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MANITOBA PUBLIC UTILITIES BOARD

Re: MANITOBA HYDRO'S APPLICATION
FOR APPROVAL OF NEW ELECTRICITY RATES
FOR 2010/11 AND 2011/12

Before Board Panel:

- Graham Lane - Board Chairman
- Robert Mayer, Q.C. - Board Member
- Len Evans (np) - Board Member

HELD AT:

Public Utilities Board
400, 330 Portage Avenue
Winnipeg, Manitoba
February 28, 2011
Pages 3151 to 3358

1 APPEARANCES
2 Bob Peters)Board Counsel
3
4 Patti Ramage)Manitoba Hydro
5 Marla Boyd)
6
7 Byron Williams)CAC/MSOS
8 Myfanwy Bowman (np))
9
10 Antoine Hacault)MIPUB
11
12 Michael Anderson (np))MKO
13
14 William Gange)RCM/TREE
15
16 Delanie Coad (np))SCO
17
18 Denise Pambrum (np))City of Winnipeg
19
20 Gavin Wood)Independent Experts
21
22
23
24
25

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EXHIBITS

No.	Description	Page No.
MH-61	Presentation prepared by KPMG to support their direct evidence	3162
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	UNDERTAKINGS		
	No.	Description	Page No.
1			
2			
3	69	KPMG to provide, if it can be located,	
4		the draft report of the external quality	
5		review	
6	70	KPMG to provide minutes of presentation	
7		of the report	
8	71	KPMG to confirm that the details of the	
9		antecedent process in each month would be	
10		that beyond the end of the current water	
11		year, which ends on March 31st, the HERMES	
12		typically takes as input median historical	
13		flows rather than something based on	
14		antecedent forecasting	
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1 --- Upon commencing at 9:32 a.m.

2

3 THE CHAIRPERSON: Good morning, everyone.
4 First I have to indicate that one (1) of our panel
5 members, Dr. Evans, is ill, and rather than run the risk
6 of rushing his recovery we've de -- decided to go down to
7 a two (2) member panel. So with that, maybe perhaps Ms.
8 Southall could give us an update of where we are.

9 MS. ANITA SOUTHALL: Thank you, Mr.
10 Chairman. Good morning, Mr. Chairman and Mr. Vice
11 Chairman, participants at the Hearing. I am going to be
12 Board counsel for the KPMG portion of the Hearing
13 proceeding over the next few days. And I think, as I
14 understand it, that's how we're proceeding this morning.

15 So Ms. Marla Boyd is Manitoba Hydro
16 counsel to introduce KPMG's direct evidence. Following
17 that will be Board counsel cross-examination. And then
18 we'll follow the regular series of intervenor cross-
19 examination and -- and any reply.

20 THE CHAIRPERSON: Very good. Thank you
21 very much. And, Ms. Boyd, if you wouldn't mind interview
22 -- introducing the KPMG witnesses, and welcome to all of
23 you.

24 MS. MARLA BOYD: Certainly, Mr. Chairman.
25 Thank you. Good morning, Mr. Chairman and Mr. Vice

1 Chair. We present this morning the KPMG panel of
2 witnesses. To my immediate right is Mr. Will Lipson; to
3 his right, Frank Chen; Jonathan Erling and Anurag Gupta
4 -- sorry, Gupta. Behind is Mr. Bob Owen of KPMG as well.

5 If we could have the panel sworn we can
6 begin by qualifying them.

7 THE CHAIRPERSON: Mr. Singh...?

8

9 KPMG PANEL:

10 WILL LIPSON, Sworn

11 FRANK CHEN, Sworn

12 JONATHAN ERLING, Sworn

13 ANURAG GUPTA, Sworn

14

15 EXAMINATION IN CHIEF BY MS. MARLA BOYD: (Qualification)

16 MS. MARLA BOYD: If we could start, Mr.
17 Chairman, I'll ask Mr. Lipson to provide an indication of
18 his education and qualifications, his experience, and his
19 previous testimony.

20 MR. WILL LIPSON: Okay. Thank you and
21 good morning. I'm Will Lipson. I am a partner at KPMG.
22 I have been with the firm for approaching thirty-two (32)
23 years now, twenty-two (22) years as a partner in the
24 advisory practice. I'm a certified management
25 consultant. My undergraduate training: I have a Bachelor

1 of science in computer science, as the major, from the
2 University of Toronto. I have a Master's in business
3 administration from the University of Western Ontario. I
4 am a member of the Institute of Certified Management
5 Consultants of Canada and I have a CF designation from
6 the Canadian Institute of Chartered Accountants, although
7 I'm not a chartered accountant myself. I have, again,
8 been doing consulting assignments at KPMG since 1979, and
9 I have on previous occasions appeared as an expert
10 witness.

11 MS. MARLA BOYD: Thank you, Mr. Lipson.
12 Mr. Chen, could you please describe your education,
13 qualifications, and relevant experience for the Board?

14 MR. FRANK CHEN: Yes. Good morning. My
15 name is Frank Chen, I'm a director with KPMG. I've been
16 with KPMG for ten years. I serve as the financial risk
17 management practices service line leader in Western
18 Canada.

19 I specialize in risk management for
20 companies who engage in commodity and energy trading.
21 And I have an MBA from Pepperdine University and -- and a
22 Bachelor's in economics from UCLA.

23 MS. MARLA BOYD: Thank you. Mr. Erling,
24 could you please describe your education, qualifications,
25 and relevant experience for the Board?

1 MR. JONATHAN ERLING: Good morning. I'm
2 managing director at the KPMG office in Toronto. My
3 practice area focuses generally on the power and
4 utilities sector. I have been with KPMG for about 22
5 years.

6 I have appeared on one pre -- prior
7 occasion before this Board in connection with the
8 hearings, reviewing the Centra Gas merger. I have
9 appeared twice before the Ontario Energy Board, once in
10 connection with IFRS, another case in connection with the
11 treatment of tax variances in the rate-setting process.

12 I have also authored a number of reports
13 on behalf of regulated utilities that had been filed with
14 regulatory agencies, notably some cost allocation
15 studies, and overhead capitalization studies for New
16 Brunswick Power, Hydro Ottawa, and Union Gas.

17 My undergraduate degree is in engineering
18 science focussing on mechanical engineering. I have a
19 Master's of business administration from the University
20 of Toronto and I am a registered professional engineer in
21 the province of Ontario.

22 MS. MARLA BOYD: Thank you. And finally,
23 Mr. Gupta, could you please describe your education,
24 qualifications, and relevant experience for the Board?

25 MR. ANURA GUPTA: Thank you. Good

1 morning. I'm a senior manager in KPMG and I've been with
2 KPMG for almost three years now. My background is in the
3 energy industry. I worked at Ontario Power Generation.
4 Before Ontario Power Generation I worked at TXU Energy in
5 Dallas, both on the trade floor, I used to trade
6 financial and physical products and then in structured
7 transactions doing project financing and other structured
8 transactions.

9 By way of ba -- education, I have a
10 Bachelor of Science degree. I also have an undergraduate
11 degree in engineering, mechanical engineering, and I have
12 an MBA in finance from Tulane University in New Orleans
13 with a specialization in energy finance.

14 And I have testified before, but not --
15 not in Canada but in the United States before a
16 regulatory panel. Thank you.

17 MR. MARLA BOYD: Thank you. Mr.
18 Chairman, with that and subject to any comments that
19 other parties may have, we would ask that the KPMG panel
20 be qualified as experts in financial analysis, risk
21 management, hydro-electric modelling, contractual
22 analysis, and governance structures.

23 THE CHAIRPERSON: Thank you, Ms. Boyd.
24 Mr. Williams, do you have any questions?

25 MR. BYRON WILLIAMS: I have no questions.

1 And certainly my clients look forward to hearing the
2 evidence of the witnesses. They take no -- no position
3 on their qualifications.

4 THE CHAIRPERSON: For MIPUG, Mr.
5 Hacault...?

6 MR. ANTOINE HACAULT: I have no
7 questions, Mr. Chairman.

8 THE CHAIRPERSON: Mr. Gange...?

9 MR. BILL GANGE: We have no questions and
10 no objection.

11 THE CHAIRPERSON: Mr. Wood...?

12 MR. GAVIN WOOD: The -- the same.

13 THE CHAIRPERSON: Ms. Southall, do you
14 have anything?

15 MS. ANITA SOUTHALL: No, nothing to add
16 there, Mr. Chairman.

17

18 RULING (Qualification):

19 THE CHAIRPERSON: We look -- we will look
20 forward to their evidence. Ms. Boyd...?

21 MS. MARLA BOYD: Thank you, Mr. Chairman.
22 I guess by way -- by way of a housekeeping matter. We
23 have circulated this morning a presentation that's been
24 prepared by KPMG to support their direct evidence. We'd
25 ask that that be marked as Manitoba Hydro Exhibit Number

1 61 I believe is the appropriate number.

2

3 --- EXHIBIT NO. MH-61: Presentation prepared by KPMG
4 to support their direct
5 evidence

6

7 THE CHAIRPERSON: Very good.

8

9 CONTINUED BY MS. MARLA BOYD:

10 MS. MARLA BOYD: Thank you. To begin,
11 Mr. Lipson, you were responsible for the oversight and
12 preparation of the report titled "Manitoba Hydro External
13 Quality Review," which is prepared by KPMG and filed as
14 Appendix H to PUB Order 95/'10?

15 MR. WILL LIPSON: Yes, that's correct.

16 MS. MARLA BOYD: And are there any
17 corrections to be made to that report?

18 MR. WILL LIPSON: There are two (2)
19 issues we would like to raise up. I'm going to turn to
20 my colleagues to my right to raise each of those two (2)
21 issues. Jonathan...?

22 MR. JONATHAN ERLING: I'll speak to a
23 suggested correction on page 46 of the report. I'm
24 looking at paragraph 4, and I'll give you a moment to
25 find the page.

1 The supporting text or the text in that
2 paragraph implies or suggests that the data in Exhibit 34
3 would be the result of an IFF forecast prepared in July.
4 In fact, the data that appear in the exhibit would have
5 been pre -- generally resulting from forecasts prepared
6 two (2) months later. The specific data, or date for
7 each element of that exhibit is noted already in
8 materials filed by Manitoba Hydro in response to
9 PUB/MH/RISK-99.

10 The background for this is that the
11 initial IFF forecast is prepared in July, but the data in
12 the exhibit actually represent updated data that was
13 finalized two (2) or three (3) months later.

14 MS. MARLA BOYD: Thank you. And, Mr.
15 Gupta, did you have a correction to speak to as well?

16 MR. ANURAG GUPTA: Yes, it's on page 177
17 of the report. And I'll -- I'll just wait for a second.
18 On page 177, under section 4.10.3 there are three (3)
19 bullet points. The second and third bullet points
20 currently read, "Ten (10) Year Low Flow" et cetera and
21 "Fifteen (15) Year Low Flow" and so on. It should
22 actually read, Ten (10) Year High Flow and Fifteen (15)
23 Year High Flow. And my apologies for any confusion that
24 might have created. Thank you.

25 MS. MARLA BOYD: Thank you. Mr. Lipson,

1 subject to those corrections, do you adopt the report on
2 behalf of the KPMG panel?

3 MR. WILL LIPSON: Yes, I do.

4 MS. MARLA BOYD: Thank you. And perhaps
5 you'd like to begin with Exhibit 61. You can walk the
6 Board through the highlights of your report, please.

7 MR. WILL LIPSON: Okay. Thank you, Ms.
8 Boyd. Okay. So if we turn to the Exhibit 61, on Slide 1
9 we discuss briefly the terms of reference for -- for
10 KPMG's engagement. Again, KPMG was retained by Manitoba
11 Hydro's Board of Directors to carry out an independent
12 assessment of Manitoba Hydro's risk-management practices.

13 There were four (4) primary tasks in the
14 terms of ref -- reference, which in essence are as
15 follows, to review existing internal and external reports
16 relating to Manitoba Hydro's risks, as well as the source
17 data for each of the reports, to provide a conceptual
18 outline to Manitoba Hydro for an independent study of
19 these matters, to then conduct the independent study, and
20 then to prepare a report summarizing our findings,
21 conclusions, and recommendations.

22 Now, in doing this work our scope was
23 limited to the hydro-electric operations of Manitoba
24 Hydro and the related corporate functions. This was not
25 an assignment where we looked at the entire Corporation,

1 but focussed on the hydro-electric operations.

2 Okay. If we can continue now to Slide 2,
3 which overviews the conduct of the work, how we actually
4 carried out the work in the terms of reference, initially
5 we started to mobilize and read background materials
6 commencing on November 18th, 2009. And that was a little
7 bit early compared to many assignments in that our final
8 proposal letter wasn't submitted until November 20th and
9 was eventually executed by Manitoba Hydro six (6) days
10 later on the 26th of November.

11 We did this early start to shorten the
12 time necessary to conduct the work. We understood right
13 from the beginning the urgency of completing this in as
14 timely a fashion as possible and so we got an early
15 start. In general we conducted our work in a two-phased
16 approach. Phase 1 produced the conceptual outline of the
17 in-depth study that was carried out in Phase 2.

18 Phase 1 was designed to get us up to speed
19 quickly on the relevant issues and to identify the key
20 questions to be addressed in Phase 2. To do so we
21 assembled and reviewed a variety of background materials.
22 We received some briefings from a variety of Manitoba
23 Hydro personnel. We developed a set of analytical tools
24 for our -- sorry, tools for our Phase 1 work, used those
25 tools to conduct a variety of analysis, documented the

1 conceptual outline, and organized ourselves to be able to
2 commence work immediately on Phase 2 right after the
3 acceptance of our Phase 1 work.

4 Now, that sounds like a lot, but the Phase
5 1 report was dated December 4th, 2009, which is a little
6 bit more than two (2) weeks after commencing our work,
7 and it is reproduced in its entirety as Appendix B to our
8 main report.

9 In Phase 2 -- our Phase 2 work is
10 described in detail in our final report. In order to
11 carry out Phase 2 within the tight time constraints that
12 we faced and to ensure that the right expertise was being
13 brought to analyze the various types of issues identified
14 in both an efficient and effective manner. We organize
15 ourselves into four (4) core teams. We had a team
16 entitled, "Power risk management," which Frank Chen
17 headed. We had a team focussed on forecasting models
18 headed by Jonathan Erling. And we had a team head --
19 entitled, "Power sales management," which Anurag headed.
20 So my three (3) colleagues to my right represent those
21 three (3) teams. And lastly, we had a team entitled,
22 "Risk governance," headed by a former Winnipeger, Craig
23 Fossay, who is not here today but headed that team.

24 These four (4) core teams were supported
25 by a project management team which I led, a due diligence

1 and oversight team, and a task execution team. So we
2 organized ourselves into teams to be able to -- to carry
3 these out effectively and efficiently.

4 Okay, on slide 4, what did we actually
5 carry out? We employed a variety of methodologies to
6 carry out our work, including several and additional
7 interviews of Manitoba Hydro staff, additional review of
8 Manitoba Hydro documentation and data. We conducted a
9 series of case studies of other utilities, which are
10 described in Appendix E to our report. We accessed the
11 expertise of two (2) sub-consultants, NERA and CDD
12 Howard, to sup -- supplement our own expertise in
13 specific technical matters relating to contracting
14 structure and hydrological modelling. We conducted a
15 literature review. We conducted analyses of the models
16 and their logic. And we actually directed model runs to
17 be run by Manitoba staff that we specified, and they
18 executed the runs.

19 And all of that led eventually to the
20 delivery of our final Phase 2 report on April 15th, 2010.
21 So, effectively, given the Christmas break, it was about
22 a three and a half (3 1/2) month exercise. Okay.

23 On slide 5 we summarize our key findings.
24 First, there was no material risk that Manitoba Hydro is
25 facing bankruptcy as a direct consequence of its export

1 power sales practices. Second, there is no material risk
2 that Manitoba is facing power outages as a direct
3 consequences of Manitoba Hydro's export sales practices.
4 Thirdly, Manitoba Hydro's drought management strategies
5 are prudent in the context of a hydro-based generation
6 system. Fourth, there is no evidence to support an
7 assertion of losses approaching a billion dollars in --
8 in the five (5) years preceding our work, based on our
9 analysis of Manitoba Hydro's modelling, export sales
10 contracts, and risk management practices. Manitoba Hydro
11 has prudently utilized a strategy based on entering into
12 long-term contracts and the securing of transmission
13 rates in the development of its system. And lastly, that
14 Manitoba Hydro has operated in accordance with its
15 legislative mandate.

