Thank you very much.

Can I ask you now to go to D2-SEC-73. And in this interrogatory, we asked you to provide information with respect to the RFBR -- in the context of the RFBR target pricing contract in the PRP, to provide certain information in the same format as you provided in the evidence for the DRP back in 2016-0152, a number of scenarios, and you did

provide that information in Chart 1's date; do I have that correct?

S. NELMS: Yes, that is correct.

M. RUBENSTEIN: So I just want to make sure I am understanding these tables correctly. So if we can go to Chart 1, let's just use Chart 1 as an example. This is a cost savings of 10 percent. So what this is showing, that in this scenario -- one sec. Yeah, sorry. If we go down to the "total" line, so the contract costs were 8 billion 560 million, and then the contractor came in at 7 billion 704 million, so the contractor costs were 10 percent below target; correct?

S. NELMS: Yes, that is correct.

M. RUBENSTEIN: And then we see in the "cost variance" column, the variance, then, is the $751 million in savings?

S. NELMS: Yes, that is correct.

M. RUBENSTEIN: And then from a customer's perspective, if the cost came in $751 million less, then, as I am reading the table, ultimately, ratepayers would get $578 million? The cost -- ultimately, the cost that OPG would recover and seek from ratepayers would be $570 million less? That is the impact to OPG?

S. NELMS: Yes, that is right.

M. RUBENSTEIN: Okay. And so if we can flip maybe over to page 4 -- sorry -- to Chart 4, this is

the inverse scenario, the 10 percent cost overrun. And so here, as I am reading the last column, the contract costs were the same, 8 million 560 -- sorry -- the 8 billion 560 million. The costs came in 10 -- contractor costs were 10 percent higher, so 7 billion -- sorry -- $9 billion 416 million? That is the 10 percent higher; correct?

S. NELMS: Yes, that is right.

M. RUBENSTEIN: And so we have a variance now of $751 million increase costs; correct?

S. NELMS: Yes.

M. RUBENSTEIN: And so if -- so if we go and we look at the same thing, impact to OPG, that would ultimately be what you would seek to recover from customers in this scenario presumably, and I am getting -- 705 million of that $751 million variance would be the responsibility of OPG, and ultimately, its customers; right? Am I reading that right?

S. NELMS: Yeah, that is correct. One point I just wanted to add, we see in all these tables, there is the incremental fixed fee amounts as well. And so there are additional costs to the contractor that we don't pay. So just take that into account. But, yes, that is right.

M. RUBENSTEIN: Okay. Can we pull up the Table 2 from the SEC document that we circulated to OPG yesterday. Maybe we can mark this as an exhibit.

M. MILLAR: KT-3.2. And what do you want to

call it?

M. RUBENSTEIN: This will be Table 2, DRP PRP RFBR table.

EXHIBIT KT-3.2: TABLE 2, DRP PRP RFBR TABLE

M. RUBENSTEIN: So this is a table that we put together based on the information from the 2016-0152 proceeding for the DRP for the RFR project target price, essentially the information you provided there on the scenarios. And then on the other side, we used the information you provided on the same scenarios for the PRP RFBR; do you see that?

S. NELMS: I do. I just wanted to confirm. So what you have done is taken the sum totals at the bottom of each of the tables; is that what is in the RFBR?

M. RUBENSTEIN: Yeah, yeah.

S. NELMS: And then is it the same for the RFR 2016?

M. RUBENSTEIN: Yes.

S. NELMS: Okay.

M. RUBENSTEIN: And then what we are showing in columns N and O and then in P and Q is the share of the variance between OPG and the contractor and -- do you see that?

S. NELMS: I do.

M. RUBENSTEIN: So I am going to first ask you by way of undertaking to confirm the accuracy of the table.

S. NELMS: Yes, we can provide that.

M. MILLAR: That is JT-3.12.

UNDERTAKING JT-3.12: CONFIRM THE ACCURACY OF TABLE 2, THE DRP PRP RFBR TABLE

M. RUBENSTEIN: So working on the assumption that it is accurate, what I -- what this shows compared to the difference between the PRP RFBR and the DRP RFR target pricing structures is that what you can see in the sort of share of the variance, in the DRP, there was a uniform -- there was sort of -- there was symmetry between cost overruns and cost savings where there is not any more for the PRP. And it is -- what you can see is that while OPG is getting more of the benefits if there is savings as compared to the DRP, the share of the variance if it is a cost savings, it is dramatically higher that their responsible share of the cost overruns.

I was wondering if you can help explain that to me, about what the logic and the thinking behind -- behind that is. And if you want to take that by way of undertaking, I am -- that is also acceptable.

C. KEIZER: Yeah, that was what I was reaching for the button to say. We will take it as part of an undertaking.

I. RICHLER: For the record, it is Ian Richler. I have just subbed in for Mr. Millar. We will note that next undertaking as JT-3.13.

M. RUBENSTEIN: Thank you very much.

UNDERTAKING JT-3.13: EXPLAIN THE LOGIC AND THINKING FOR THE DIFFERENCE BETWEEN THE PRP RFBR AND DRP RFR TARGET PRICING STRUCTURES, INCLUDING WHY OPG'S SHARE OF COST SAVINGS UNDER THE PRP IS GREATER THAN ITS SHARE OF COST OVERRUNS

M. RUBENSTEIN: Can we now go to D2-SEC-76. And so in this interrogatory, we asked about the balance of plant and facility infrastructure projects and how individual MSA contractors were chosen for each project. And in the response, you say it was not a competitive -- competitive RFP process, and I think there is some discussion in another interrogatory of why certain infrastructures -- and why that was the case.

Am I correct that for these projects, first with respect to the ESMSA contractors, you have a roster of ESMSA contractors that -- but then the selection between them, it is not a competitive process; do I have that right? There is no competitive procurement process?