16 So overall, just in more layman's
17 language, in the context of the nature, size, and
18 business model of its hydro-electric power operation, we
19 are satisfied that Manitoba Hydro is following sound
20 practices in its use of forecasting models, long-term
21 power sales contracting, risk governance, and power risk
22 management.

23 And on that basis, I'm going to turn it
24 over to Frank Chen. We'll be going down the line in this
25 order to talk about the -- Manitoba Hydro's risk

1 governance practices.

2 MR. FRANK CHEN: Thanks, Will. In
3 reviewing Manitoba Hydro's risk governance practices we
4 specifically looked at in -- the independent risk
5 oversight and risk governance structure, the organization
6 structure, focussing on export power sales and policy
7 documentation.

8 With respect to risk governance we
9 examined closely the -- the risk management roles and
10 responsibilities and reporting relationships to -- to
11 determine independence as well as the risk management
12 policies governing these export power activities.

13 With respect to risk governance we
14 focussed on four (4) ri -- specific risk management
15 functions within Manitoba Hydro. They included corporate
16 risk management, power sales risk management, financial
17 risk management, and major capital projects. And our
18 analysis included a comparison of Manitoba Hydro
19 practices vis-a-vis industry and prevailing pra --
20 industry practices.

21 To give you some preliminary context in
22 terms of the overall structure within those four (4)
23 functions, the org chart illustrates how the -- the
24 reporting relationships as well as how each function
25 relates to each other. At the top you'll see that

1 there's the Manitoba Board of Directors, underneath, the
2 audit committee and the executive committee, and then the
3 four (4) risk management functions with their respective
4 oversight committees, beginning with the corporate risk
5 management steering committee that's responsible for the
6 enterprise risk management program, the planning review
7 committee that's responsible for major capital projects
8 oversight, the export power risk management committee
9 responsible for export power sales activities, and the
10 financial risk or the audit committee responsible for
11 overseeing financial risks and financial disclosures.

12 So beginning with the corporate risk
13 management function, that refers to broadly the
14 Corporation's or Manitoba Hydro's enterprise risk
15 management framework. In that framework what it does is
16 it identifies, assesses, measures and reports Manitoba
17 Hydro's key business risks at the corporate-entity level.

18 And those key business risks include
19 market, financial, environmental, infrastructure,
20 business, operational, reputation, governance,
21 regulatory, legal, Aboriginal, technology, and strategic
22 risks.

23 In our review of the corporate risk
24 management function, the following key practices are
25 consistent with leading and prevailing industry practices

1 in that these key business risks are assessed across two
2 (2) variables: the probability or likelihood of that risk
3 event happening and severity or magnitude of impact of
4 financial loss associated with these risks. Risk
5 remediation or action plans are taken to reduce both the
6 likelihood and probability or severity of these key
7 business risks to acceptable levels. And lastly, these
8 risks are reported to the appropriate oversight
9 committees including corporate risk management, steering
10 committee, the executive committee, the audit committee
11 and Manitoba's -- Manitoba Hydro's Board.

12 The second risk management function is
13 power sales risk management which refers to how Manitoba
14 Hydro measures, monitors, and controls and reports
15 specifically key power transacting risks, i.e., export
16 power sales. And that specifically addresses market,
17 credit, and operational risks.

18 The following bullets or practices are
19 consistent with leading and prevailing practices.
20 Dedicated independent risk management committee as
21 indicated in the previous org chart, the -- we'll call it
22 the EPRMC, is responsible for overseeing the management
23 of the energy supply and financial risk associated with
24 MH's participation in the export power market. The EPRMC
25 is chaired by the CEO along with representation from the

1 CFO and senior exec -- senior MH executives on -- on the
2 Board or on the -- on the committee. And their
3 responsibilities are consistent with industry practices
4 such as reviewing and approving criteria associated with
5 electrical engine -- ener -- energy planning and
6 operations, long-term export power marketing initiatives
7 and a -- an opportunity in the export marketing and
8 trading initiatives.

9 They are also responsible for reviewing
10 and approving MH's export risk management program,
11 including risk tolerance, risk measurement methodologies,
12 strategies and instruments. They approve general drought
13 management strategies, including securing energy
14 supplies, hedging, and analytics, reviewing and approving
15 trading and export policies and procedures, and reviewing
16 reports and audits of market activities and transactions.

17 To give you some context as to the scope
18 and breadth of export -- export power activities, there's
19 three (3) types of transactions broadly: long-term,
20 short-term, day-ahead. And long-term are defined as
21 dependable power sales or transactions with term length
22 greater than one (1) year. Short-term is defined as
23 power transactions with term less than or equal to one
24 (1) year. And day-ahead are essentially transactions no
25 longer than the next calendar day.

1 Scope of authorized transactions are
2 presented on the following slide on page 11, and I can
3 walk you through that briefly just so that we're -- to
4 stay on topic. PSO scope of authorized transactions not
5 only include day-ahead but you'll see they're real-time.
6 The short-term is illustrated less than a year. Long-
7 term, although saying greater than ten (10) years is also
8 viewed as one (1) year with -- designated as dependable
9 power transactions.

10 Exchange trader products such as futures
11 and exchange-traded options, over the counter products,
12 forward options and SWOTS, financial transmission rights,
13 which is a RTO product, or a transmission product, and
14 ancillary services, which is also an ISO or RTO product.

15 And just some high level observations
16 regarding export power sales activities, in our view,
17 day-ahead sales typically are not exposed to long-term
18 price volatility just due to the immediate settlement
19 that they are next-day. They only last -- or -- or
20 expired till next day. Price volatility does exist in
21 the spot markets, but poses minimal risk due to MH's
22 activity in the spot -- spot market, which is essentially
23 selling excess supply. MH does not undertake speculative
24 trading activity. They don't have -- they don't take
25 market positions, and MH policies stipulate the scope of

1 authorized transactions and the middle office is
2 responsible for monitoring power sales compliance with
3 policies.

4 The third financial -- or the third risk
5 management function is financial risk management which
6 refers to the internal controls over the financial
7 reporting process, which is essentially the accounting
8 and financial disclosures. The internal controls for MH,
9 as well as any other organization span across people,
10 process, and technology.

11 With respect to leading and prevailing
12 practices, financial -- financial risk management is
13 consistent with those practices in that there's an audit
14 committee that oversees financial reporting risks.
15 Independence exists between accounting and commercial
16 personnel, and the standards of protocol for financial
17 reporting such as PNL, accounts payable, and receivables,
18 cashflow, support senior management oversight and enable
19 strategic planning decisions.

20 Lastly, the fourth risk -- risk management
21 function is major capital projects and how Manitoba Hydro
22 manages the inherent risks associated with significant
23 infrastructure projects such as development of new
24 generation transmission capacity.

25 There is a oversight committee responsible

1 for overseeing major capital project risks, and that is
2 the PRC, and the PRC makes recommendations to the
3 executive committee for -- for recommending -- or for
4 approval of any remediation or plants to address those --
5 those risks. The PRC is appointed by -- PRC members are
6 appointed by the CEO and drawn -- and other members are
7 drawn from MH's senior management group.

8 The PRC is essentially responsible for
9 risk -- dealing with matters such as forecasts, the
10 economic outlook, energy price outlook, systems load
11 forecast, and avoided costs. They look at the integrated
12 resource plans, DSM plans, supply site management plans,
13 generation development plans, trans -- transmission, and
14 import/export plans and contracts in order to -- to
15 assess significant capital projects.

16 It is important to point out as well that
17 a year has transpired since the report was submitted and
18 some significant initiatives have taken place since then.
19 And to point these out, in line with the recommendations
20 or suggestions in our report, a market risk analyst has
21 been -- has been added to perform an analytic function
22 within the middle office.

23 MH -- Hydro is in the process of obtaining
24 or will be selecting an additional risk-analytic software
25 to support the risk quantification activities. A credit

1 risk officer has been added to the middle office,
2 strengthening that capability and has been realigned to
3 establish more independence. And MH plans to incorporate
4 the middle office or relevant personnel and review its
5 long-term export contracting process.

6 Lastly, I want to make some comments,
7 final comments, on power risk management in addition --
8 in addition to covering governance. MH demonstrated
9 prudent risk management practices in the following areas.

10 They have extensive corporate oversight,
11 as I previously des -- described, with a deliberate
12 internal review process over major export contracts and
13 term -- and the term sheet process. Their analytics
14 include stress testing, which is, by our view,
15 conservative with an industry-accepted methodology,
16 transacting processing controls are consistent with
17 prevailing practices that mitigates human error and
18 operational risk, compliance and risk monitoring is
19 performed by an independent middle office and there is a
20 comprehensive suite of management and performance reports
21 that are generated by the back office. I'll pass that on
22 to Jonathan.

23 MR. JONATHAN ERLING: Good morning. I'll
24 speak to the section on models we -- which begins on
25 slide 16. The first slide, 16, is an outline of the role

1 of HERMES within Manitoba Hydro. I'd like to point out
2 that Manitoba Hydro uses HERMES for a variety of
3 purposes. It is used to support decision making with
4 respect to production scheduling, financial forecast, and
5 short-term export sales commitments.

6 It's important to note that it is a
7 decision support tool. HERMES doesn't not generate
8 decisions, it generates suggested production schedules.
9 These are subject to management review. And certainly
10 any export sales commitments are subject to management
11 review and have to be initiated through the trading
12 operations of the company.

13 HERMES, very importantly, is the system
14 that ensures that Manitoba Hydro will have sufficient
15 resources in the near term to cover its firm load, and
16 this is under any water flow scenario. A given suggested
17 production schedule, which may be generated using a
18 median flow forecast will be tested against a low floor -
19 - flow -- core -- forecast, and essentially the company
20 will ensure that drought reserve storage levels are
21 maintained under a reasonable scenario for low water
22 flows.

23 In drought scenarios there may be
24 additional sensitivities with respect to cold weather to
25 ensure that additional load can also be served in a cold

1 weather scenario. 17 provides a diagrammatic
2 representation of the HERMES system. I think it's
3 important to note that it consists of a number of
4 modules. Modules can be added as market conditions
5 change, and the HERMES is a system that has been upgraded
6 on an almost continual basis since its inception to
7 adjust to market circumstances.

8 Page 18, a brief description of the role
9 of SPLASH at Manitoba Hydro. SPLASH is used for planning
10 purposes. In other words, it's used to support the
11 integrated resource planning process. It examines the
12 economics of different options for system expansion. It
13 is thus used to establish the business case for new
14 generating plant additions.

15 It is also used as a key input to the
16 medium and long-term forecasting -- financial forecasting
17 process. But the nature of SPLASH is that it can be used
18 to support a number of analytical studies. These include
19 assessing the value of demand-side management programs or
20 looking at the value of new wind generating capacity.

21 The nature of the SPLASH model, given it
22 is longer term, is that it has somewhat less detail than
23 HERMES with respect to system configuration. It
24 aggregates some of the generating stations and flow
25 channels are not represented with the same degree of

1 detail. It also has less detail or granularity with
2 respect to time within the system. It has a monthly
3 peak/off-peak view, whereas HAM -- HERMES, for example,
4 will divide up a monthly or weekly time step into five
5 (5) time increments, giving it more capacity to look at
6 demand fluctuations within the forecasting horizon.

7 Turning to page 19, we have a highlight of
8 some of the key conclusions in our report, which I will
9 run through. With respect to pricing and market rules,
10 we note the Manitoba Hydro takes significant care in
11 modelling developments over time in external markets,
12 particularly MISO, and in analyzing the factors that
13 influence prices for import and export transactions.

14 Key factors that have been subject to
15 discussion already in this proceeding are the recent
16 decrease in natural gas prices, the economic downturn,
17 which has had impact on industrial loads, increases in
18 wind generation in the US Midwest, and the role, for
19 example, that import/export activity by Manitoba Hydro
20 can play in influencing prices at the MHEB node. I
21 think, for example, there some evidence there's more
22 influence in off-peak periods than peak periods. And
23 certainly our review found that Manitoba Hydro takes
24 great care to look at these factors.

25 The other thing to note, of course, is

1 that the timing of transactions is an important factor.
2 HERMES, for example, may model -- its system has a
3 fifteen (15) hour time period for the daily peak. Within
4 that period, Manitoba Hydro, in operating the system,
5 will obviously try to, when selling power, receive prices
6 that are highest within that interval. So HERMES needs
7 to have a algorithm or methodology for converting an
8 average price for a given timeslot into the
9 representation of the price that it will actually
10 receive.

11 Now, the other thing that it has to model
12 is the fact that as it has more power to sell it is less
13 able to concentrate its sales on high price periods, and
14 then, therefore, has to have a methodology for estimating
15 an average that will be suitable for sales under high
16 volume versus sales under low volume. So it's not just
17 an issue of what is the external price. There are a lot
18 of additional factors: the influence, the price that
19 Manitoba Hydro will actually be able to receive when it
20 sells power.

21 Water volumes, we found that the antece --
22 antecedent pro -- forecasting process is a reasonable --
23 reasonable basis for forecasting future -- future water
24 volumes, and I'll speak to that at somewhat more depth
25 subsequently.

1 Key model parameters, Manitoba Hydro has
2 taken appropriate care and due diligence in setting model
3 parameters. For example, production coefficients for
4 hydro-electric plants. It takes into account the fact
5 that these coefficients vary over time because the
6 efficiency of turbines varies with the water flow through
7 the dam and because within the Manitoba Hydro system
8 there is interaction between the flow at a dam and the
9 effective head that can be achieved at the dam. And,
10 also, there are interrelationships between one (1) dam
11 and another so that the tailrace from one (1) dam will
12 influence the forebay level at the dam downstream.

13 Page 20, lake water balances. We find
14 that Manitoba Hydro takes appropriate care in modelling
15 lake water balances. Small de -- discrepancies were
16 observed in HERM -- HERMES model runs in the 2007 genera
17 -- generation estimate report. These were insignificant
18 in the overall context of MH operations and have been
19 eliminated.

20 Treatment of optionality, the models take
21 into account the ability to use storage in identifying
22 appropriate production schedules. Models also take into
23 account the potential value of using water in storage in
24 future periods to generate revenue. That's implicit in
25 the optimization process within both HERMES and SPLASH.

1 The models do not provide an explicit
2 estimate of the market value of storage, although the
3 value or usefulness of storage is implicit in the
4 identification of production schedules.

5 Manitoba Hydro does not calculate the
6 option value of storage, which is a financial measure of
7 the value associated with the flexibility to change
8 production schedules by altering the use of storage.
9 Estimates of market value or of option value would only
10 be necessary if Manitoba Hydro were trading access to
11 storage in external markets.

12 Validation of models, we found that
13 Manitoba Hydro has taken appropriate care and due
14 diligence in developing, operating, and maintaining the
15 models. In coming to this conclusion, our analyses
16 considered the approximations used within the HERMES
17 model, the use of adjustment factors, and the ongoing
18 calibration and updates to both SPLASH and HERMES.

19 And -- and I should note that if you have
20 any questions during the presentation I would be pleased
21 to entertain them; just I don't want to drone on
22 unnecessarily. Or perhaps if I'm taking too long you can
23 also tell me to speed it up.

24 I have a slide on page 21, which is the
25 use of the antecedent forecasting water flows. We think

1 it is reasonable for Manitoba Hydro to forecast water
2 flows using the antecedent forecasting methodology. The
3 approach is based on a statistically valid relationship
4 between current water flows and flows in the near future.

5 An alternative approach which is being
6 exploring in the -- in the area of hydro-electric
7 modelling is to have a model which generates forecasts
8 based on input precipitation data. So essentially,
9 develop a model that could take input data on
10 precipitation and translate that directly or through a
11 series of calculations into forecasts of stream flows
12 into the future.

13 There are good reasons to believe that
14 this will be or would be a very challenging process for
15 Manitoba Hydro. Manitoba Hydro has a very large water
16 basin so it would require a lot of data on precipitation
17 over a wide area. As it turns out, the water basin is
18 relatively sparsely populated mean -- meaning that there
19 are relatively limited number of weather monitoring
20 stations within the water basin compared perhaps to other
21 jurisdictions.