S. NELMS: So you are correct in that the ESMSA has a roster of vendors. Those were selected competitively. The engineering services master services vendor of record agreement has been in place for some time. We use it for nuclear projects. We use it on Darlington refurbishment. It was established -- I think we have this in the evidence -- in 2012 via competitions. That is where we

established the rate structures and the other terms and conditions. So that is where the competition occurred. And then, as you say, it is an allocation process consistent with how we allocated work for Darlington refurbishment, now for Pickering.

M. RUBENSTEIN: But between the ESMSA contracts, it is not -- it is not competitively procured? You don't say which one of this -- you don't -- you don't -- you have a roster, but you don't then say -- you know, you don't put those out between the rostered ESMSA contractors; correct?

S. NELMS: That is correct. What -- the rationale is that the rate structures are very similar as between all of the vendors, so it is really about an assessment of their past experience. So we try and allocate work to ES Fox, Black and Mac, on the basis of their past experience, whether at Pickering or at Darlington, and then it is an overall assessment of their capacity. So the amount of work they have in aggregate, we want to make sure that is efficient -- sorry -- efficiently allocated.

M. RUBENSTEIN: And so I believe in D2-SEC-77, there is a discussion of -- for some buildings. The Makhos Bird JV was undertaken on a sole source basis; do I have that right?

S. NELMS: Yes, that is correct.

M. RUBENSTEIN: And I believe in the evidence, there is discussion about the RFBR that you -- it was

also not done on a competitive basis; correct?

S. NELMS: That is correct. We looked at the experience that CanAtom had secured via the Darlington refurbishment, and it made sense for a number of reasons to maintain that partnership on what is a similar scope of work.

M. RUBENSTEIN: Can OPG provide information that shows what percentage of contractor costs for the PRP as a whole are based on a competitive RFP process for that specific work, so not a past RFP to be on the ESMSA list, but competitive -- how much of the contractor costs that are included in the budget were competitively procured for the purposes of the -- specifically for the PRP project. Is that something you can do? Or an estimate? You don't have to get down to the dollar here.

C. KEIZER: I think that is fine, subject to any qualifications the witness may have with respect to capability to be able to do that.

S. NELMS: Yeah, I think we can divide up the work. I think the caveat that I would make, we may have a distinction around vendor records. We do view those as competitive -- competitively bid, but we can provide that.

M. RUBENSTEIN: Well, you can provide -- you can provide with or without that being -- we can deal with that later.

Can we go to D2-SEC-75, this Makhos Bird JV.

I. RICHLER: Let's just note that last one as JT-3.14.

UNDERTAKING JT-3.14: PROVIDE INFORMATION TO SHOW WHAT PERCENTAGE OF CONTRACTOR COSTS FOR THE PRP AS A WHOLE ARE BASED ON A COMPETITIVE RFP PROCESS FOR THAT SPECIFIC WORK AND PROCURED SPECIFICALLY FOR THE PURPOSES OF THE PRP PROJECT

M. RUBENSTEIN: And we asked why this was done by sole source. And you provide some responses and rationale for why, and you mentioned that you used an approved exemption to the competitive procurement; do I have that right?

C. KEIZER: Sorry. Are we on the right IR? Just maybe I have lost your -- oh, I see. Is line 26 -- 25 and 26, that is what we are looking at?

M. RUBENSTEIN: Yes.

C. KEIZER: Okay. Thank you.

M. RUBENSTEIN: You see that?

Is a copy of OPG's procurement policy on the record? I couldn't find it. I am not -- there is a lot of information, but I didn't actually see that. And if not, can that be provided?

C. KEIZER: Can we just have a moment, Mr. Rubenstein.

We should be able -- there is something on the record. We can get you a reference when we take the break.

M. RUBENSTEIN: Sure.

I. RICHLER: So let's note that and -- or is that something that you --

C. KEIZER: I think if we have it, we will tell him on the break. If we don't have it --

I. RICHLER: Okay.

C. KEIZER: -- then we will deal with at that time when we come back.

I. RICHLER: Fine.

M. RUBENSTEIN: Now, you say it is an approved exemption to that procurement governance. What is the basis of the exemption?

S. NELMS: So we use what is called a sole source justification that is -- think of it akin to a business case, that establishes the rationale for proceeding with a non-competitive procurement.

So in this case for the Makhos joint venture, it was because of our need for -- to broaden our vendor basis, it was because they are performed successfully similar scopes of work elsewhere, and they agreed to the same rates that they bid into a prior competitive process.

M. RUBENSTEIN: Can you provide a copy of that justification document or...

S. NELMS: We can. The caveat I would make is it likely contains confidential information.

M. RUBENSTEIN: I would expect that.

S. NELMS: We can do it on that basis.

C. KEIZER: Are you okay with that, Mr.

Rubenstein, in terms of it --

M. RUBENSTEIN: Yes.

C. KEIZER: -- being marked as confidential. It is fine.

M. RUBENSTEIN: And can I ask --

I. RICHLER: JT-3.15.

M. RUBENSTEIN: And maybe if we just -- to add to that, can you provide similar documents for the other major sole source procurements on the PRP projects? Presumably, there is a similar one for CanAtom, for the RFBR, and the others.

S. NELMS: So I think there would be three main scopes that fall into this category; Makhos Bird, the -- I believe it is Framatome, and then CanAtom would be the three --

M. RUBENSTEIN: Can you provide --

S. NELMS: -- we can --

M. RUBENSTEIN: -- all three of them?

S. NELMS: Yes, we can.

M. RUBENSTEIN: I think that is the same undertaking.

I. RICHLER: You are asking that to be rolled into JT-3.15?

M. RUBENSTEIN: Yeah.

I. RICHLER: Okay.

UNDERTAKING JT-3.15: PROVIDE A COPY OF THE SOLE SOURCE JUSTIFICATION DOCUMENT FOR THE MAKHOS JOINT VENTURE, FRAMATOME, AND CANATOM

PROCUREMENT FOR THE PRP PROJECTS, SUBJECT TO CONFIDENTIALITY

M. RUBENSTEIN: Can we just flip -- sorry, scroll down to the next page. And on the -- it says here at the "value-for-money," it says:

> "OPG completed an independent third-party estimate reviews to assess MBJV's pricing and confirm that the proposed rates and pricing are consistent with the market conditions and represent value for money." (as read)

Do you see that? Can you provide that?