22 It's a relatively shallow water basin,
23 which means that there are long lags in water flows;
24 these are difficult to model. It's also true that
25 evaporation in a large area is very important. Snow that

1 is on the ground which may be easy to monitor from
2 precipitation data, may ultimately, in fact, sublimate or
3 evaporate back into the atmosphere and not result in
4 stream flows in the future.

5 So these make these models difficult and
6 challenging to calibrate but they're certainly worth
7 observing or monitoring as a use -- potential use in the
8 future.

9 But it's very clear that given the
10 extensive data that Manitoba Hydro has developed in-house
11 on flow forecasts over time and the relationships that
12 antecedent forecasting will be an important step in the
13 process or an important tool for a long period of time.

14 They also -- the approach that Manitoba
15 Hydro use -- uses also has an advantage is that they can
16 adjust their forecasts for known conditions. They can
17 look at snow pack, they can look at the nature of the
18 ground terrain, is it wet, is it dry, and they can adjust
19 the particular forecast that they select within the
20 antecedent process -- process to take into account
21 meteorological conditions or ground conditions. So it
22 can be used with management judgment in connection or in
23 conjunction with forecast data or recent precipitation
24 data.

25 Page 22 talks about another issue which is

1 the concept of perfect foresight in the context of
2 SPLASH. SPLASH uses linear programming algorithms to
3 identify optimal production schedules, assuming that all
4 inputs are known in advance. These include prices, water
5 flows, and load.

6 In periods of low flow, SPLASH will draw
7 down reservoirs to meet demand because it not -- does not
8 have access to non-firm export -- non-firm imports.
9 That's actually a misprint in the slide as I read it, I
10 realize. It should read "imports." And it can rely on
11 future increases in water volumes.

12 Essentially, SPLASH can -- calibrates
13 dependable energy or the quantity of dependable energy
14 that it sells, and dependa -- dependable energy isn't an
15 amount that will be served by drawing down reservoirs in
16 a low-flow period. SPLASH does not provide for the
17 potential for drought to be longer in duration than the
18 critical low-flow period used within the historical
19 record. And that's appropriate given that it is being
20 used for planning purposes and to evaluate long-run
21 economics.

22 In practice, Manitoba Hydro of course does
23 not know the ultimate depth or duration of a drought and
24 therefore operates the system more conservatively when
25 low-flows occur. It maintains reservoir levels and draws

1 on imports and fossil-fuelled resources which are high
2 cost more than SPLASH will assume. This may result in
3 higher actual costs in the period of the drought than
4 predicted by SPLASH.

5 In general, however, many of the apparent
6 differences between SPLASH and actual practice may simply
7 reflect timing issues or the shifting of costs across
8 time periods. The practice of keeping reservoirs higher
9 means that Manitoba Hydro enters future periods with a
10 higher amount of energy in storage than SPLASH would have
11 assumed. This means that more revenue can be generated
12 in the future or fewer imports will be required in the
13 future in actual practice. Thus, relative to SPLASH,
14 prediction costs in future periods will be lower.

15 Page 23 continues this discussion. And
16 it's just to emphasize the fact that most of the
17 financial losses that are associated with the drought are
18 inevitable. A drought means that the expected amount of
19 hydro-electric energy will not be available. And that
20 will ultimately translate into fewer exports, additional
21 imports and/or fossil-fuel imports -- or fossil-fuel
22 purchases to run the thermal stations on the system.
23 Differences, as we noted, in storage decisions will
24 mostly result in a shift in when costs appear.

25 There are some factors, however, that may

1 mean that there are more than timing differences. The
2 ability in actual operations to schedule non-firm imports
3 reduces the need for Manitoba Hydro to rely on its
4 expensive thermal generation.

5 Secondly, to the extent that Manitoba
6 Hydro in seeking to operate the system conservatively
7 will keep reservoir higher -- reservoir levels higher.
8 This will result in some greater risk of spill in future
9 periods if there is a significant or fast recovery in
10 water in-flows. This would represent or will represent a
11 loss of energy that can be captured from the hydro-
12 electric flows.

13 This has an offsetting input to the
14 savings inherent in able to being -- in able -- in being
15 able to access non-firm imports, and it's hard to know
16 which of these two (2) factors will predominate in -- in
17 influencing the costs.

18 We also note that prices of import and
19 export markets and prices for fossil fuel purchases may
20 differ across time periods, and this could also lead to
21 differences, but it's not obvious to what direction.

22 Page 24 speaks to issues with respect to
23 the validation of models. HERMES is used to support
24 production scheduling and as such is operated on a
25 frequent basis, generally at least weekly. Manitoba

1 Hydro has to calibrate parameters in -- within the model
2 on an ongoing basis to reflect system conditions. Stream
3 flows, flows through hydro-electric dams vary with ice
4 conditions and other factors and therefore there is a
5 continu -- continual calibrating of the factors that with
6 -- are with -- used within the HERMES in the prediction
7 process.

8 Accordingly, we find that the model
9 components are appropriately validated. SPLASH is more
10 difficult to value -- validate overall since it is used
11 to forecast performance in the medium to longer term.
12 SPLASH operators do not have the benefit of immediate
13 feedback in the same way as do the operators of HERMES.

14 Nevertheless, SPLASH personnel develop
15 inputs to the model based on actual system performance.
16 They develop price quantity relationships for export
17 transactions and import transactions based on real price
18 data and relationships observed in actual trading.
19 System parameters are developed that are consistent with
20 those embettied in -- embedded in HERMES. These provide
21 comfort that SPLASH is a good representation of actual
22 system performance.

23 I'd like to speak to the concept of
24 dependable energy on page 25 if there are no questions on
25 24. Dependable energy, as we know, is the amount of

1 energy that will be available in a low-flow year. In
2 addition to output from hydro-electric facilities, it
3 includes imports available under firm contract, purchases
4 from wind farms under long-term contract, and output from
5 Manitoba Hydro thermal or fossil-fuelled units.

6 Dependable energy is the key planning metric because the
7 Manitoba Hydro system is now energy rather than capacity
8 constrained.

9 Dependable energy is significant to the
10 planning process because it defines the amount of firm
11 load that Manitoba Hydro can reliably serve. Subtracting
12 -- subtracting projected domestic load from the amount of
13 dependable energy provides an estimate of the amount of
14 energy that can be sold out of -- out of province through
15 firm export contracts.

16 It's interesting to note in the context of
17 this proceeding that BC Hydro uses a very similar process
18 to qual -- quantify firm energy that it uses within its
19 system. And there was before a proceeding at the British
20 Columbia Utilities Commission, it's interesting to note
21 that counsel for the Public Utilities Commission
22 suggested that the critical flow years appeared, in fact,
23 as outliers and should be removed -- or two (2) of the
24 critical flow periods should be removed from the data
25 record because they didn't appear consistent with the

1 normal distribution. BC Hydro argued in response that in
2 fact it would be inappropriate to remove those data
3 points not only because there was no basis to do so, but
4 it also would result in an increase in the definition of
5 the amount of firm energy available, and therefore would
6 be somewhat a -- of a less conservative approach to
7 defining that amount of energy.

8 Page 26 provides a -- a graphical
9 representation of the fluctuation in forecast rev --
10 water flow revenue that would be -- occur under different
11 flow conditions. It's interesting to note, I think, that
12 a key characteristic of the Manitoba Hydro system is that
13 there appear to be serial correlation in the water flow
14 data.

15 If you are in a -- a low water flow year
16 there is perhaps a greater than even probability that the
17 next year will also be lower flow. There is thus a
18 relationship between water flows in adjacent years. This
19 is not true of all hydro-electric system -- it --
20 systems. It's much less evidence for -- for example that
21 that condition applies to water flows within Hydro
22 Quebec's catchment area. And that has some implications
23 for, obviously, Manitoba Hydro's risk management and
24 modelling processes.

25 Page 27, it speaks to the issue of the use

1 of the 1937-1942 drought period for determining
2 dependable energy. We found that Manitoba Hydro's use of
3 this drought as the basis for determining dependable
4 energy is appropriate.

5 The appropriate approach to determining
6 dependable energy depends on risk tolerance. Having a
7 more stringent definition of dependable energy would in
8 effect resort -- result in more short-term exports and
9 likely lower revenues on average, since they would not be
10 able to sell this energy or the reduced -- the reduction
11 in energy as a -- as a firm export contract.

12 The expected value of export revenues
13 would be lower, although, the approach would provide a
14 lower short-fall from expected results in the event of a
15 drought. To discuss the -- the context of Manitoba
16 Hydro's export power sales, I'll turn it over to my
17 colleague, Anurag.

18 MR. ANURAG GUPTA: Thank you. I'm on
19 slide 28. And this is a very stylized overview of -- of
20 the situation that Manitoba Hydro faces in that capacity
21 is added in in lumps. Hydro-electric plants come in big
22 capacities and so as you can see from the graph there's a
23 step function almost in -- in how capacity is added.

24 On the other hand, domestic load grows
25 more or less at a steady rate year over year, and so it

1 can be many years before the domestic load catches up to
2 the extra energy that can be generated by the added
3 hydro-electric capacity. And -- and this is -- this --
4 the surplus energy is -- is fairly significant, not only
5 in -- in -- in -- under dependable flow conditions, but
6 even under medium and -- and high flow conditions.

7 So turning to slide 29, Manitoba Hydro
8 thus has to decide how to sell the extra energy, and --
9 and the sale of extra of energy can be used to partly
10 finance the cost of new plants. They can -- they can
11 sell all the energy spot and there'll be some key issues
12 and risks faced in that strategy, primarily that the voli
13 -- spot prices can be volatile, leading to volatile
14 revenue streams. And it's difficult to secure long-term
15 financing with a volatile revenue stream.

16 They will also face the risk of what we
17 term missed opportunity regret, which is at times you
18 might find that spot prices are depressed and you could
19 have done better by having sold it under a term contract
20 at a higher price. And of course there's -- there's
21 always the sales volume risk that there may not always be
22 enough transmission capacity to -- to sell the power
23 south of the US border or that you might be selling more
24 off-peak rather than on-peak just because of the
25 transmission congestion.

1 And actually, there's credit risk, your
2 counterparties may not be up and -- and there's foreign
3 exchange risk for cross-border transactions. Manitoba
4 Hydro could also sell everything in a combination of
5 short and long -- and long-term contracts. The key issue
6 there is potentially lower pricing than spot at times.

7 However, you get a much more stable and
8 predictable revenue stream against which you can
9 facilitate long-term financing for the plants. I -- I
10 have talked about sellers' regret; that's the -- that's
11 when spot prices might turn out to be above the
12 contractual fixed price, making -- you know, and -- and
13 at times, you -- that leads to sellers' regret risk.

14 And, of course, there's always sales
15 volume risk, that there may not be enough transmission
16 capacity, and in the case of a drought, you don't have
17 the water flows to support perhaps the -- the firm
18 exports that you've committed to. And there's obviously
19 credit risk and foreign exchange risk.

20 Expansion of cross border transmission
21 with the US, which -- and currently transmission has
22 capacity constraint, is another important objective for
23 entering into long-term contracts by Manitoba Hydro.
24 Manitoba Hydro's counterparties will be more willing to
25 invest in new transmission build if they are assured of a

1 long-term contract, a longer period of time for which
2 they can recover the investment.

3 In -- in this -- in chap -- in our chapter
4 on long-term sales, we looked at pricing of long-term
5 contracts, structuring of long-term contracts, and risk
6 capital reserves.

7 So turning to slide 30 -- and this is
8 nothing new. I -- I think previous witnesses have spoken
9 about this; Manitoba Hydro has spoken about this earlier.
10 But Manitoba Hydro's rationale for entering into fixed
11 price long-term sales commitments are primarily
12 threefold. They're a tool for risk mitigation. They
13 secure access to firm transmission. And they also result
14 in lower rates to Manitoba ratepayers; that's their
15 rationale. Risk mitigation is achieved by stability and
16 matching of cashflows, diversification, and foreign
17 exchange risk hedge.

18 I'll -- I'll talk a little bit about the
19 stability and matching of cashflows. Building a new
20 hydroelectric plant requires significant sums of money,
21 and Manitoba Hydro has to secure financing for that. And
22 it's much easier to secure financing if you have a poten
23 -- stable revenue stream that lenders can look to and --
24 and lend against rather than a much more volatile revenue
25 stream; for example, if you would sell all the energy in

1 spot sales.

2 In terms of diversification if you look at
3 slide 31, you will see that domestic sales for Manitoba
4 Hydro in the period 2000 to 2007, were roughly 70 percent
5 of its total sales and exports firm were 14 percent and
6 export secondary exchange were 16 percent.

7 Export secondary/exchange is what's -- is
8 our understanding that Stats Canada -- this is what is
9 the option, these scales -- sales in the spot markets,
10 and firm are the long-term contracts.

11 So you'll see that Manitoba Hydro doesn't
12 put all its eggs in one (1) basket; it -- it has a fairly
13 diversified mix of sales. And that's a good thing
14 because that means that Manitoba Hydro is not relying on
15 any one (1) type of product or any one (1) market to sell
16 all the surplus energy that it generates.

17 We can look at the -- at the export
18 component on -- in further detail on slide 32. And --
19 and you'll see that the key thing from slide 32 is that
20 actual hydro generation from '05/'06 through to '08/'09
21 was always greater than the dependable hydro generation,
22 and in all years, long-term sales represented 40 percent
23 or less of the total export sales. So, again, that --
24 that goes to show that Manitoba Hydro is not putting, so
25 to speak, all its eggs in one (1) basket.

1 The second rationale that Manitoba Hydro
2 had for entering into long-term contracts was securing
3 access to firm transmission. Slide 33 shows you the --
4 why this is such a pressing need. Manitoba Hydro in --
5 in developing new trans -- in developing new facilities
6 will face a ever greater need for firm transmission south
7 of the border to sell all the surplus energy it
8 generates.

9 And -- and you can see from that graph the
10 dotted line on that graph is what they require -- what
11 they will require in the future, and the solid red line
12 is -- is what they currently have. And -- and that's the
13 gap which Manitoba Hydro is trying to fix by entering
14 into long-term contracts, and as a condition of doing
15 that, getting access to firm transmission which will be
16 developed as part of the sales package.

17 Turning on to slide 34, this is the
18 methodology. The second issue we looked at was the
19 methodology for pricing firm power sales. And we note
20 that prices in long-term contracts are a matter of
21 negotiation between the parties and must be acceptable
22 for -- to both parties for a deal to be done.

23 In the course of negotiating these
24 contracts Manitoba Hydro develops reference prices based
25 on two (2) methodologies; awarded cost analysis and the

1 use of forecasts, price forecasts purchased from
2 consultants.

3 And developing these two (2) price
4 estimates provide Manitoba Hydro with an indication of
5 the potential range of a contract price. Very
6 importantly, based on this information and leveraging the
7 considerable industry experience of the key Manitoba
8 Hydro personnel involved with the negotiations, a
9 mutually agreeable price is set in the term sheets for
10 new long-term contracts.

11 Based on our analysis of -- of this
12 pricing process, Manitoba Hydro has an appropriate
13 methodology for arriving at the sales price and its long-
14 term contracts.

15 The pricing methodology explicitly
16 incorporates the relevant market pricing forecasts and
17 also includes a premium which we understand from Manitoba
18 Hydro reflects the quality of the product that they're
19 selling, the green energy, and the fact that it's -- it's
20 a long-term -- term commitment.

21 Long-term contracts also mitigate Manitoba
22 Hydro's market risk through diversification of its export
23 sales mix -- mix and mitigate its drought risk because of
24 both the returns generated by the contracts and the
25 creation of the new transmission capacity.

1 Slide 35 which -- which was on page 149 of
2 our -- of our report shows a comparison between the
3 proposed prices and the long-term -- in -- in the term
4 sheets with the long-term contracts versus what had been
5 happening in the MISO market. And -- and -- and you'll
6 see while the exact numbers are redacted, you'll see that
7 the key point from this is that the proposed prices in
8 the new long-term contracts are -- are at a premium to --
9 to what the market was when we did the study.

10 Again, demonstrating that these long-term
11 contracts they do result in premium pricing for -- for
12 Manitoba Hydro.