C. KEIZER: Can I just have a moment?

Maybe I will let Mr. Nelms speak to what these things actually are and whether or not it is something we can produce.

S. NELMS: Yeah. So I think that is rolled into the sole source justification documents that we had already agreed to provide. But we can -- perhaps we can confirm at the break.

M. RUBENSTEIN: Okay. The only -- I read this as it is a third-party independent something you got someone else to do, and the exemption is an OPG sort of internal document -- you know, memorializing the justification. So it seems to me those are not the same thing. I just want to make sure that we are --

C. KEIZER: Sorry. You are asking whether there is a separate document from the ones that were already identified as part of the undertaking --

M. RUBENSTEIN: Yeah, well, I just want to make sure that we are not -- I am looking for the third-party estimate review, not -- and I took it that the sole source was an OPG internal document created by OPG that may summarize that document, but it is not the same thing. I just want to make sure that we are --

C. KEIZER: I think what we may want to do is just have a discussion about this at the break and figure out what documents are what --

M. RUBENSTEIN: Sure.

C. KEIZER: -- to be able to be clear with respect to any reply to the undertakings.

M. RUBENSTEIN: Okay. Can we go to D2-SEC-94. I am just about done here, so...

So in D2-SEC-94, we asked for a list of RRB members and their biographies, which you provide in Attachment 2. I think there was some discussion with Mr. Walker about this, without bringing it up, on the first day, and I think the -- Mr. Keizer mentioned that there -- it is confidential.

My understanding, it is actually personal information confidential. It is actually -- there is no -- it is permanently redacted, the information here. And so I have a question for OPG. Is it -- are -- is the company able to provide some document that explains the professional qualifications of these people to serve on the -- on this review board.

C. KEIZER: If I can just have a moment.

M. RUBENSTEIN: I am happy if you want to take this by way of undertaking but...

C. KEIZER: So I think what we would be doing is undertaking -- providing an undertaking to go away and determine if there is any documentation that can provide an understanding of the expertise of the individuals that are on this board without revealing any permanently redacted personnel information.

M. RUBENSTEIN: Yeah, I mean, I don't know what is there so I -- but seemingly that you must be able to provide the professional qualifications of these people that you are -- the company has put out as being sort of --

C. KEIZER: Yeah, no, I understand.

M. RUBENSTEIN: -- an important part of its oversight process.

C. KEIZER: I understand.

M. RUBENSTEIN: Now --

I. RICHLER: Sorry, Mr. Rubenstein, let's just note that as JT-3.16.

UNDERTAKING JT-3.16: PROVIDE DOCUMENTATION DETAILING THE PROFESSIONAL QUALIFICATIONS OF THE INDIVIDUALS TO SERVE ON THE REVIEW BOARD AND ADVISE AS TO OPG'S RATIONALE FOR HAVING FORMER EMPLOYEES ON THE REVIEW BOARD

M. RUBENSTEIN: And I think you had some -- Mr. Walker sort of asked the question about OPG

employees, and I think there was a discussion of that there is an internal member, I believe, of OPG who supports the review board.

J. BLAZANIN: That is right. This external membership is complemented with an individual internally that also sits on the review. It is part of their development, if you will. They are typically not associated with the project specifically. They are from another project or otherwise within nuclear, typically.

M. RUBENSTEIN: Are any of the external members of this review board former OPG employees?

J. BLAZANIN: The first one on the list is.

M. RUBENSTEIN: Can you explain how that --

J. BLAZANIN: If I go down. Paul Pasquet was a former employee. Michael Burke was not. Chris Grier was not. John Neal was not. Reg is not. Craig Sellers was.

M. RUBENSTEIN: Can you explain to me the thinking from OPG's perspective in the review board to having former employees of the company on it?

C. KEIZER: Can we wrap that into the undertaking we just gave?

M. RUBENSTEIN: I mean, if you would like, but, I mean, I don't know if the witnesses can answer it, then we can --

C. KEIZER: Well, I mean, it would go to the person's qualifications. Whether they were employed

or not employed, the point is the qualifications to the parties that actually sit on this board that you are looking for.

M. RUBENSTEIN: Yeah. Well, I guess my question is less about -- let's just assume they have --

C. KEIZER: It doesn't make them any less --

M. RUBENSTEIN: -- qualifications. I guess the question is the independent thinking in that component, that they are former employees.

C. KEIZER: I think we would still try to wrap it into the same undertaking.

M. RUBENSTEIN: That is fine.

C. KEIZER: Unless Mr. -- that is fine.

M. RUBENSTEIN: Okay. And maybe lastly, and in many ways where this entire panel started, if we can go to D2-SEC-95, we had asked you -- we had asked you to provide details of the regular reporting for the -- to the chief project officer, OPG executive leadership, regarding the PRP and to provide regular reporting mechanism. And for each regular reporting mechanism, provide us the latest copies.

Now, you actually -- you provided in Attachment 1 information, a -- sorry, a presentation, but actually, you didn't answer -- you provided some documentation but didn't answer, actually, the original question which was, what is the regular reporting that is provided to the chief project officer and OPG executive group regarding the PRP?

I think you had some discussion with Mr. Walker at the start of this yesterday. Can you just speak to that at a high -- at a level of the regular reporting?

J. BLAZANIN: I think Mr. Walker was asking specifically about the CEO and the CNO and the reporting framework around that. We have different levels of reporting that we undertake within the project itself, of course. There are -- within the various bundles, there are project management reporting that takes place within the project itself.

It rolls up to a program review status meeting that takes place monthly, so there is a monthly cadence in terms of the reporting overall for the Pickering refurbishment project. The chief project officer would attend that meeting. It is primarily a meeting for the SVP execution, but the CPO does attend that meeting. I will frequently attend that meeting as well, and others from the EPO. So that is monthly.

And then there are quarterly meetings that get rolled up to an executive level as well. So this the executive leadership team where you would find the CFO, the chief operating officer, the CNO would attend those meetings. They are members of the executive leadership team.

On a monthly basis, there is an executive leadership team performance update, which is a

summarized view, as well that goes to the executive leadership team. So the CEO would see those reports every month as well.

And to the board, we report quarterly and monthly as well. We draft reports to the board of directors as well on the status. There are quarterly meetings of the board, and that is where they are verbalized, if you will, where a presentation or update is provided to the board as well.

M. RUBENSTEIN: Thank you very much. Those are my questions.

I. RICHLER: Thank you, Mr. Rubenstein.

We are almost at time for our break, but I see the -- we have VECC down for 10 minutes, and VECC is scheduled to be the last questioner for this panel. Mr. Garner, are you on the line?

M. GARNER: I am. I have already ceded my time to -- I am not going to ask any questions.

I. RICHLER: Oh, have you? Terrific. Okay.

Now, I know, Mr. Keizer, you said there were some things you wanted to consider over the break. Would you like this witness panel to come back after the break? Do they need to speak to anything, or can they be dismissed, from your perspective?

C. KEIZER: I think they can be dismissed. I think the main discussion will be the scope of the undertaking that we were dealing with.

I. RICHLER: Okay. In that case, thank you to

this witness panel. We will take a break for -- we will come back at 10 after 3:00. Thank you.

--- Upon recessing at 2:53 p.m.

--- Upon resuming at 3:15 p.m.

I. RICHLER: Mr. Keizer, over to you.

PRELIMINARY MATTERS

C. KEIZER: Thank you, Mr. Richler. We do have some preliminary matters before we begin with this panel. I am going to turn it over to my colleague Ms. Zadeh to go through the couple of items, two or three items, that we took back before the break, and then there is one administrative matter directly related to this panel as well.

S. ZADEH: So starting with Mr. Gluck, you had a question in relation to Staff-15, Chart 1, which listed projects for both the hydroelectric and nuclear business -- sorry. Actually, if we could pull up that interrogatory just so that we are looking at the same thing. So this was Staff-15. I believe it is Chart 1. You had asked if we could provide the total project costs for those projects, and so we will do so by way of undertaking.

L. GLUCK: Thank you. The request was a little bit broader originally. It was -- it is that table, that is right. But also in the later responses, they give the proportion -- you give the proportion of the assets that have long lead materials, and if there is a dollar value associated with that as well, that is

what we were looking for. So it is really all projects with long lead time material impacts.

C. KEIZER: Sorry. All -- when you say "all projects," I guess that is what I am struggling with. Like, "all," like, hundreds of projects, or which projects?

L. GLUCK: Well, presumably you can convert those percentages into dollars. So if you look at -- sorry. I should take you through it. But if you look at Chart 3 and Chart 4, Chart 3 is about hydro projects, tier 2 projects, and then Chart 4 is tier 2 nuclear operations projects. And it shows the proportion of projects that have long lead materials. So I would think it would be possible to convert that into a dollar figure as well.

S. ZADEH: Okay. That is different than what we discussed, so I --

C. KEIZER: Sorry. Converting the 57 percent, say, for example, or whatever in 2027 to a dollar figure or the 46 percent to a dollar figure?

L. GLUCK: That is right. And then that would be additive --

C. KEIZER: Right. But not for each project, but just those --

L. GLUCK: No. Aggregate. We are looking for, like, a total dollar value.

C. KEIZER: Yeah, of all those projects that make up the 46 percent, what is the total of all of

those projects, one big total?

L. GLUCK: Yeah.

C. KEIZER: Well, OPG will give it on a best-efforts basis. To the extent that they can, they will do it. If for some reason there is an issue, then obviously they will indicate why on the undertaking.

L. GLUCK: Okay. Thank you. I appreciate it.

I. RICHLER: Let's note that as JT-3.17.

C. KEIZER: And that is in relation to Chart 3 and Chart 4.

UNDERTAKING JT-3.17: PROVIDE THE TOTAL PROJECT COSTS FOR THE PROJECTS IN RELATION TO THE PERCENTAGE AMOUNTS IN CHART 3 AND CHART 4

S. ZADEH: Okay. Next, Mr. Rubenstein, you were asking for procurement-related information. So, obviously, F3-3-1 speaks -- provides a summary of our procurement framework, but the procurement governance document is not on the record, so we can undertake to provide that governance document.

I. RICHLER: JT-3.18.

UNDERTAKING JT-3.18: PROVIDE THE PROCUREMENT GOVERNANCE DOCUMENT

S. ZADEH: And then similarly, when we were discussing single source justifications, there was a reference to third party-prepared documentation. So we will take an undertaking to consider whether or not -- whether we can or cannot provide that review.

And if we can, we will; if we cannot, we will explain why not. I just -- I don't have those documents in front of me. Okay. Great.

I. RICHLER: JT-3.19.

UNDERTAKING JT-3.19: PROVIDE THIRD PARTY-PREPARED DOCUMENTATION IN REGARDS TO THE MAKHOS-BIRD JOINT VENTURE'S PRICING

S. ZADEH: And I think the last one was in relation to SEC-137, if we can pull that up, please, Attachment 1, page 2. This is the revenue -- sorry. I think that is the right one. There was a request here to break it out between Pickering and Darlington, Mr. Rubenstein, so we will undertake to do so. And as part of that undertaking, we will respond to Board Staff's question regarding the rate riders and why they are not included in that rate -- or in that table.