13 Slide 36, the structure for the long-term
14 contracts. As with prices, contractual terms and long-
15 term agreements are a matter of negotiation between the
16 parties and must be acceptable for both parties for a
17 deal to be done. And optimal risk-sharing in the
18 contractual agreement dictates that risks shall be
19 allocated to the party that is best able to manage the
20 risk.

21 In -- in -- in this context many of the
22 potential normal terms that could be construed in the
23 long-term firm sales contract between Manitoba Hydro and
24 a counterparty involves shifting of particular risk to
25 the counterparty.

1 However, in many cases Manitoba Hydro
2 would be in a better position to assess and/or manage the
3 risk than the counter party. So, for example, Manitoba
4 Hydro knows its system and its hydrology much better than
5 its counterparties ever will. And therefore Manitoba
6 Hydro will generally be better off in the long run if it
7 retained the risk example by being compensated for
8 retaining the risk or avoiding the costs associated with
9 transferring that risk.

10 Overall, in our review, we found no basis
11 to conclude that Manitoba Hydro had subbed up its
12 contractual provisions and -- and we are satisfied with
13 the methodology used by Manitoba Hydro in arriving at the
14 sales prices in its long-term contracts.

15 Turning on to -- sorry.

16 MR. ROBERT MAYER: Just a little
17 clarification on that. You talk about long term -- the
18 prices on the long-term contracts, are you also including
19 the term sheets for the proposed contracts?

20 MR. ANURAG GUPTA: Yes, we are.

21 MR. ROBERT MAYER: Thank you.

22

23 CONTINUED BY MS. MARLA BOYD:

24 MR. ANURAG GUPTA: Turning on to our
25 drought risk analysis, slide 37 onwards, we understand

1 that to determine the preferred development sequence
2 Manitoba Hydro compares the economics of various
3 development sequences. An analysis is done by examining
4 the differences in NPV under the different sequences.

5 Manitoba Hydro's preferred development
6 sequence is described in their development plans in the
7 '09/'10 Power Resource Plan or PRP. The '09/'10 PRP
8 establishes that the preferred option or the development
9 sequence to meet projected Manitoba load is to build both
10 Keeyask in 2018 and Conawapa in 2022/'23, as well as
11 enter into new export contracts with WPS and MP that
12 bring with them additional US transmission
13 interconnection capabilities. We term this the "Sale
14 Scenario."

15 We are asked for additional stress tests
16 of Manitoba Hydro's preferred expansion plans and we use
17 the word "additional stress tests" because in the power
18 resource plan Manitoba Hydro already stresses the
19 development sequences under a variety of scenarios to
20 test the robustness. We just asked for that analysis to
21 be extended for a few additional scenarios incorporating
22 various drought scenarios and market price scenarios, and
23 then I'll explain that later on.

24 We also asked for corresponding stress
25 tests to be conducted for an alternative expansion plan

1 that did not include the new long-term contracts. We
2 call this the No Sale Scenario. And -- and the No Sale
3 Scenario, an example of that is the -- in Manitoba
4 Hydro's '09/'10 PRP is one that excludes the export sales
5 related to WPS and MP contracts, and thus the plan new
6 transmission interconnections. And this alternative
7 sequence also requires Conawapa to be advanced by year
8 2021/'22 and includes a CCGD in 2033/'34.
9 Moreover, the construction of Keeyask is -- is no longer
10 required in this sequence. So this is the No Sale
11 Scenario.

12 Turning on to slide 38, we analyzed the
13 results of the various drought scenarios we had requested
14 to address the question: Does the sale scenario still
15 provide a positive value over the No Sale Scenario to
16 Manitoba Hydro? Even in the event that a drought event
17 occurs some time during the period of the sale.

18 So this analysis, in our mind, does
19 address the concern that long-term contracts could be
20 uneconomic under certain scenarios even if they did not
21 result in undue risk or financial stress. And we asked
22 for thirty-six (36) scenarios to be run on the low-flow
23 water conditions and high-flow water conditions lasting
24 for five (5) year, ten (10) year, and fifteen (15) year
25 periods commencing in 2011, 2013, 2019, and 2025.

1 So -- so the -- the table which appears on
2 slide 38 just shows you an illustration of how we
3 presented the -- the scenarios. You'll see the table is
4 for a five (5) year period for -- for a -- for a low-flow
5 -- for a five (5) year period with the low-flow
6 commencing in 2011, 2013, 2019, 2025. And under low
7 prices, expected prices, and high prices, so that's four
8 (4) times three (3), twelve (12) scenarios for the five
9 (5) year period, and we'd have twelve (12) for the ten
10 (10) year period and twelve (12) for the fifteen (15)
11 year period for a total of thirty-six (36) scenarios.

12 And what we are reporting in the table is
13 the incremental NPV of the Sales Scenario as compared to
14 the No Sales Scenario under the various low-flow
15 conditions and -- and price combinations. The -- the
16 numbers have been redacted in -- in the public report the
17 -- what the actual incremental NPVs are, but I -- I can -
18 - on -- on slide 39 I can tell you that under all
19 scenarios sale NPVs remain strongly positive to the NPV
20 of the No Sales Scenarios.

21 And -- and this is a very significant
22 result. It's a -- it's a significant difference in the
23 sale NPV over the No Sale NPV. What this means is that
24 drought events do not impair the economics of Manitoba
25 Hydro's preferred development sequence and the associated

1 proposed long-term contracts. In a way, this result is
2 not unexpected.

3 The new generating facilities and
4 transmissions assets associated with the contracts are
5 long-lived assets that will generate positive returns for
6 many years into the future. Our drought, even one
7 starting at the beginning of a hydro-electric plant's
8 life will likely not offset the long-run benefits of the
9 additional generating capacity.

10 Slide 40, which is my last slide. We also
11 examined the potential impact of the proposed long-term
12 contracts on the drought risk faced by Manitoba Hydro
13 examined from the perspectives of impacts on net income
14 and retained earnings. So the previous analysis I've
15 been talking about focussed more on the NPV differences
16 between the sale and no sale.

17 This is from the pro -- perspective of net
18 income and retained earnings. Again, on the -- on the
19 Sale Scenario and the No Sale Scenario, we requested
20 Manitoba Hydro to run drought flows commencing in 2013,
21 2019, and 2025 in combination with low expected and high
22 export power and natural gas prices.

23 And those dates were chosen specifically
24 because in -- in each of those three (3) years, 2013,
25 2019, and 2025, Manitoba Hydro has undertaken some

1 significant capital expenditures without the associated
2 revenues flowing in. So they -- they represent points of
3 financial stress for the Corporation.

4 The third bullet point. The comparison of
5 the financial impacts of drought conditions under a Sales
6 Scenario and a No Sale Scenario allows us to isolate the
7 financial risks associated with the development of
8 additional generation, Keeyask and Conawapa, new US
9 transmission interconnection and the related long-term
10 contracts with WPS and MP.

11 So a summary of the results in terms of
12 impact on net income and retained earnings at the end of
13 the drought is: for droughts commencing in 2013, the
14 differences between the Sales Scenario and a No Sales
15 Scenario are nominal and -- and that's to be expected,
16 because in 2013, really, the Corporation has not done too
17 much capital expenditure for Keeyask Conawapa, their --
18 their future date projects.

19 For droughts commencing in 2019 or later,
20 net income falls by a larger amount though from a higher
21 base in the Sales Scenario as compared to the No Sale
22 Scenario. However, very importantly, for droughts
23 commencing in 2019 or later, retained earnings at the end
24 of the drought are higher in the Sales Scenario as
25 compared to the No Sales Scenario.

1 What that means is that as compared to the
2 No Sale Scenario, the Sale Scenario provides greater
3 retained earnings to Manitoba Hydro and thus provides
4 Manitoba Hydro with improved ability to withstand the
5 impact of a five (5) year drought.

6 And that's the end of my prepared remarks,
7 happy to answer any questions.

8 MS. MARLA BOYD: Thank you. Mr. Chair,
9 that concludes the direct-examination of the panel and
10 subject to your desire to perhaps have a morning break,
11 we're available for cross-examination.

12 THE CHAIRPERSON: It sounds like a good
13 idea, Ms. Boyd. We'll have the break now.

14

15 --- Upon recessing at 10:42 a.m.

16 --- Upon resuming at 11:09 a.m.

17

18 THE CHAIRPERSON: Okay. Welcome back,
19 everyone. Ms. Southall.

20 MS. ANITA SOUTHALL: Thank you, Mr.
21 Chairman.

22

23 CROSS-EXAMINATION BY MS. ANITA SOUTHALL:

24 MS. ANITA SOUTHALL: Good morning, panel
25 from KPMG. Just a few preliminary comments to assist

1 with my cross-examination this morning. First of all --
2 and perhaps, Mr. Lipson, I'll direct this to you.

3 You're aware that the KPMG Report has been
4 subject to a number of redactions?

5 MR. WILL LIPSON: Yes, I am.

6 MS. ANITA SOUTHALL: And was KPMG
7 consulted with respect to those redactions, do you know,
8 or were they performed entirely by Manitoba Hydro?

9 MR. WILL LIPSON: My recollection is they
10 were performed entirely by Manitoba Hydro.

11 MS. ANITA SOUTHALL: So for the panel I
12 want to indicate that it's not my intention to seek
13 redacted information when I'm posing questions to the
14 panel. And it's not my intention to request, by virtue
15 of a question posed, that confidential information be
16 provided. A ruling has already occurred by the Board in
17 that respect, so I just want to make clear that point.

18 I'll also indicate to your counsel, Ms.
19 Boyd, if she feels that I am seeking confidential
20 information, which I -- which I've attempted in my
21 preparations to avoid by the way, but she certainly can
22 assist the panel and she's indicating she will.

23 A couple more things for the record, if --
24 if I use the word 'you', I'm certainly not asking 'you',
25 for example, Mr. Lipson, your personal opinion on

1 anything, but if I lapse into that, I am still, for the
2 record, seeking the response of KPMG, so that's, I take
3 it, noted?

4 MR. WILL LIPSON: Yeah, that's fine.

5 MS. ANITA SOUTHALL: And finally, as I
6 mentioned to you when I introduced myself just before we
7 took up after this recess this morning, I indicated to
8 each of the panel members that I may not direct a
9 specific question to an individual. If we come to an
10 area that is your area of expertise, or you're the one
11 (1) who's been designated by your panel to address it,
12 please do that.

13 If you want to decide amongst yourselves
14 who's the most appropriate person to answer, that's been
15 typical Board procedure in the past in these matters. So
16 again, if -- if I don't direct something to you by name,
17 I take it that the appropriate speaker will attend to the
18 question.

19 MR. WILL LIPSON: That's fine.

20 MS. ANITA SOUTHALL: Thank you. So first
21 I want to review the engagement of KPMG by Manitoba
22 Hydro. Mr. Lipson, is that yourself?

23 MR. WILL LIPSON: Probably, yes.

24 MS. ANITA SOUTHALL: I note that even
25 though we've been provided with the CV of Mr. Owen, he is

1 not testifying today. I understand he's present in the
2 back row in the hearing room though?

3 MR. WILL LIPSON: Yes, he is.

4 MS. ANITA SOUTHALL: And for ease of
5 reference, actually, I'll ask Mr. Singh to distribute the
6 reference documents. My apologies, I should have done at
7 the break. We'll just take a moment so that those can be
8 accessible to everyone following the proceedings.

9

10 (BRIEF PAUSE)

11

12 THE CHAIRPERSON: So this is PUB-17.

13 MS. ANITA SOUTHALL: Thank you very much.

14 Yes, Mr. Chairman, it's PUB-17.

15

16 --- EXHIBIT PUB-17: PUB Counsel Book of documents

17 - KPMG Report

18

19 MS. ANITA SOUTHALL: Are you ready to
20 proceed, Mr. Chairman? Have you got that in front of
21 you?

22 THE CHAIRPERSON: Yes, we do.

23

24 CONTINUED BY MS. ANITA SOUTHALL:

25 MS. ANITA SOUTHALL: Thank you. So if I

1 could ask you to turn to reference document number 1 in
2 the PUB reference set of documents.

3 First of all, I just want to confirm, Mr.
4 Lipson, that the external quality report was to be
5 provided to the Manitoba Hydro Audit Committee. Is that
6 correct?

7 MR. WILL LIPSON: We were formally
8 engaged by the Board of Directors of Manitoba Hydro,
9 although our reporting relationship was to the Audit
10 Committee.

11 MS. ANITA SOUTHALL: And I am actually
12 going to take you just for a moment, if you don't mind,
13 sorry to jump you around, Mr. Lipson, but if you have
14 your report that is the main KPMG report dated April 15,
15 2010.

16 And does the Board have that in front of
17 them? Thank you.

18 On the executive summary page, Roman
19 numeral (I), looking at the second paragraph, sir, the
20 statement is made in the report that:

21 "KPMG was retained by the Board of
22 Directors of Manitoba Hydro in November
23 2009 to carry out an independent
24 assessment of its risk management
25 practices called the Review in its

1 hydroelectric operations and to address
2 the assertions raised by the
3 consultant."

4 Do you see that --

5 MR. WILL LIPSON: Yes, I did.

6 MS. ANITA SOUTHALL: -- quotation? Now,
7 just with that point of reference, sir, I want to take
8 you back to the document I had directed you to, which was
9 reference document 1 in our materials. And the terms of
10 reference for the initial engagement are attached as the
11 first attachment to the letter to Mr. Owen from Mr.
12 Brennan, dated November 10, 2009. Do you see that?

13 MR. WILL LIPSON: Yes, I do.

14 MS. ANITA SOUTHALL: And so I just want,
15 for the record, to note a number of matters here with
16 respect to the terms of reference. First of all, there
17 is a reference in the first paragraph to the fact that
18 Hydro has received reports from -- and there are
19 redactions in the first and second line identifying these
20 reports.

21 I understand that these were reports
22 prepared by a company and its principal that we've
23 identified in these proceedings as the New York
24 consultant.

25 Do you understand that that's the case as

1 well?

2 MR. WILL LIPSON: Yes, I do.

3 MS. ANITA SOUTHALL: And there's
4 reference to the fact in the first paragraph that the
5 reports contain findings and recommendations from
6 Manitoba Hydro in areas such as risk management, long-
7 term contracts, hydrologic modelling, specific power
8 trading issues, and governance structures for power
9 trading and other matters under Items B and C.

10 Do you see how those are identified, sir?

11 MR. WILL LIPSON: Yes, I do.

12 MS. ANITA SOUTHALL: And did you have an
13 opportunity -- I'm not sure, I know this was addressed to
14 Mr. Owen, I'm not sure if the -- all of the team members
15 had an opportunity to review these terms of reference at
16 the time.

17 MR. WILL LIPSON: I did.

18 MS. ANITA SOUTHALL: And I take it this
19 proved to be correct; in other words, Hydro did have
20 reports prepared by the New York consultant which
21 addressed these issues?

22 MR. WILL LIPSON: That's correct.

23 MS. ANITA SOUTHALL: In the second
24 paragraph on that document, again there's a redaction.
25 It indicates that the Corporation, being Manitoba Hydro,

1 has received comments on these reports of the New York
2 consultant from internal corporate personnel and has
3 received independent advice on the handling of drought
4 risk and long-term contracts from ICF consulting.

5 And again, sir, were you able to verify
6 that that was the case?

7 MR. WILL LIPSON: Yes, we were.

8 MS. ANITA SOUTHALL: And the comments
9 that are noted from internal corporate personnel, were
10 those found to you to be reports of a form prepared by
11 Manitoba Hydro personnel responding to the reports
12 prepared by the New York consultant?

13 MR. WILL LIPSON: There were reports,
14 there were correspondence, various documents, you know,
15 internal/external to respond to the assertions raised,
16 yes.

17 MS. ANITA SOUTHALL: Okay. And then if
18 you could look at the third paragraph of the terms of
19 reference. It indicates that pursuant to PUB Order 32/09
20 Manitoba Hydro has been directed to file for PUB approval
21 a conceptual outline for an in-depth and independent
22 study of all the operational and business risks faced --
23 facing the Corporation. It goes on to say:

24 "The risk study is to be a thorough and
25 quantified analysis, including

1 probabilities of all identified
2 operational and business risks. This
3 risk report should consider the
4 implications of planned capital
5 spending taking into account export
6 revenue growth, variable interest
7 rates, drought inflation experience and
8 risk and potential currency
9 fluctuation."