I. RICHLER: JT-3.20.

UNDERTAKING JT-3.20: BREAK OUT THE REVENUE INFORMATION BETWEEN PICKERING AND DARLINGTON IN RELATION TO SEC-137, ATTACHMENT 1, PAGE 2, AND ADVISE WHY RATE RIDERS ARE NOT INCLUDED IN THE TABLE

C. KEIZER: I think that covers the administrative matters that we took away prior to the break. We did have one additional administrative matter in relation to the new Panel, that Panel Number 3. I am happy to deal with it now before we

do the introduction of the panels.

It is actually -- there was a series of questions which were provided by Mr. Rubenstein to OPG last night. The information in the questions contains confidential information, so the list of questions themselves are confidential. And so the nature of the undertaking is confidential. What we would prefer to do, given it is confidential to have it marked as, you know, JT-X or whatever it is going to be, to distinguish it from all other undertakings, recognizing that both in its form and substance, it is confidential.

I. RICHLER: Okay. We can note that as JT-3.21X. And just to be clear, this is a confidential response to certain written questions that Mr. Rubenstein submitted to OPG?

C. KEIZER: And the questions themselves are confidential.

I. RICHLER: Got it. Okay. JT-3.21X.

UNDERTAKING JT-3.21X: CONFIDENTIAL RESPONSE TO CERTAIN WRITTEN QUESTIONS SUBMITTED BY M. RUBENSTEIN TO OPG

M. RUBENSTEIN: Yeah, I am not clear exactly how the Board wants to deal with the questions -- file those confidentially and mark that as an exhibit. I am somewhat in Staff's hands how they --

I. RICHLER: Maybe we will take that back, and we can be in touch with you. We can figure out the

best way to do that.

M. RUBENSTEIN: Okay.

C. KEIZER: Yeah, maybe we can address that Monday or something. I believe that is the end of the administrative matters.

So we do have a new Panel, Panel Number 3, relating to the DNNP project. So I think what we would like is the Panel members to introduce themselves, starting first with Ms. Greenland, and then moving -- progressing through the Panel. Introducing yourself by name and title would be appreciated.

PANEL 3 APPEARANCES

L. GREENLAND: Good afternoon. Lindsay Greenland, vice president of major projects.

R. HOWARD: Good afternoon. Ryan Howard, vice president, major projects, responsible for executing Unit 1 SMR.

D. KINDLON: Derek Kindlon, director of projects-controllership.

S. NELMS: Good afternoon once again. Scott Nelms, vice president, commercial strategy.

A. KOGAN: Good afternoon. Alex Kogan, senior vice president, commercial integration and strategy, with accountabilities, including regulatory finance and nuclear liabilities finance.

C. KEIZER: The Panel is available for questions.

I. RICHLER: Thank you, Mr. Keizer. Up first is OEB Staff, Mr. Eminowicz.

EXAMINATION BY T. EMINOWICZ:

T. EMINOWICZ: Good afternoon, Witness Panel 3. Thank you for supporting the proceeding and the process here. My name is Thomas Eminowicz, and I am a senior advisor with Ontario Energy Board Staff. In preparing for questioning this Panel, we -- I think that most of our time that we had allotted here is probably better suited for Panel 4, so I really only have one general kind of high-level question for this Panel.

So can we please take a look at the interrogatory response to A2-Staff-10. There is just a particular statement on Attachment 2 -- sorry -- Attachment 6 on page 2. And so this is a Moody's report, and so I don't have questions about the report itself or the specifics of the report, but rather a term or a phrase that kind of caught my attention. And so in the second paragraph, in the second line, there is a sentence that just generally says:

> "OPG has selected a reactor that is based on a 10th generation boiling water reactor technology." (as read)

And I just didn't really see that kind of phrasing within the pre-filed evidence, so I was just wondering if OPG could please, just in plain

language, describe what is kind of meant by the "10th generation boiling water reactor technology."

R. HOWARD: Good afternoon. Ryan Howard. So I will start to answer that question. Just I am sure you know this, but different styles of reactors in the world, right. So this is a boiling water reactor. There is pressurized water reactors. There is our CANDU in Canada here. So different styles of reactors.

What this refers to is from the inception of the boiling water reactor design, there have been ten, broadly speaking, iterations of that design that brings us to the modern design that we are building at Darlington. In fact, you may hear it described as the BWRX-300. The "X" stands for "10th" generation of that reactor design.

T. EMINOWICZ: And is it possible in simple terms just to kind of understand what makes this 10th generation unique, like, I guess, different from previous or previous from the 9th?

R. HOWARD: Yes. So primarily, it is the first small modular reactor in this design evolution, so 300 megawatts versus earlier designs are larger. So that is one of the main differences. And in being a small modular reactor, it is also simplified. So in terms of the evolution of this design, there are far less systems compared to previous designs.

And one of the highlights that is documented in

our evidence is some of the passive nature of this design. So one of the reasons for the selection was that passive nature of some of the design.

T. EMINOWICZ: And sorry. Just to clarify, like, for me, I associate the word "passive" with, like, passive safety systems; is that a correct inference?

R. HOWARD: Yes. "Passive" does often refer to the safety systems; however, there are elements of the operational design, such as the natural circulation feature that that term is also used to describe.

T. EMINOWICZ: Thank you very much.

OEB Staff will use the rest of our time for Panel 4. That is all I have. Thank you.

I. RICHLER: Thank you.

Next up is SEC, Mr. Rubenstein.

EXAMINATION BY M. RUBENSTEIN:

M. RUBENSTEIN: Good afternoon, Panel. Can we first start at D2-AMPCO-70. In the response to this question -- we scroll down to the response -- in the last bullet point, it talks about:

> "In March 2026, the Board of Directors approved the release of additional 1.99 billion for incremental definition phase funding associated with units 2, 3, 4." (as read)

Do you see that? Do you see that?