10 Do you remember reviewing that and noting
11 that that was in the original terms of reference?

12 MR. WILL LIPSON: Yes, I do.

13 MS. ANITA SOUTHALL: And then we go on
14 and I -- I won't read into the record the -- the next
15 several sections but the specific tasks for KPMG then
16 pursuant to the original terms of reference were to
17 review existing internal and external reports on these
18 risk issues, as well as the source data for each of the
19 reports?

20 MR. WILL LIPSON: Yes, I see that.

21 MS. ANITA SOUTHALL: Paragraph 2:
22 "To provide a conceptual outline to
23 Manitoba Hydro for the in-depth and
24 independent study as directed by PUB
25 Order 32/09."

1 Do you see that?

2 MR. WILL LIPSON: Yes, I do.

3 MS. ANITA SOUTHALL: Also an indication
4 that KPMG would meet with PUB staff and advisors as
5 necessary to review PUB orders and concerns with respect
6 to Hydro's risks.

7 Do you see that?

8 MR. WILL LIPSON: Yes.

9 MS. ANITA SOUTHALL: And then if you turn
10 over -- if you turn over to item 3 on the next page of
11 the terms of reference, KPMG under the original terms of
12 reference would then be tasked with preparing the actual
13 independent in-depth risk study as directed in PUB Order
14 32/09, correct?

15 MR. WILL LIPSON: Yes.

16 MS. ANITA SOUTHALL: And it was to
17 include an evaluation of the findings and recommendations
18 made by the New York consultant, correct?

19 MR. WILL LIPSON: Yes.

20 MS. ANITA SOUTHALL: As well as Manitoba
21 Hydro' corporate comments and the ICF Report, correct?

22 MR. WILL LIPSON: Yes.

23 MS. ANITA SOUTHALL: Then we have -- and
24 I won't recount them by reading them out but there is
25 identified in the terms of reference on the second page,

1 items that KPMG should take into consideration with
2 respect to review of long-term contracts. Do you see
3 that, sir?

4 MR. WILL LIPSON: Yes.

5 MS. ANITA SOUTHALL: And finally, the
6 report summarizing the findings, conclusions, and
7 recommendations to be provided on or before December 31,
8 2009.

9 MR. WILL LIPSON: I see that as well.

10 MS. ANITA SOUTHALL: And that's the
11 report that actually -- to the extent that a report was
12 provided, it's the one (1) we're talking about, which is
13 the external -- external quality review, correct?

14 MR. WILL LIPSON: That's correct. That's
15 our April 15th --

16 MS. ANITA SOUTHALL: April 15th --

17 MR. WILL LIPSON: -- report.

18 MS. ANITA SOUTHALL: -- 2010. Sorry.

19 MR. WILL LIPSON: Correct.

20 MS. ANITA SOUTHALL: Sir, just turning to
21 the last page of reference document 1 there is a
22 document, if you could locate it, please, called
23 "Manitoba Hydro Energy Risk Management Practices Internal
24 Audit Review Terms of Reference." Do you see that?

25 MR. WILL LIPSON: Yes.

1 MS. ANITA SOUTHALL: And did you
2 understand on your review of the terms of reference
3 letter to Mr. Owen and its attachments, what the purpose
4 of those terms of reference were?

5 MR. WILL LIPSON: Yes.

6 MS. ANITA SOUTHALL: Could you just
7 explain it?

8 MR. WILL LIPSON: Yeah. While we were in
9 the process of being engaged, the Internal Audit Division
10 of Manitoba Hydro was tasked with its own terms of
11 reference as outlined on this last page, primarily
12 cataloguing and listing the various assertions to date
13 and, you know, structuring them in a reasonable fashion
14 and the various other tasks as you see on that last page.
15 That task was going on by Manitoba Hydro staff in
16 parallel, and largely in advance of our work.

17 MS. ANITA SOUTHALL: And when you
18 reference the assertions that they were cataloguing and
19 organizing and sorting in some fashion, those are the
20 assertions of the New York consultant?

21 MR. WILL LIPSON: That's correct.

22 MS. ANITA SOUTHALL: Did KPMG ultimately
23 adopt Manitoba Hydro's internal prioritization, if that's
24 the acceptable word, of the New York consultant's
25 allegations arising from this internal work by Hydro?

1 MR. WILL LIPSON: No, we did not. We
2 were engaged to provide a independent assessment. So
3 while we accessed that work, and used it to ensure the
4 comprehensiveness of our own exercise, we did our own
5 independent cataloguing and assessment of the
6 consultant's allegations.

7 MS. ANITA SOUTHALL: Mr. Lipson, did your
8 work, when you had done your own assessment of what the
9 key assertions were, did that differ significantly from
10 what Manitoba Hydro's product was in respect of the
11 internal terms of reference?

12 MR. WILL LIPSON: Well, we -- we --
13 again, we had different purposes. I would say that our
14 work was more extensive. We put more resources than were
15 available to Manitoba Hydro, probably spent more time and
16 were more thorough in our exercise. And in the end it is
17 a sort of a long list of allegations. It's difficult to
18 say how significantly different they are. They stem from
19 the same source. I don't think they were overly
20 significant differences, but our work was more thorough.

21 MS. ANITA SOUTHALL: And, sir, when I was
22 asking you about your review and -- and noting of -- if I
23 could take you back to item number 2 on the specific
24 tasks for KPMG, that would be on the first page of the
25 terms of reference. Can you locate that document.

1 MR. WILL LIPSON: Yes.

2 MS. ANITA SOUTHALL: I reviewed with you
3 that the tasks would include meeting with PUB staff and
4 its advisors. Did that occur?

5 MR. WILL LIPSON: No, the terms of
6 reference say, "as necessary", and there was no such
7 meeting.

8

9 (BRIEF PAUSE)

10

11 MS. ANITA SOUTHALL: And, sir, how did
12 you determine that it was not necessary to meet with PUB
13 staff or advisors?

14 MR. WILL LIPSON: Our assignment, again,
15 was to do an independent assessment of the range of
16 issues that we identified primarily in our conceptual
17 outline, our Phase 1 report. So once we scoped what
18 those issues were we reviewed them with the Audit
19 Committee. We went through the processes that we used to
20 develop them and were fairly specific as to which ones we
21 would assess and which ones we would not.

22 That was adopted and agreed to as the
23 process to -- for us to proceed on. And on that basis,
24 we -- we had all the necessary skills and information in
25 order to assess those issues and just proceeded ahead.

1 MS. ANITA SOUTHALL: Sir, if I could
2 please ask you to turn to reference document 2. And this
3 is the initial engagement letter issued by KPMG, dated
4 November 20, 2009. Do you have that in front of you?

5 MR. WILL LIPSON: Yes.

6 MS. ANITA SOUTHALL: And I note that at
7 the back of the engagement letter there's a signed
8 acknowledgement that the chair of the Audit Committee for
9 the Manitoba Hydro-Electric Board has accepted the
10 engagement, and that's dated November 26th, 2009. Do you
11 see that?

12 MR. WILL LIPSON: Yes, that's correct.
13 That's on page 7.

14 MS. ANITA SOUTHALL: Is this the document
15 you were referring to in the presentation this morning?

16 MR. WILL LIPSON: Yes, it is.

17 MS. ANITA SOUTHALL: Now, at paragraph 2
18 of the document -- sorry, of the engagement letter, if
19 you could turn to the first page of Tab 2, it indicates
20 that:

21 "The engagement letter has been
22 prepared based on the Manitoba Hydro
23 energy risk management practices terms
24 of reference provided to KPMG on
25 November 20th, 2009."

1 Do you see that?

2 MR. WILL LIPSON: Yes, I do.

3 MS. ANITA SOUTHALL: Are those the terms
4 of reference we were just referring to a moment ago?

5 MR. WILL LIPSON: Yes, they are, although
6 I -- I notice those were dated the 10th of November, so
7 there may have been a typographical error on the date.

8 MS. ANITA SOUTHALL: Okay.

9 MR. WILL LIPSON: Okay. But it -- it was
10 those terms of reference.

11 MS. ANITA SOUTHALL: And in the second
12 part of that paragraph the statement is:

13 "It is acknowledged by both parties
14 that these terms may change as the
15 engagement progresses. Any substantive
16 changes in the terms of the engagement
17 will be mutually agreed to in writing
18 by both parties,"

19 correct?

20 MR. WILL LIPSON: Yes.

21 MS. ANITA SOUTHALL: Was this the final
22 engagement letter in this assignment?

23 MR. WILL LIPSON: No, I noticed that in
24 Tab 3 you have a subsequent engagement letter which
25 supercedes this one.

1 MS. ANITA SOUTHALL: And that is an
2 engagement letter, as you note, and for everyone else
3 who's following at Tab 3 of the reference book, dated
4 December 15, 2009, correct?

5 MR. WILL LIPSON: That's correct.

6 MS. ANITA SOUTHALL: So here we're just
7 trying to avoid some confusion going forward based on
8 your presentation earlier today. There is a reference to
9 the final -- pardon me. Let me just find you the
10 reference. On page 2 of -- of KPMG's presentation book
11 today there's an indication that the final proposal
12 letter was submitted on November 20 and was executed by
13 Manitoba Hydro on November 26th.

14 And, in fact, the final letter --
15 engagement letter was issued on December 15, 2009, and
16 that superceded this earlier one, correct?

17 MR. WILL LIPSON: Yes. What the
18 reference in the presentation of this morning was to --
19 at what point were we engaged. There was obviously the
20 December 15th letter which superceded the November 20th
21 letter, but the work -- as a matter of fact, by this
22 point, our Phase 1 report had already been delivered, so
23 the work was well underway. And that's all we were
24 trying to convey on slide 2 of the morning presentation.

25 MS. ANITA SOUTHALL: Phase 2 though,

1 we're agreed, proceeded based upon the December 15th,
2 2009 engagement letter.

3 MR. WILL LIPSON: That's correct, as well
4 as the output that came out of Phase 1, which -- but that
5 is correct.

6

7 (BRIEF PAUSE)

8

9 MS. ANITA SOUTHALL: Sir, we have noted,
10 I'm sure you're aware that there were material changes to
11 the engagement letter and, more particularly, the scope
12 of work and the work to be completed in Phases 1 and 2.

13 Are you are aware of that?

14 MR. WILL LIPSON: There are differences
15 between the two (2) engagement letters, yes.

16 MS. ANITA SOUTHALL: And, sir, because we
17 know there was sign off by Manitoba Hydro on the December
18 15th, 2009, engagement letter which superceded the
19 earlier one, Manitoba Hydro agreed to these changes,
20 correct?

21 MR. WILL LIPSON: That's correct.

22 MS. ANITA SOUTHALL: I put in as a
23 reference document so that you had access to it, but I
24 don't intend to read in, the reference at Tab 4 of our
25 reference materials to the excerpt of the PUB Order

1 32/'09.

2 So I certainly offer you the opportunity
3 to ide -- to review Directive number 4 -- sorry, of the
4 excerpt which is on the second page of reference document
5 4 with respect to the Board's directive to Hydro to file
6 the conceptual outline for an in-depth and independent
7 study.

8 Do you see that?

9 MR. WILL LIPSON: Yes, I do.

10 MS. ANITA SOUTHALL: So -- so that
11 directive was incorporated into the original terms of
12 reference that was part of the letter from Mr. Owen --
13 sorry, from Mr. Brennan to Mr. Owen that we've looked at
14 at Tab 1, correct?

15 MR. WILL LIPSON: Yeah, I haven't checked
16 if it's word-for-word the same, but a lot of the content
17 overlaps at a minimum.

18

19 (BRIEF PAUSE)

20

21 MS. ANITA SOUTHALL: Mr. Lipson, can you
22 tell me whether or not the team reviewed Order 32/'09 as
23 part of the scoping exercise in Phase 1?

24 MR. WILL LIPSON: I don't recall. I know
25 the team reviewed the terms of reference that we were all

1 under, that -- that I'm certain of. I don't recall if we
2 had 32/'09 in front of us.

3 MS. ANITA SOUTHALL: Just a follow-up
4 question on that. Did you review any Board Orders other
5 than Order 32/'09?

6 MR. WILL LIPSON: Not to my recollection,
7 no.

8 MS. ANITA SOUTHALL: So just following up
9 on the reference to directive 4 from PUB Order 32/'09.
10 The first engagement letter specifically builds this work
11 into Phase 1 and 2, and also -- maybe I'll just stop
12 there. Do you recall that?

13 MR. WILL LIPSON: Sorry, I -- can you
14 repeat your question?

15 MS. ANITA SOUTHALL: You bet. And -- and
16 feel free to reference the document, the -- the first
17 engagement letter of November 20, 2009, which is at Tab
18 2. If you look at Phase 1 "Diagnostic Review and
19 Scoping," you'll see at item 2 the reference to the
20 conceptual outline for the in-depth and independent study
21 as directed in PUB Order 32/'09.

22 MR. WILL LIPSON: Yes, I see that.

23 MS. ANITA SOUTHALL: And then if you stay
24 with that document on page 3, you will see that part of
25 the Phase 2 work was to prepare the independent in-depth

1 risk study as directed in PUB Order 32/'09, correct?

2 MR. WILL LIPSON: Yes, I do. I see that.

3 MS. ANITA SOUTHALL: And then if you
4 wouldn't mind please turning to page 4, in the fourth
5 paragraph down, the indication is that the request for
6 information, including data, reports, methodologies, and
7 policies was for a variety of purposes, including the
8 last purpose stated in the paragraph, which is:

9 "Further, our requests will also be in
10 furtherance of the requirement for the
11 risk study envisioned in PUB order
12 32/'09."

13 Do you see that?

14 MR. WILL LIPSON: Yes.

15

16 (BRIEF PAUSE)

17

18 MS. ANITA SOUTHALL: Now, Mr. Lipson,
19 looking at the engagement letter that supercedes the
20 first one, pardon me, again, please turn to Tab 3 and the
21 December 15th, 2009, letter.

22 MR. WILL LIPSON: Yes.

23 MS. ANITA SOUTHALL: As you indicated,
24 the -- pardon me. The -- the Phase I scoping exercise
25 had been completed by this time, correct?

1 MR. WILL LIPSON: That's correct.

2 MS. ANITA SOUTHALL: And did the Phase I
3 work include the conceptual outline for an in-depth and
4 independent study in accordance with Board order 32/'09?

5 MR. WILL LIPSON: Yeah, the Phase 1 work,
6 which is Appendix B to our final report effectively
7 stands on its own. It is the conceptual outline for how
8 we plan to proceed on Phase 2.

9 MS. ANITA SOUTHALL: I -- I'm not sure
10 that's an answer to my question, but did you do a
11 conceptual outline that was intended to be an independent
12 in-depth risk study in accordance with the terms of Board
13 order 32/'09?

14 MR. WILL LIPSON: As we undertook the
15 process of doing Phase 1 we developed our approach, our
16 conceptual outline, to what we would be proposing to do
17 going forward in Phase 2. We reviewed that with our
18 client, with the audit committee, and said this is how we
19 plan on proceeding, and they accepted it.

20 MR. ROBERT MAYER: Without benefit of
21 coun -- of counselling or contacting PUB staff?

22 MR. WILL LIPSON: We did not contact the
23 PUB staff.

24

25 (BRIEF PAUSE)

1 CONTINUED BY MS. ANITA SOUTHALL:

2 MS. ANITA SOUTHALL: I understand, Mr.
3 Lipson, that the new engagement letter, when I call it
4 the "new" one, it's the December 2009 engagement letter,
5 was expanded to confirm that there was no conflicts
6 associated with KPMG accepting the engagement. Are you
7 aware of that change?

8 MR. WILL LIPSON: We would not have
9 written the original engagement letter had there been
10 conflicts. So I think we were always on the record as
11 saying there were no conflicts in us undertaking this
12 assignment.

13

14 (BRIEF PAUSE)

15

16 MR. WILL LIPSON: Yeah, it -- it actually
17 is covered, sorry, in the original engagement letter as
18 item 17 in our standard terms and conditions at the back.
19 So it was in both engagement letters.

20 MS. ANITA SOUTHALL: It -- it does appear
21 to be, sir, a change in the actual letter content. Do
22 you agree with that?

23 MR. WILL LIPSON: Can you point me to the
24 reference that you're bringing this up?

25 MS. ANITA SOUTHALL: Right.

1 MR. WILL LIPSON: I would appreciate it.

2 MS. ANITA SOUTHALL: On page 2 -- if you
3 look at page 2 of Tab 3, which is the new engagement
4 letter. And on page 2, paragraph 2, there is the
5 explicit statement:

6 "We confirm that we are not aware of
7 any conflicts associated with KPMG
8 accepting this engagement."

9 MR. WILL LIPSON: Yes, I see that.

10 MS. ANITA SOUTHALL:

11 "Our US firm has provided certain
12 services to ICF Consulting unrelated to
13 this engagement."

14 And then it goes on.

15 MR. WILL LIPSON: Yes, I see that
16 paragraph, yes.

17 MS. ANITA SOUTHALL: We haven't noted it
18 in the first letter, and that's what I was asking you the
19 question about.

20 MR. WILL LIPSON: Yeah. I recall that
21 before the assignment undertook we had identified the ICF
22 issue; this is before the November 20th letter. And
23 although it was not in the engagement letter, it had
24 been, to my recollection, communicated already to Hydro.
25 Putting it in the second letter was just in the spirit of

1 being cautious and having it documented in an obvious
2 place.

3 MS. ANITA SOUTHALL: Do you know who
4 composed the two (2) engagement letters, sir?

5 MR. WILL LIPSON: Well, there were more
6 than one authors. KPMG composed them.

7

8 (BRIEF PAUSE)

9

10 MR. WILL LIPSON: Yeah, sorry, my
11 colleague has also pointed out that in the first letter
12 of November 20th --

13 MS. ANITA SOUTHALL: Yes.

14 MR. WILL LIPSON: -- the ICF issue is
15 raised there; it's probably word-for-word the same. It's
16 on the fourth paragraph of page 1 of the second tab. So
17 -- yeah.

18 MS. ANITA SOUTHALL: You -- I stand
19 corrected. You're right, I can see that reference.
20 Thank you.

21 MR. WILL LIPSON: I -- I didn't catch it
22 either. It's thanks to Mr. Gupta.

23 MS. ANITA SOUTHALL: Just getting back to
24 who prepared the letter, sir, was somebody ultimately
25 responsible for it? I mean, I'm talking about the

1 original engagement letter and the -- and the subsequent
2 replacement engagement letter. Who was ultimately
3 responsible for it on behalf of KPMG?

4 MR. WILL LIPSON: Ultimately, I -- I'm
5 not sure KPMG has an individual who ultimately is
6 responsible for an engagement letter, but the signatory
7 was Bob Owen.

8 MS. ANITA SOUTHALL: He's identified in
9 the materials as the relationship partner, correct, for
10 Manitoba Hydro?

11 MR. WILL LIPSON: Or -- yeah, the -- the
12 proposal letters refer to him as client service partner.
13 I think that's a better description.

14 MS. ANITA SOUTHALL: Thank you. Mr.
15 Lipson, or other members of the panel, if it's
16 appropriate, which external consultants were used by
17 KPMG? There are external consultants noted. I think
18 your report actually addresses a number of them.

19 MR. WILL LIPSON: Yeah. We, as -- as we
20 indicated in -- in the presentation this morning, used
21 NERA and CDD Howard as our external consultants, or sub-
22 consultants, in our terminology.

23 MS. ANITA SOUTHALL: And I'll use the
24 acronym NERA as -- as you have. What -- what were --
25 what was NERA's area of responsibility in terms of third

1 party consult?

2 MR. WILL LIPSON: Yeah, we addressed this
3 on page 10 of our main report in Section 136, which
4 reads:

5 "The scope of NERA's work included
6 commenting on certain economic matters
7 relevant to Manitoba Hydro's planning
8 practices, principles of risk
9 management as applied to power export
10 sales, business strategy for expansion
11 and export contracts, the terms and
12 conditions of export power contracts,
13 the sufficiency of long-term contract
14 prices, methodologies to measure risk
15 capital and its applicability to
16 Manitoba Hydro, and weather
17 derivatives."

18 MS. ANITA SOUTHALL: And did NERA write
19 any portion of the report or provide specific feedback on
20 any portion of the report prepared by KPMG?

21 MR. WILL LIPSON: Yes, they provided
22 comments as the report was being drafted. They did not
23 write any section of this report.

24 MS. ANITA SOUTHALL: And did those
25 comments ultimately change any of the conclusions drawn

1 by KPMG as a result of their input

2 MR. WILL LIPSON: I don't believe so. I
3 don't recall. So -- I -- I recall they were quite
4 supportive of the analysis that we had undertaken and the
5 conclusions we were reaching.

6 MS. ANITA SOUTHALL: Is there anyone else
7 on the panel who had responsibility for this area that
8 can comment on that?

9 MR. JONATHAN ERLING: I just might note.
10 I think that NERA was very good at -- at providing
11 feedback in terms of how our report was written. They
12 were an objective party; they weren't involved in the
13 preparation of the drafts.

14 And therefore, I think, as outsiders to
15 the process of writing the report they could provide
16 perspective where we weren't getting our point across as
17 clearly as possible. And I think they helped us tighten
18 up the language and some of the thinking behind the main
19 conclusions.

20 MS. ANITA SOUTHALL: It's my
21 understanding that NERA has worked for Manitoba Hydro
22 within the past ten (10) years. Did they disclose that
23 to you or were you aware of that?

24

25 (BRIEF PAUSE)

1

2 MR. WILL LIPSON: I don't recall that we
3 either asked them or they disclosed it. What I do recall
4 is that we did review proceeding with NERA with Manitoba
5 Hydro staff to ensure that there was no conflict in doing
6 so and that they were comfortable in the nature and role
7 that we were asking NERA to play.

8 MS. ANITA SOUTHALL: And, sir, perhaps
9 you'll -- you'll have us refer to -- to page 10 of the
10 report, the KPMG Report. I have the same question with
11 respect to CDD Howard Consulting Ltd. as an external
12 consultant used by KPMG. Is the scope of the work that
13 that third party consultant did as identified on page 10
14 of the report?

15 MR. WILL LIPSON: Yes.

16 MS. ANITA SOUTHALL: And I pose the same
17 question, being, did this consultant write any sections
18 of the report or -- or any of the conclusions of KPMG
19 changed as a result of consultation with this consultant?

20 MR. JONATHAN ERLING: I probably dealt
21 most directly with CDD so I would answer that question.
22 They -- they did not write any sections of the report and
23 I don't believe we changed any of our conclusions as a
24 result of discussions with them. Our conclusions were --
25 relied in the first instance on some analysis that they

1 provided to us. And some discussion of methodologies
2 with respect to hydrological modelling.

3 MS. ANITA SOUTHALL: Did they provide a
4 report to KPMG?

5 MR. JONATHAN ERLING: The communications
6 with CDD Howard were more in the nature of telephone
7 conversations, perhaps some emails, and certainly he had
8 also provided some literature. He has some quoted
9 articles that are publically available that we looked at
10 in the course of our work.

11 MS. ANITA SOUTHALL: And if you relied
12 upon them, were they part of the source materials that
13 are referenced in your report?

14 MR. JONATHAN ERLING: Yes, they're --
15 they would be footnoted in the report.

16

17 (BRIEF PAUSE)

18

19 MS. ANITA SOUTHALL: Mr. Lipson, I think
20 back over to you. I -- I do have a few other questions
21 associated with changes to the content of the engagement
22 letters so I'm going to take you back to Tab 2, page 2,
23 please.

24

25 (BRIEF PAUSE)

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MS. ANITA SOUTHALL: And at the top of page 2 of the November 20, 2009, engagement letter under "Scope of Work" there is reference under the second bullet with respect to:

"Identify the positions of Manitoba Hydro staff and other external expert consultants on each of the allegations."

And by "allegations" that's a reference to allegations or assertions by the New York consultant, correct?

MR. WILL LIPSON: Yes.

MS. ANITA SOUTHALL: And in the updated engagement letter dated December 20, the scope was narrowed to identifying the positions of Manitoba Hydro staff on each of the allegations and left out a reference to the positions of external expert consultants. If you want to turn to page 3 -- or sorry, Tab 3, page 3, there is that change noted in the second bullet under the scope of work.

(BRIEF PAUSE)

MS. ANITA SOUTHALL: Did you see that?

1 MR. WILL LIPSON: Yes, I see that.

2 MS. ANITA SOUTHALL: And why was the
3 scope narrowed, sir?

4 MR. WILL LIPSON: I don't believe the
5 scope was narrowed. I think it was redrafted somewhat.
6 It was always intended that we would use our sub-
7 consultants in specialized capacities. It wasn't their
8 assignment, it was our assignment, and we needed them in
9 the specialized areas to supplement our -- our work.

10 Why it was redrafted, I think was just a
11 different author wrote it a somewhat different way. I
12 don't think the intent had ever changed.

13

14 (BRIEF PAUSE)

15

16 MS. ANITA SOUTHALL: Just if you -- if
17 you would please still have access to the scope of work
18 provisions in both Tabs 2 and 3, there again is a change
19 in the scope with respect to the third bullet, which in
20 the first letter of November 20th indicates:

21 "Determine whether the information
22 assembled to date provides a reasonable
23 basis for evaluating the merits of
24 these allegations, and provide our
25 evaluation of the allegations."

1 It -- there is no specific wording to that
2 effect in the scope of work in the second letter. Can
3 you just explain that?

4 MR. WILL LIPSON: Yeah, I -- I was not
5 the author of these sections of the re -- of the proposal
6 letters. I believe the third bullet in the December 15th
7 letter is a more general statement which encompasses the
8 work that was covered in the third bullet of the previous
9 letter.

10

11 (BRIEF PAUSE)

12

13 MS. ANITA SOUTHALL: Mr. Lipson, do you
14 know who requested the changes in scope between the two
15 (2) letters? And when I say, "changes in scope", I'm
16 sorry, I'm -- I know that there's a heading scope of
17 work, but I'm thinking of not only the scope of work but
18 the actual tasks to be completed, which are materially
19 different between the two (2) engagement letters.

20 MR. WILL LIPSON: Well, the -- the
21 wording is somewhat different. I'm not sure that the
22 tasks are materially different. And it is most likely
23 that the changes were at KPMG's request.

24 MS. ANITA SOUTHALL: There is a major
25 change in the elimination of the requirements of the PUB.

1 Would you agree with me on that? It doesn't exist in the
2 December 15th, 2009 engagement letter.

3 MR. WILL LIPSON: Again, as we mentioned
4 earlier, the Phase 1 report had already been completed
5 and accepted by the time we were writing December 15th.
6 So we were already under -- we already had a much better
7 understanding than we did before the commencement of the
8 assignment as to what the nature of the -- of the work
9 would be.

10 Again, I'm not sure that there was
11 anything explicit in the thinking in the December 15th
12 report, but by this point we already knew how we were
13 planning on proceeding and that was in accordance with
14 our Phase 1 report.

15 MS. ANITA SOUTHALL: Well, again, sir, I
16 -- I don't know that that's an answer to my question. So
17 are you saying that KPMG is of the view that it was not a
18 material change between the two (2) letters to remove the
19 reference to the PUB order 32/'09 and the in-depth
20 independent study, the removal of those terms and the
21 explicit tasks for KPMG between the two (2) letters, that
22 wasn't an intentional material change?

23 MR. WILL LIPSON: Yes, that is what I'm
24 saying. We -- just to supply clarity to -- to the Board,
25 when we were engaged we had -- back in November, we had

1 only limited knowledge as to what was going on. We
2 always understood and it was always at the core of our
3 proposal to go in and do a very thorough but very short
4 duration conceptual outline of the assignment, and that
5 is what was called for in our terms of reference.

6 So as we did that, that was our Phase 1
7 deliverable, that framed how we were going to proceed.
8 And I think that -- again, I'm -- I'm saying that was
9 always our intention from -- the initiation of our
10 assignment throughout is we needed a chance to catch up
11 to everybody else, understand, you know, what allegations
12 were. You know, we -- we needed some time to think
13 though which ones, you know, would be appropriate for us
14 to address and a methodology in how to address it, and
15 that was again our Phase 1 exercise which led to the
16 conduct of Phase 2.

17 No matter how it's documented in the
18 various letters, that was always the understanding
19 between the parties.

20 THE CHAIRPERSON: Sir, when you refer to
21 your limited understanding at the beginning, would it not
22 -- I'm trying to understand how not taking up the
23 opportunity to speak to PUB staff and advisors
24 facilitated your understanding.

25 MR. WILL LIPSON: Now, let -- let me

1 clarify my point. I probably wasn't as clear as I should
2 have been. Before we wrote the November 20th letter to
3 get engaged we did not have a lot of background on what
4 the various reports were talking to. We basically had
5 the terms of reference, Mr. Brennan's letter to us.

6 So on that basis, we responded back in
7 line with that with a approach that suggests that we will
8 go in and spend a couple of weeks to figure out how best
9 to proceed with a Phase 2 assignment, and that's
10 effectively what we did at the beginning, and that's what
11 we were still planning on doing on December 15th.

12

13 CONTINUED BY MS. ANITA SOUTHALL:

14 MS. ANITA SOUTHALL: And the change that
15 I've been referring to to the removal of all references
16 to PUB Order 32/'09 and the details associated with that,
17 when I asked earlier about the changes between the two
18 (2) letters and who directed them you indicated that that
19 was KPMG. Would that include the changes that I've
20 referenced with respect to Order 32/'09?

21 MR. WILL LIPSON: Yeah, again, I didn't
22 have direct knowledge of that, but I would hypothesize
23 that is the case.

24 MS. ANITA SOUTHALL: Sir, can you explain
25 why there was a need for a second engagement letter in

1 these circumstances given what you've been describing?

2 MR. WILL LIPSON: Sure, I'd be happy to.
3 Again, we had just completed our Phase 1 work. We were
4 very quickly gearing up to get started in Phase 2. We
5 realized how little time was available. And, you know,
6 the Christmas season was approaching and we were getting
7 people -- not just our core people who did Phase 1, of
8 which there was several of us, but all the various team
9 members, to get ready to get oriented, to get started,
10 and, you know, to -- to get running as quickly as we
11 could.

12 As that occurred, we received a letter,
13 dated December the 8th, from the New York consultant
14 asking us to cease and desist our activities. In
15 accordance with KPMG risk management practices, that
16 wasn't something we just ignored or it wasn't something
17 that we took lightly, but we consulted internally with
18 our risk management professionals and with our internal
19 general counsel. And that group together with the core
20 team of professionals led to the generation of the
21 December 15th letter.

22 MS. ANITA SOUTHWALL: So, Mr. Lipson, is
23 the consequence of that background explanation that the
24 changes to the second engagement letter were driven by
25 decisions on the advice of legal counsel and with respect

1 to the circumstances that had presented at that point?

2 MR. WILL LIPSON: Yes.

3 MS. ANITA SOUTHALL: Again, please, if
4 you could turn to page 2 of the November 20th engagement
5 letter. Pardon me, it's page 3, sir. In the first
6 paragraph under Phase 2 there is a statement in --
7 beginning in the second line of that paragraph:

8 "This report will document our analyses
9 and conclusions in a format that is
10 suitable for distribution to key
11 stakeholders, including your
12 shareholder, the regulator, and members
13 of the media as appropriate."

14 Do you see that reference, sir?

15 MR. WILL LIPSON: yes, I do.

16 MS. ANITA SOUTHALL: And that is actually
17 not in the later engagement. Are you aware of that?

18 MR. WILL LIPSON: I haven't checked. I'm
19 prepared to operate as though that is the case, yes.

20 MS. ANITA SOUTHALL: And -- and would
21 that have been driven by advice from legal counsel and
22 based on your risk management decisions on the existing
23 circumstances?

24 MR. WILL LIPSON: In all likelihood, yes.
25 As you see in our final report, we alwa -- we -- we do

1 explicitly authorize distribution of the report including
2 to the Public Utilities Board, so it wasn't -- it's
3 removal did not necessarily mean that we didn't
4 understand this assignment was in the context of a report
5 that would eventually be made public.

6 MS. ANITA SOUTHALL: And the removal of
7 the next sentence:

8 "This entails a high degree of rigour
9 with respect to our analyses and their
10 presentation."

11 I take it that you didn't exercise any
12 less rigour just because those words aren't contained in
13 the second engagement letter?