D. KINDLON: Yes.

M. RUBENSTEIN: Are you able to provide the memo for that funding release?

C. KEIZER: It is not part of the revenue requirement, so I am not sure why we are actually -- you are seeking it.

M. RUBENSTEIN: Would I -- would -- well, a couple -- well, first off, would that memo also include status report on the project to date?

C. KEIZER: Is that why you are seeking the memo; you are seeking a current status report on the project?

M. RUBENSTEIN: One aspect. Second is I understand there is CCR related to units 2, 3, and 4.

C. KEIZER: But the amount of 1,991 is not in -- or before the Board for purposes of this proceeding.

M. RUBENSTEIN: So is that a refusal?

C. KEIZER: Yeah.

M. RUBENSTEIN: All right. Can we go to D2-AMPCO-88. Can we go to Attachment 2. This is the project control plan. Just give me a second here. We can go to page 40 of this document. And here the document is setting out some cost reporting metrics you have; do you see that?

R. HOWARD: Yes.

M. RUBENSTEIN: And one metric I have actually not seen before in OPG documents of past projects was the forecast accuracy factor; do you see that?

R. HOWARD: Yes.

M. RUBENSTEIN: And as I understand, it is an indicator of where the project forecast is compared -- - it is a -- well, maybe you can just speak to the intent of the forecast accuracy factor.

L. GREENLAND: The forecast accuracy factor is an indicator that allows us to pay additional attention to the forecast accuracy, our team's abilities to forecast over a three-month period. So it is intended to highlight where we may have forecasts that are varying month over month, and so it is -- whilst it is not a primary project measure, it is -- enables us to look at our project controls performance and our project management performance and accuracy in their ability to forecast over short periods of time.

M. RUBENSTEIN: And as I understand, it is on a rolling three-month basis?

L. GREENLAND: That is correct.

M. RUBENSTEIN: And how often do you actually present the forecast? Is it a monthly basis that you are doing this?

L. GREENLAND: Yes. It is a monthly indicator that looks at a three-month rolling period.

M. RUBENSTEIN: Can you provide the forecast -- the monthly forecast accuracy factor back to the start of the project?

R. HOWARD: You may have missed it, but the monthly performance package that was provided in

evidence does have the forecast accuracy factor for that -- that period.

M. RUBENSTEIN: I did miss it. That is -- so thank you. But that, presumably, is the snapshot at that time, not going back to the start of the project, sort of the -- seeing essentially the progression of how the project has been going on a forecast accuracy basis, which is a slightly different request.

R. HOWARD: So sorry. Could you repeat the request.

M. RUBENSTEIN: Could you provide the monthly forecast accuracy factor going back to the beginning of the project?

R. HOWARD: So, yes, no problem undertaking that. I would suggest that a relevant trend would be from the start of execution as opposed to earlier phases.

M. RUBENSTEIN: Well, how about you go back to the beginning, and you can point me to what that date of the execution is in the undertaking.

C. KEIZER: Yeah, we can provide that.

I. RICHLER: JT-3.22.

UNDERTAKING JT-3.22: PROVIDE THE MONTHLY FORECAST ACCURACY FACTOR GOING BACK TO THE BEGINNING OF THE PROJECT AND ADVISE WHEN THE METRIC WAS APPLIED TO DNNP AND WHETHER IT IS BEING USED FOR OTHER LARGE PROJECTS

M. RUBENSTEIN: Now, I haven't seen this metric before. I haven't seen this metric before. Is that something the company has been using for a while, this metric, for large projects?

L. GREENLAND: Apologies. I am not sure when that was initiated the forecast accuracy factor.

M. RUBENSTEIN: Right. Well, maybe in that undertaking, you can let me know, if this is a new [indiscernible] applied to the DNNP or it is something that has been just not in some of the documentation that I read with respect to other large projects in the past.

C. KEIZER: That is fine.

M. RUBENSTEIN: Can we go to D2-SEC-10, Attachment 3. And so the underlying IR asked about the lessons learned on other projects. And in Attachment 3, these are some what you are calling benchmarking reports for external projects. And as I understand, if you go to page 3 of this document, this appears to be some internal notes with discussions with OPG Staff and Staff from another entity. Is this correct?

R. HOWARD: Your statement is correct.

M. RUBENSTEIN: And if we go under "discussion" -- no, on the same page, just under the "discussion" section, it says, redacted:

> "Staff assembled a number of questions prior to the meeting concerning OPG's experience

implementing and administering a cost management solution for its projects." (as read)

And in the second paragraph, it says:

"A significant part of the discussion focused on challenges of obtaining buy in from all relevant business organizations and the concessions made by OPG that deviate from international best practices like the formula for cost variance." (as read)

Do you see that?

R. HOWARD: Yes.

M. RUBENSTEIN: Can you explain what part of a cost management -- what is it referring to?

No problem. Can you explain what part of cost management deviate from international best practices?

L. GREENLAND: I will have to take that back. I am not sure what it is referring to.

M. RUBENSTEIN: Sure. And so can I ask you to do the following -- I will just get to the next part. Can you explain what part of OPG's cost management deviate from international best practices -- then you see the next sentence says, "like the formula for cost variance," so at least we have that example.

Can you explain specifically how OPG's formula for cost variance deviates from international best practices?

C. KEIZER: Or if it does. Since it is not

OPG's document.

M. RUBENSTEIN: Well, I think it -- this is OPG --

C. KEIZER: Anyway, I think we know the intent of your undertaking.

M. RUBENSTEIN: Okay.

I. RICHLER: JT-3.23. I take it that is -- you are okay with that.

UNDERTAKING JT-3.23: EXPLAIN WHAT part of OPG's cost management processes, if any, deviate from international best practices as referenced in THE "DISCUSSION" PORTION OF D2-SEC-110, ATTACHMENT 3, AND EXPLAIN SPECIFICALLY HOW OPG'S FORMULA FOR COST VARIANCE DEVIATES FROM INTERNATIONAL BEST PRACTICES, OR IF IT DOES

M. RUBENSTEIN: Can we go to D2-SEC-116, Attachment 11. This is a report of the small modular reactor review board from October 2025. Can we go to page 4 of that document. And as part of the recommendation, it says:

> "By the end of December 2025, produce a realistic estimate at completion EAC range for procurement. This estimate should include a high, low, and most likely outcome." (as read)

Do you see that?

R. HOWARD: Yes.

M. RUBENSTEIN: Was that completed?

R. HOWARD: Yes.

M. RUBENSTEIN: Can you provide it? And also provide the procurement amount that is included in this application so that there is an apples-to-apples comparison with the estimate at completion at the high, low, and most likely outcome. Is that something you can do?

R. HOWARD: So just to clarify, you can correct me if you already knew this, this is a forecast to complete for procurement. This is not an actuals assessment.

M. RUBENSTEIN: No, I understand. As I understand the recommendation, at least how it is worded in the report, that they are asking for the procurement of the project to provide a realistic estimate -- its language, not mine -- at a high, low, and likely outcome. So I am looking for that and whatever the -- but then I am trying to understand what the forecast that you are using for the purposes of this application is to do the apples-to-apples comparison.

R. HOWARD: Yeah, understood. I don't have an issue.

C. KEIZER: We can do so to the extent that we can. If for some reason we cannot, we will articulate why we can't.

I. RICHLER: JT-3.24.

UNDERTAKING JT-3.24: PROVIDE THE REALISTIC ESTIMATE AS REFERRED TO ON PAGE 4 OF D2-SEC-116,

Attachment 11, AND ALSO PROVIDE THE PROCUREMENT AMOUNT THAT IS INCLUDED IN THAT APPLICATION TO SHOW AN APPLES-TO-APPLES COMPARISON WITH THE ESTIMATE AT COMPLETION AT THE HIGH, LOW, AND MOST LIKELY OUTCOME

M. RUBENSTEIN: Can we go to Attachment 12 of this same interrogatory. This is the February 2026 small modular reactor review board. If we can go flip to page 4. There is discussion about the IPD team realignment. If we scroll down.

And then on the next page, there is some discussion about the follow-up on this IPD model was in its early phases. And there is some discussion about the change, but it is really not clear to me what has happened here. Can you speak to this?

C. KEIZER: Sorry, is there a particular part that you are referencing, Mr. Rubenstein?

M. RUBENSTEIN: Sure. If you take a look at page 5 and the bullet point 3, it mentions that:

> "The rollout of this new IPD model was in its early phases during the SMRRB on-site review. The basis of the change and the mechanics of the new IPD model operated on a day-to-day basis were verbally reviewed at a high level of the SMRRB. There were some concerns that messaging of the change was inconsistent and might be confusing to the SMR-X organization." (as read)

Do you see that?

R. HOWARD: Yes.

M. RUBENSTEIN: It is just not clear to me exactly what the changes were to the model and what the issues are -- and could you just speak to this?

R. HOWARD: Yes, I can. This is not pertaining to the IPD model. This pertains to how we bundled the scope within the project. So in evidence, in a number of pre-filed evidence, notably D2-4-02 and 09, we talk about the bundle structure of the project, which is a term for how we divide up the scope.

So what the SMRRB was referring to here is when they were visiting in February, we had -- we are in the middle of a bundle reorganization, so moving scopes around between bundles. No change to the scopes, but better aligning with the current execution of the work in the field.

M. RUBENSTEIN: Okay. Can we now go to Attachment 14. So I asked a similar question with respect to the PRP Panel so -- the last panel with respect to the PRP review board, and there was an undertaking given, so I am going to ask for a similar undertaking.

The information for some of these people is permanently -- all of it is permanently redacted for, as I understand, personal information. And I was wondering if OPG could provide some form of information that allows us to understand the

qualifications of these individuals for these -- for membership on this board. And then the second component is if any of these external members have ever been employees of OPG.

C. KEIZER: Yeah, we can provide the undertaking on the same basis that we agreed to provide it with respect to PRP.

M. RUBENSTEIN: Thank you very much.

I. RICHLER: JT-3.25.

UNDERTAKING JT-3.25: PROVIDE SOME FORM OF INFORMATION SHOWING THE QUALIFICATIONS OF THE INDIVIDUALS ON D2-SEC-116, ATTACHMENT 14, AND ADVISE WHETHER ANY OF THOSE EXTERNAL MEMBERS HAVE EVER BEEN EMPLOYEES OF OPG

M. RUBENSTEIN: Can we go to D2-Staff-120. If we can scroll down to line -- if we can go to your response to part C. Yeah.

In line 21 it references OPG engaged a third party to independently review the governance process and procedures related to the development of the RQE. Is that the BTTC report included in the evidence?

L. GREENLAND: Yes, that is correct.

M. RUBENSTEIN: Thank you very much.

And, finally, and I don't think you need to pull this up, you have provided the DNNP basis of estimate but not the basis of schedule. Can you provide the basis of schedule?

L. GREENLAND: Yes, we can provide the basis of

schedule.

I. RICHLER: JT-3.26.

UNDERTAKING JT-3.26: PROVIDE THE DNNP BASIS OF SCHEDULE

M. RUBENSTEIN: And those are my questions. Thank you very much.

I. RICHLER: Next up is CCC, I believe. Mr. Gluck.

EXAMINATION BY L. GLUCK:

L. GLUCK: Good afternoon, Panel. My name is Lawrie Gluck, and I am a consultant on behalf of the Consumers Council of Canada. I only have a few questions for you today.

If we could open D2-CCC-56H, please. If we could just start with the question.

In this question, we asked whether all of the critical milestones could be met and the associated milestone-related reward payments made during the construction period, but the fully completed project ends up costing an amount that requires the entirety of the IPA contingency scope.