14 MR. WILL LIPSON: That's correct. This -
15 - this -- this was quite a rigorous assignment on our
16 part.

17 MS. ANITA SOUTHALL: I think you said a
18 bit earlier, sir, but just so I -- I haven't missed it,
19 and because I've reviewed a number of these changes
20 between the two (2) letters, that the Manitoba Hydro-
21 Electric Board was satisfied with the ultimate changes to
22 the engagement letter, and -- and as documented by their
23 acceptance of the superceding engagement letter?

24 MR. WILL LIPSON: That's my
25 understanding, yes.

1 MS. ANITA SOUTHALL: There's reference to
2 KPMG in respect of the -- in respect of the task to be
3 carried out by KPMG, reference to KPMG meeting with
4 Manitoba Hydro's external counsel. Do you recall that?

5 MR. WILL LIPSON: Can you point me to
6 that reference, please? Oh, that's all right, I see it
7 here. Sor -- sorry, for others, it's on page 4, the last
8 paragraph before the engagement team in the November 20th
9 letter, Tab 2, which reads:

10 "We'll also require access to the
11 reports prepared by Manitoba Hydro's
12 external legal counsel as well as
13 meetings with representatives of that
14 firm [I've skipped over the firm name]
15 that we may deem appropriate."

16 Okay. The firm name is --

17 MS. ANITA SOUTHALL: Did such meetings
18 occur?

19 MR. WILL LIPSON: Yes, there were --
20 there was communication back and forth and we did have
21 meetings with them.

22 MS. ANITA SOUTHALL: And without
23 breaching Manitoba Hydro's solicitor/client privilege and
24 if it -- if it's not possible, you can tell me, why were
25 those meetings anticipated to be necessary?

1 (BRIEF PAUSE)

2

3 THE CHAIRPERSON: I think we'll take our
4 lunchbreak now and give them a chance to confer. We'll
5 come back at 1:15. Thank you.

6 MS. ANITA SOUTHALL: Thank you.

7

8 --- Upon recessing at 12:06 p.m.

9 --- Upon resuming at 1:18 p.m.

10

11 THE CHAIRPERSON: Okay, Ms. Southall,
12 anytime. Just to remind us, I think we were waiting for
13 a response.

14 MS. ANITA SOUTHALL: That's correct, Mr.
15 Chairman.

16 MS. MARLA BOYD: Perhaps I can offer that
17 up on behalf of Manito -- Manitoba Hydro. The -- the
18 question related to the nature of the meeting between
19 KPMG and Manitoba Hydro's external counsel. At that
20 time, Manitoba Hydro's external counsel had done some
21 work in organizing documents, and that was viewed as an
22 efficient way for KPMG to quickly familiarize themselves
23 with materials.

24 So without disclosing any commu --
25 solicitor/client privilege information, that -- that's

1 the nature of the meeting that took place.

2

3 CONTINUED BY MS. ANITA SOUTHALL:

4 MS. ANITA SOUTHALL: And then back to --
5 to you, Mr. Lipson. Did Manitoba Hydro's external
6 counsel have any reports that they produced to KPMG which
7 were not sourced originally from Manitoba Hydro?

8 MR. WILL LIPSON: No.

9

10 (BRIEF PAUSE)

11

12 MS. ANITA SOUTHALL: I want to ask if
13 there were any draft reports of the external quality
14 review prepared by KPMG.

15 MR. WILL LIPSON: Yes, there was one (1)
16 draft report, dated April the 1st, which we submitted and
17 received comments back from the audit committee on April
18 the 9th; in and around that time. Some -- some comments
19 came back in writing afterwards and maybe in advance.
20 And then we -- that led eventually to the issuance of the
21 April 15th report.

22 MS. ANITA SOUTHALL: I understand that in
23 response to a PUB-MH Risk Information Request that we
24 were advised that KPMG did not provide Manitoba Hydro
25 with any draft reports. Are you aware of that, sir?

1 MR. WILL LIPSON: Do you want to point me
2 to the reference, or...?

3 MS. ANITA SOUTHALL: Yes, it's PUB-MH
4 Risk number 87(c).

5 MR. WILL LIPSON: Sorry, is it -- is it
6 in the book of documents?

7 MS. ANITA SOUTHALL: No. No, sir, it's
8 not.

9 MR. WILL LIPSON: Yeah. Well, again, I
10 can -- yeah, thank you.

11 MS. ANITA SOUTHALL: Yeah, feel free to
12 take your time and verify that that was the answer, but
13 we'd like to have the draft report, if it's still
14 available, filed with the Board.

15

16 (BRIEF PAUSE)

17

18 MS. MARLA BOYD: Sorry, Ms. Southall, PUB
19 Risk?

20 MS. ANITA SOUTHALL: 87(c).

21

22 (BRIEF PAUSE)

23

24 MR. ROBERT MAYER: You have an answer --

25 THE CHAIRPERSON: Ms. Southall, I think

1 they found it.

2 MR. WILL LIPSON: Yeah. I can't really
3 comment on the response provided there. I can confirm
4 that there was a draft report. There is actually a
5 reference to the draft report on page 2 of our report,
6 second bullet on the bottom -- bottom of the page says:

7 "Manitoba Hydro has reviewed the draft
8 of this report dated March 31, 2010 and
9 has confirmed it has no information [et
10 cetera, et cetera]."

11 So -- and again, for the record, I don't
12 quite understand why that response is the way it is.
13 There was definitely one (1) draft of the report. I said
14 earlier it was April 1st, I think it was late the night
15 of March 31st, probably spilled into April 1st, till it
16 was delivered, that we were able to produce the draft.

17 Maybe one (1) other additional point of
18 clarity. The draft report to, you know, maintain due
19 process around it, was available for review at our
20 offices. So it's possible the response to that
21 interrogatory was that we did not provide it to them,
22 they had access to come to our premises. But again,
23 there's no doubt there was a draft report. That's
24 really, I think, the essence of the question.

25 MR. ROBERT MAYER: You said come to your

1 premises?

2 MR. WILL LIPSON: Oh, our offices in
3 Winnipeg. It's about a ten (10) minute walk. I -- I
4 don't recall that for certain but I'm pretty sure that's
5 -- that's what happened. Actually, yeah, I am certain.

6

7 CONTINUED BY MS. ANITA SOUTHALL:

8 MS. ANITA SOUTHALL: So, Mr. Lipson, I
9 take it that KPMG is in a position to provide the draft
10 report to the Board?

11 MR. WILL LIPSON: I would think so. I
12 don't know for certain that we retain drafts as a matter
13 of policy, but I believe in this case we did
14 understanding the circumstances so we could go back and
15 look.

16 MS. ANITA SOUTHALL: Okay. If you could
17 undertake to look for it and, assuming you can locate it,
18 provide it, please.

19 MR. WILL LIPSON: Okay.

20

21 --- UNDERTAKING NO. 69: KPMG to provide, if it can be
22 located, the draft report of
23 the external quality review

24

25 CONTINUED BY MS. ANITA SOUTHALL:

1 MS. ANITA SOUTHALL: And do you have a
2 record of what feedback -- sorry, who -- who did you say
3 vetted it? Was it the audit committee of Manitoba Hydro?

4 MR. WILL LIPSON: As well as some staff
5 members, yes.

6 MS. ANITA SOUTHALL: And do you have
7 notes or anything in writing respecting the feedback that
8 was provided to KPMG as a result of that preliminary
9 review?

10 MR. WILL LIPSON: Yeah, we did give a
11 presentation of the report on the 9th and there would
12 have been minutes taken in that meeting of the
13 discussion, and we certainly understood the comments and
14 reflected those comments as appropriate in our final
15 report.

16 MS. ANITA SOUTHALL: So if you could
17 provide the minutes as well, please, containing --

18 MR. WILL LIPSON: Yeah.

19 MS. ANITA SOUTHALL: -- that commentary.

20 MR. WILL LIPSON: Yeah, that would have
21 been Manitoba Hydro taking minutes at the time.

22 MS. ANITA SOUTHALL: Okay.

23 MR. WILL LIPSON: Okay. So it's up to my

24 --

25 MS. ANITA SOUTHALL: I see.

1 MR. WILL LIPSON: -- client.

2 MS. ANITA SOUTHALL: Ms. Boyd, are you in
3 a position to provide that?

4 MR. WILL LIPSON: Yes, we are.

5

6 --- UNDERTAKING NO. 70: KPMG to provide minutes of
7 presentation of the report

8

9 CONTINUED BY MS. ANITA SOUTHALL:

10 MS. ANITA SOUTHALL: Thank you. In the
11 information request process, Mr. Lipson, KPMG indicated
12 that it had other engagements for Manitoba Hydro; are you
13 aware of that?

14 MR. WILL LIPSON: Do you want to again
15 point me to a reference? Now that I'm really good at
16 finding them.

17 MS. ANITA SOUTHALL: I think it may be in
18 the same binder. I think it may be risk -- PUB RISK-IR
19 number 88.

20

21 (BRIEF PAUSE)

22

23 MS. ANITA SOUTHALL: That's not the right
24 reference, sir? What I wanted to -- I really didn't want
25 you to try and locate the IR --

1 MR. WILL LIPSON: Okay. That's fine.

2 MS. ANITA SOUTHALL: -- but if you have
3 that's fine. My understanding from the response was that
4 another engagement that KPMG has with Manitoba Hydro is a
5 project on IFRS?

6 MR. WILL LIPSON: Yes, I was aware there
7 was another engagement going on. None of us have any
8 invo -- have had any involvement. None of the four (4)
9 panellists have had any involvement with that.

10 MS. ANITA SOUTHALL: And do you know the
11 time period for that project for Manitoba Hydro?

12 MR. WILL LIPSON: I recall there was some
13 work going on concurrently with our assignment, and maybe
14 proceeding it, but I don't have the exact details, no.

15 MS. ANITA SOUTHALL: Do you have any idea
16 of the size of that project --

17 MR. WILL LIPSON: No.

18 MS. ANITA SOUTHALL: -- for KPMG?

19 MR. WILL LIPSON: No, I do not.

20 MS. ANITA SOUTHALL: We've also just
21 recently been provided, and -- and by "us" I mean Board
22 counsel and Board advisors with a copy of a presentation
23 or assessment done with respect to the middle office that
24 is -- was prepared by KPMG and is dated May 2010. Are
25 you aware of that?

1 MR. WILL LIPSON: Yes, I am.

2 MS. ANITA SOUTHALL: And was that a
3 separate engagement by Manitoba Hydro with respect to the
4 results contained in that assessment document?

5 MR. WILL LIPSON: Yes.

6 MS. ANITA SOUTHALL: And what time period
7 did that encompass, sir?

8

9 (BRIEF PAUSE)

10

11 MR. FRANK CHEN: That engagement was
12 performed between the periods of May -- I -- I'm sorry,
13 March 2010, concluded in May 2010.

14 MS. ANITA SOUTHALL: Thank you, Mr. Chen.
15 Could you, sir, if you have it available, I'm hoping you
16 do, because it is the set of resumes that were provided
17 as part of Manitoba Hydro's filing Appendix 37. Your
18 counsel's just stepped away, so -- or Hydro counsel has
19 stepped away.

20 Ms. Boyd, would you have a copy of the
21 resumes that are Appendix 37?

22 MS. MARLA BOYD: I believe they're all in
23 your book of documents, are they not?

24 MS. ANITA SOUTHALL: No.

25

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: Pardon, they could
4 be in the earlier book of documents that Mr. Peters
5 filed, I'm not sure.

6

7 (BRIEF PAUSE)

8

9 MS. MARLA BOYD: We do have them from
10 Appendix 37 of the filing.

11

12 (BRIEF PAUSE)

13

14 CONTINUED BY MS. ANITA SOUTHALL:

15 MS. ANITA SOUTHALL: Mr. Lipson, do you
16 have that in front of you now?

17 MR. WILL LIPSON: Yes.

18 MS. ANITA SOUTHALL: Pardon me, I wanted
19 to just note a couple of items from Mr. Owen's experience
20 with respect to his resume, which I think is the -- the
21 first resume in the series.

22 MR. WILL LIPSON: Yes.

23 MS. ANITA SOUTHALL: We talked about Mr.
24 Owen earlier this morning as the Manitoba Hydro client
25 service partner. Is that right?

1 MR. WILL LIPSON: Yes, on this
2 engagement.

3 MS. ANITA SOUTHALL: On this engagement.
4 And his resume indicates he has twenty (20) years of
5 experience as a member of the Manitoba Hydro Audit
6 Engagement Team. Is that correct?

7 MR. WILL LIPSON: Yes.

8 MS. ANITA SOUTHALL: And that engagement
9 to do the audit work for Manitoba Hydro by KPMG ran until
10 what year, sir?

11 MR. WILL LIPSON: I don't recall the
12 precise year, but I vaguely recall we were no longer
13 auditors as of, I'm going to estimate, 2003 or so.
14 Somewhere in that time frame. It was --

15 MS. ANITA SOUTHALL: Yeah, I understood
16 it maybe to be 2002.

17 MR. WILL LIPSON: Okay. That's pretty
18 close.

19 MS. ANITA SOUTHALL: The last year.

20 MR. WILL LIPSON: I could accept that.

21 MS. ANITA SOUTHALL: And -- and -- and I
22 think the -- when I drew your att -- attention, or asked
23 your counsel to -- or Hydro counsel to locate Appendix
24 37; this is structured as an appendix also to the
25 engagement letter.

1 MR. WILL LIPSON: Yes.

2 MS. ANITA SOUTHALL: Do you note that?

3 MR. WILL LIPSON: Yeah.

4 MS. ANITA SOUTHALL: So it indicates

5 that:

6 "Bob [meaning Bob Owen, at the end of
7 the first paragraph] will attend all
8 meetings with Manitoba Hydro's Audit
9 Committee, Board of Directors, and
10 senior management, and oversee the
11 delivery of all of our services."

12 I've -- I've read that in correctly?

13 MR. WILL LIPSON: Sorry, it seems to me
14 you read that correctly. Is that -- I'm not --

15 MS. ANITA SOUTHALL: That's what I'm
16 asking you. Do you see it --

17 MR. WILL LIPSON: I see it.

18 MS. ANITA SOUTHALL: -- that it says the
19 same thing as I've read?

20 MR. WILL LIPSON: Yes, I do.

21 MS. ANITA SOUTHALL: And -- and did Mr.
22 Owen perform this particular service, including all of
23 these dealings that are outlined here as are projected?

24 MR. WILL LIPSON: Yes.

25

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: What was the
4 ultimate fee charged by KPMG for the review report, the
5 external quality review report?

6 MR. WILL LIPSON: Our fees were
7 approximately \$2.7 million.

8 MS. ANITA SOUTHALL: And was that for the
9 Phase 1 and Phase 2 work up to and including completion
10 of the April 15th, 2010 report?

11 MR. WILL LIPSON: Yes. It excluded that
12 separate assignment you referred to earlier, but the
13 answer is yes.

14

15 (BRIEF PAUSE)

16

17 MS. ANITA SOUTHALL: And, sir, with
18 respect to the two (2) third party consultants we talked
19 about earlier: NERA and I'm not sure --

20 MR. WILL LIPSON: CDD Howard.

21 MS. ANITA SOUTHALL: -- CD Howard. Is
22 that right?

23 MR. WILL LIPSON: Yeah, there's two (2)
24 Ds. CDD Howard.

25 MS. ANITA SOUTHALL: Do you know what the

1 fees were for the services that they provided in their
2 third-party capacity?

3 MR. WILL LIPSON: Yeah, it was approx --
4 it was in excess of a hundred thousand dollars
5 (\$100,000), about a hundred and thirty thousand
6 (130,000), if I recall.

7 MS. ANITA SOUTHALL: Combined or each?

8 MR. WILL LIPSON: Combined.

9 MR. ROBERT MAYER: Was that included in
10 KPMG's bill or was that extra?

11 MR. WILL LIPSON: It was included in our
12 billings. They billed us and we billed Hydro. The
13 number, I said it earlier, was just the KPMG fee, so it's
14 over and above that number.

15

16 CONTINUED BY MS. ANITA SOUTHALL:

17 MS. ANITA SOUTHALL: Mr. Lipson, and --
18 and perhaps now the whole panel because I'm not sure
19 who's going to be addressing these items going forward,
20 if you could turn to page 7 of the report, please. And
21 here I'm taking about the Manitoba Hydro external quality
22 review main report April 15, 2010.