In the response, if we could go there, OPG noted that this scenario is highly unlikely, and it provided a discussion, including commentary about the depletion of the reward pool -- stating that the depletion of the reward pool will trigger funding from the risk pool. Can you elaborate on this response, please.

S. NELMS: So I think maybe to best answer this question, take a step back and describe how the incentive -- the ongoing incentive payouts work in the model.

So there are essentially two tests for each of the milestones, and those are laid out in evidence. The first is that the milestone is met on cost and on schedule. So the individual -- there is usually one a year

But the second is that the project itself -- and we have a number of health metrics that we are looking at which tie back to some of the scores that we are looking at on a very regular basis -- those need to be met as well. So cost, schedule, quality, safety, all the sorts of things that we look at.

And so that is why when we say it is highly unlikely that we are going to pay out a milestone and then need to claw it back or essentially be short in terms of the amount that we have in our -- either the risk or reward pool because the project needs to be on track at all times to get any of these payouts.

I think this -- the point specifically being made here is the way in which the overall contingency works. So we start by depleting the reward pool which doubles as contingency. If that is depleted, we then would go to the risk pool. And so I think the point here is if in that unlikely scenario, we were -- we had depleted more of the reward pool than

we -- than would have been ideal in the circumstances of the project, then we would be drawing down the risk pool, which is, again, coming from the non-owner parties for the most part. So it would net out to the same effect is what we are trying to say.

L. GLUCK: Okay. Thank you.

I do want to just sort of walk through the scenario a little bit with some numbers, and maybe that will help me to understand. So my understanding is the milestone-related reward payments are set at 20 percent of the execution reward pool, and the amount of that reward pool is $547 million; is that right?

I think this -- my notes say part E. It is probably in the table below.

So I could restate. My understanding is that that -- it says reward pool, execution sub pool, 547 million, and 20 percent of that -- excuse me -- is set aside for the milestone-related payments; is that right?

S. NELMS: That is correct. What I would just point to -- maybe it is worth going there -- is in D2, Tab 4, Schedule 3 on page 11, we lay out the milestones. Just in the main body of the evidence. That is right. Page 11. So what I wanted to draw attention to is on line 21. Just to scroll down a little bit more.

I just wanted to point out that mechanical

completion is one of the milestones, and, in fact, it attracts a significant component of the total 20 percent that could be paid out. And mechanical completion happens quite late in the project. So I just wanted to frame up that a lot of this reward is back-ended to de-risk the project.

L. GLUCK: Okay. Thank you.

And do you have just high level? I don't really need exact numbers. But so it is -- based on what you just told me, there is six sort of milestones on the list you just brought me to. You are saying it is back-ended. What would be sort of the percentages for the earlier steps versus -- the earlier milestones versus the end milestones?

S.NELMS: I wonder if maybe that is better as an undertaking? We can --

L. GLUCK: Sure.

S.NELMS: -- make that breakout.

I. RICHLER: JT-3.27.

UNDERTAKING JT-3.27: PROVIDE THE PERCENTAGES FOR THE EARLIER MILESTONES VERSUS THE END MILESTONES IN D2, TAB 4, SCHEDULE 3, PAGE 11

L. GLUCK: Thank you.

So really, the final question on this topic is if the Unit 1 came in at a cost that -- excuse me -- that is incremental to the RQE, so came in above, is it possible that you will have made milestone payments to the non-owner parties? And in that case,

are those -- let me stop there. Is that possible, that it could come in above the RQE and you have made milestone payments of some amount?

R. HOWARD: I would say it is highly unlikely. Excuse me. Scott mentioned that it is -- these milestone payments are tied to current project performance at the time that the milestones are achieved. They are your standard project performance measures; safety, quality, cost, schedule. So to achieve those milestones and being well overspent on the project is an unlikely set of conditions.

L. GLUCK: Okay. Thank you.

And if they -- if milestone payments were made and this does somehow happen, are those milestone payments clawed back or they are held by the non-owner party? Like, is there a clawback mechanism on milestone payments or not?

S. NELMS: No, there is not.

L. GLUCK: Okay. Thank you.

I just have one last question for this Panel. Could we go to D2-CCC-59, please. And in this question, we had asked whether there is a potential off-ramp related to units 2 to 4 of the DNNP. And in the response, it explains that units 2 to 4 are currently in the definition phase, and moving forward with their execution phase will require approval by the DNNP Board of Directors and the OPG Board of Directors.

In terms of the timing -- excuse me. In terms of the timing of the development of the RQE for units 2 to 4, do we -- is that on the record, or do you have the timing as to when the execution phase RQE is expected to be ready for approval for units 2 to 4?

C. KEIZER: One, I am not sure it is relevant and -- in terms of what is in this application, and even if it were, I believe that information would be confidential.

L. GLUCK: Well, we are interested in the timing of a potential off-ramp that this response says that there is, you know -- it sounds like there is a potential off-ramp in terms of you need to get DNNP approval, DNNP LP, Board of Directors and OPG Board of Directors approval for units 2 to 4 execution ROE, and we just don't know the timing of that potential off-ramp.

C. KEIZER: Well, I understand the nature of your question, but this application is only considering Unit 1, so the off-ramp related to 2 to 4 is irrelevant to the application here, which is applying for the in-service of Unit 1.

L. GLUCK: Okay. Thank you. Those are my questions.

I. RICHLER: Thank you, Mr. Gluck.

We have actually managed to make up a little bit of time today. Mr. Gluck was the last person scheduled for today. So let me just ask -- let me

just canvass the intervenors, both in the room and online. Is there anyone who is scheduled for Monday for questions for this Panel who is prepared to go now and take us to 4:15 or 4:30? Last call? Okay.

In that case, unless there are any administrative matters that we need to deal with, I think we can call it a day. We will resume on Monday morning at 9:30. Thanks, everyone. Have a good weekend.

--- Whereupon the proceeding adjourned at 4:01 p.m. to resume Monday, May 30, 2026 at 9:30 a.m.