23 And sorry about this. I don't mean to
24 make you keep flipping. But if -- first of all, could
25 you just go to -- back to the first page of the executive

1 summary, which is Roman numeral small I, or number --
2 Roman numeral small 1. I would like you, or whoever on
3 the panel is appropriate, to look at the scope of review
4 of the report and please tell us what was intended to be
5 covered with respect to the statement that this was the
6 scope of the review.

7 In other words, is this the task that KPMG
8 ultimately undertook as Phase 2 of the work to create
9 this report. Or if it's not that, tell us what it -- it
10 means to say.

11 MR. WILL LIPSON: Yeah, maybe I'll
12 respond. These four (4) bull -- or sorry, this section
13 mirrors our engagement letter of December 15th that we
14 were talking about this morning. So, again, it is a
15 documentation of the scope of work, the much more
16 detailed scope of work you find by reading the report
17 including the Appendix B material, but at a high level
18 this doc -- this repeats the nature of the material in
19 the engagement letter.

20 And are we right to conclude then that
21 with respect to the four (4) bullets identified on the
22 first page of the executive summary, this was the task
23 that KPMG determined it would undertake (sic) after Phase
24 1?

25 MR. WILL LIPSON: This is a

1 characterization of that task, yes.

2 MS. ANITA SOUTHALL: If you could turn to
3 page 7 then, please. There is reference, panel, on page
4 7 to a number of the New York consultant's reports that
5 were reviewed. Is that a comprehensive list of the
6 reports that were reviewed by KPMG? Sorry, of the
7 reports of that consultant.

8 MR. WILL LIPSON: That's -- that's a
9 challenging question. The consultant generated a range
10 of documents, some of which were clearly not reports,
11 some of which were reports, some of which were interim
12 reports. When we defined the consultant's reports, this
13 -- these are the five (5) reports, and we identified
14 these five (5) as clearly the major deliverables
15 generated by the consultant. But we reviewed all the
16 material generated by the consultant in that regard.

17

18 (BRIEF PAUSE)

19

20 MS. ANITA SOUTHALL: I'm not sure whether
21 or not it's located elsewhere in the report, but have you
22 identified the Manitoba Hydro reports addressing the New
23 York consultant assertions that were reviewed by KPMG?
24 In -- in a listing type of way.

25 MR. WILL LIPSON: Yes, it's Appendix C,

1 lists the documents that we accessed, which were broader
2 than just the documents you referred to, obtained from
3 Manitoba Hydro.

4 MS. ANITA SOUTHALL: Thank you. If you
5 could look under the section on page 7 onto page 8 as --
6 as your point of reference, there's a reference to a
7 cease and desist letter that I think you were referring
8 to earlier today from the New York consultant to KPMG
9 indicating it would be inappropriate for KPMG to explain
10 any of the materials.

11 MR. WILL LIPSON: Yes, there is. Sorry -
12 -

13 MS. ANITA SOUTHALL: It also appear --

14 MR. WILL LIPSON: Sorry. Sorry, if I can
15 just -- inappropriate for the consultant to explain any
16 of the consultant's materials to KPMG is the reference.
17 Maybe I misheard you.

18

19 (BRIEF PAUSE)

20

21 MS. ANITA SOUTHALL: There also appears
22 to be at the top of page 8 a reference to the fact that
23 the consultant in the cease and desist letter indicated
24 it would be appropriate -- in -- pardon me, it would be
25 inappropriate for KPMG to use any materials received by

1 KPMG, correct? I'm paraphrasing.

2 MR. WILL LIPSON: I think that's a fair
3 characterization of the communications, yes.

4 MS. ANITA SOUTHALL: And -- and is that
5 the - I take it that's the basis -- I believe the report
6 captures this, but I take it that's the basis upon which
7 KPMG determined that it would not contact the New York
8 consultant?

9 MR. WILL LIPSON: It is -- it is one (1)
10 of the bases. We also became quite comfortable that we
11 had reviewed an extensive set of reports and documents
12 and other materials to feel confident that we had
13 identified all the material issues that should fall
14 within our scope and then went ahead and analyzed those
15 issues as we describe in the various pages in the report.

16 MS. ANITA SOUTHALL: Just following up on
17 from that last comment. How did KPMG satisfy itself that
18 it fully understood the assertions made by the New York
19 consultant? Are you saying the review as a whole led you
20 to a comfort zone so --

21 MR. WILL LIPSON: Yes

22 MS. ANITA SOUTHALL: -- that there
23 wouldn't be a need to...

24 MR. WILL LIPSON: Sorry. That -- that's a
25 matter of professional judgment on our part. By the time

1 that, you know, we -- we were well into the assignment,
2 we had a -- quite good understanding of the various
3 themes of issues and issues specifically that were being
4 raised in -- in the source material and that, you know,
5 we went ahead, as we describe, and did our analysis of
6 those issues, and as we described, extended our analysis
7 somewhat beyond those issues on occasion to make sure
8 we'd been quite thorough and rigorous in our external
9 quality review.

10 MS. ANITA SOUTHALL: You'll agree with me
11 that had you been in a position to discuss the assertions
12 with the maker of the assertions, it would have made KPM
13 job -- KPMG's job easier in terms of being satisfied that
14 they fully understood those assertions?

15 MR. WILL LIPSON: I think that's
16 speculative. I don't know. I would say the -- again,
17 there was no real deficiency on our part in understanding
18 what we believed was a pretty thorough scope that we were
19 to undertake in the time available.

20 MS. ANITA SOUTHALL: There -- there
21 certainly is at least one (1) reference in the External
22 Quality Review Report, which indicates that you had
23 difficulty understanding what the assertions were of the
24 consultant, that's fair, is it?

25 MR. WILL LIPSON: The consultant was

1 somewhat contradictory on assertions, but when a
2 particular issue came up, whether there was contradiction
3 or not, we analyzed the issue. That's -- that's the
4 point I'm trying to make sure is clear. So whether the
5 consultant on one (1) day said, you know, the sidewalk is
6 cracked and the next day came back and said, the sidewalk
7 is smooth, we went ahead and analyzed what the sidewalk
8 was like, not really worrying about whether the original
9 cause of our review of the sidewalk was one (1) or the
10 other.

11 MS. ANITA SOUTHALL: Did KPMG obtain any
12 further detail from Manitoba Hydro respecting the New
13 York consultant, that is other than the reports or
14 written correspondence that -- that KPMG was provided
15 access to?

16 MR. WILL LIPSON: We were provided a very
17 extensive set of material relating to the consultants and
18 that's what we were discussing just after the lunch
19 break, that Aikins was a -- assembling on behalf of
20 Hydro. So there was quite a bit of material we were
21 provided and it's clearly more than these five (5)
22 reports, way, way more.

23 MS. ANITA SOUTHALL: Did anybody from
24 Manitoba Hydro provide you with additional information,
25 verbally or otherwise, relating to the New York

1 consultant?

2 MR. WILL LIPSON: Oh, yes. When we were
3 conducting interviews it -- it's certain that on occasion
4 an issue was coming up and Manitoba Hydro staff can
5 explain the issue and potentially some of the context
6 around the New York consultant's view on the issue.

7 I mean, we certainly understood Manitoba
8 Hydros staff's view on a whole range of issues that were
9 raised by the consultant.

10 MS. ANITA SOUTHALL: And where that
11 occurred and Manitoba Hydro provided additional detail,
12 because of the situation KPMG determined it would not
13 followup with the New York consultant and run those
14 matters by that consultant?

15 MR. WILL LIPSON: Well, again, we were
16 doing our own independent investigation. So we heard a
17 view on an issue, but again, our scope was to take the
18 issue on and do our own independent analysis.

19

20 (BRIEF PAUSE)

21

22 MS. ANITA SOUTHALL: Sir, and, panel, as
23 a whole, again, at the bottom of page 8 of the report,
24 there is a section identifying time frame of the
25 assertions and impact on this review. And the statement

1 is made that the New York consultants -- sorry, let me --
2 let me not paraphrase here. The -- in the first
3 paragraph under section 1.3.4, at the bottom of page 8,
4 there is a statement:

5 "The consultant reports containing
6 assertions regarding MH [pardon me]
7 MH's risk management practices over a
8 relatively discrete time period (i.e.,
9 primarily 2006, but with some reference
10 to past practices and some previous
11 years)."

12 Do you see that?

13 MR. WILL LIPSON: Yes.

14 MS. ANITA SOUTHALL: And what was the
15 primary focus of the assertions that relate to past
16 practices or previous years, prior to 2006?

17 MR. WILL LIPSON: Yeah, the -- again,
18 there were many, many assertions by the consultant, not
19 all of them -- the initial batch of assertions came out
20 in that first report on page 7, which was dated December
21 4th, 2006. Some of those assertions would have extended
22 back into time from that report. And so, you know, the -
23 - there are some areas where the assertions were not
24 necessarily just present tense at the time but might have
25 gone back into time, you know, for a year or two (2)

1 previously or a few years previously.

2 MS. ANITA SOUTHALL: You're not in a
3 position today to be specific about what assertions were
4 for that prior time period?

5 MR. WILL LIPSON: Again, there were
6 hundreds and hundreds of assertions. You know, we -- I --
7 - I -- sitting here today, I don't think we have a list
8 that said, These are the ones that predated 2006 and
9 these are the ones that were 2006 onwards. That would
10 take some time to assemble.

11 MS. ANITA SOUTHALL: Mr. Lipson, did you
12 have access to a document that's been placed on the PUB
13 record in these proceedings that is the NYC's public
14 document which lists two hundred and eighty-six (286)
15 assertions?

16 MR. WILL LIPSON: Yes, we did. That came
17 out after our report, June 30th, yes.

18 MS. ANITA SOUTHALL: Have you had an
19 opportunity to review that public document?

20 MR. WILL LIPSON: Yeah, we -- we've had
21 access to it. I recall sort of skimming through it
22 myself and recall, you know, noting a bunch of the issues
23 that were there as being familiar to us. My colleagues
24 may be able to, you know, expand to the extent to which
25 they reviewed the material.

1 MR. ROBERT MAYER: We saw the -- one time
2 I made -- I asked that kind of a question to a judge and
3 realized I had made a mistake. I didn't want to know
4 whether he had the opportunity to read the document, I
5 wanted to know if anybody did.

6 MR. WILL LIPSON: Well, okay, I will
7 start by saying I skimmed through the document, and set
8 out, you know, ultimately to see whether new materials
9 could shed into to light now. I'll open it up to see if
10 anybody else really read it carefully.

11 MR. JONATHAN ERLING: I reviewed it
12 briefly, but I certainly did not review the document
13 cover to cover.

14 MR. ANURAG GUPTA: I'd say something
15 similar to what Jonathan had just said.

16 MR. FRANK CHEN: That's similar for me.
17 I reviewed it on a cursory level.

18 MS. ANITA SOUTHALL: I take it that --
19 that none of you on the panel were aware that the public
20 document is -- is the public record of assertions of the
21 New York consultant in this proceeding, given that the
22 other reports prepared that are referenced in your
23 listing in this report by the New York consultant are --
24 are not on the public record of this proceeding as part
25 of a redactions order.

1 MR. WILL LIPSON: yeah, we are so aware.
2 That was the way it was characterized to us when we
3 received it.

4 MS. ANITA SOUTHALL: Based on your
5 limited review of the public document, did you identify
6 anything new in terms of assertions that you had not seen
7 previously in the previous reports?

8 MR. WILL LIPSON: I did not.

9 MR. JONATHAN ERLING: I did not.

10 MR. ANURAG GUPTA: I -- I -- neither did
11 I.

12 MR. FRANK CHEN: No.

13 MS. MARLA BOYD: Mr. Chairman, it might
14 be helpful at this point to recall that KPMG's report
15 predated the -- the public document, and, in fact, in
16 their report as Appendix D contained a list of all of the
17 assertions that were contained in the original reports
18 from the New York consultant which are not part of the
19 public record and provided information as to where KPMG
20 dealt with each of those assertions. That has been
21 redacted, I believe, entirely, but their -- their report
22 was focussed on those original assertions, and that's the
23 scope of what they're prepared to testify to.

24

25 CONTINUED BY MS. ANITA SOUTHALL:

1 MS. ANITA SOUTHALL: So just to be clear,
2 back to the panel, you did not specifically review the
3 New York consultant's public document to prepare for
4 today's hearing?

5 MR. WILL LIPSON: Yeah, again, I think
6 we've all indicated that we did give it a review, but it
7 was not a very extensive analysis of the sort that we had
8 done during our assignment.

9 MS. ANITA SOUTHALL: Thank you, sir. If
10 you could turn to Tab 6 of my reference materials.

11

12 (BRIEF PAUSE)

13

14 MS. ANITA SOUTHALL: And there at page --
15 or sorry, Tab 6, we have included copies of the New York
16 consultant's assertions from the public document being
17 issues 26, 216, and 235. Would the panel members just
18 confirm that's what they have at Tab 6? Or --

19 MR. WILL LIPSON: Yes.

20 MS. ANITA SOUTHALL: -- one (1) of you.

21 MR. WILL LIPSON: Yes.

22 MS. ANITA SOUTHALL: Thank you.

23

24 (BRIEF PAUSE)

25

1 MS. ANITA SOUTHALL: So first starting
2 with issue number 26 at Tab 6. The -- under heading
3 "Subject." The assertion reads:

4 "While Hydro has built its business on,
5 quote, 'Preserving long-term
6 relationships,' end quote, with key
7 customers, it was also noted that
8 during the drought of fiscal year
9 '03/'04 none of the personnel involved
10 in the long-term contracting
11 departments were involved in offering
12 beneficial quotes to Hydro.

13 It was those [sorry] -- It was
14 relationships created in the, quote,
15 'short-term time frame,' end quote, and
16 those counterparties (who have no long-
17 term contracts or price discount
18 benefit from the Corporation) that, in
19 fact, assisted Hydro and provided
20 equitable discounts to assist Hydro in
21 its times of drought. No long-term
22 staff from any utility was involved in
23 the energy purchases through the
24 drought. In fact, neighbouring
25 Utilities such as [redacted word]

1 charged Manitoba Hydro the highest
2 prices for energy during the last
3 drought."

4 And that's the content of the subject at
5 issue number 26. Do you have a recollection of reviewing
6 this content?

7 MR. ANURAG GUPTA: I -- I recall that in
8 one of her many reports, emails, documents, the New York
9 consultant had brought up, not the same language but --
10 but similar language, yes.

11 MS. ANITA SOUTHALL: So that issue was
12 known to you from the earlier reports?

13 MR. ANURAG GUPTA: Yes.

14 MS. ANITA SOUTHALL: Turning to the next
15 issue, issue 216. The subject contains the following
16 statement:

17 "Losses in the fiscal year '03/'04
18 should have fallen within the 95
19 percent confidence level and not
20 exceeded 345 million as stated above.
21 Unprecedented losses posted in the
22 annual reports were caused by internal
23 mismanagement (including in the gas
24 book) and could have been avoided."

25 The same question. Did you take notice of

1 this particular issue in the public document and --
2 and/or was this an issue identified by you in the New
3 York consultant's previous reports?

4 MR. ANURAG GUPTA: Again, you know, while
5 the exact language would have been different, the New
6 York consultant had raised many allegations with lots of
7 numbers around internal mismanagement, drought losses.
8 So yes, this was -- this was in her -- yeah, so in -- in
9 the New York consultant's early reports.

10 MS. ANITA SOUTHALL: With respect to
11 issue number 216, panel, is this a serious issue that's
12 being raised by the consultant?

13 MS. MARLA BOYD: Maybe I can ask you to
14 recharacterize that. I'm not sure that our panel is able
15 to speak to whether or not it's a serious issues.

16 MS. ANITA SOUTHALL: Does the KPMG panel
17 see this as a material issue with respect to the nature
18 of the assertion that's being made by the consultant?

19 MR. WILL LIPSON: Again, let me make sure
20 we've been clear on characterizing what our assignment
21 was because maybe we're having trouble making it clear.

22 Again, there were a whole host of
23 allegations and assertions made by the New York
24 consultant, which served as a basis for us determining
25 what issues need exploration. There are hundreds, or

1 probably thousands of details around those assertions.

2 This is an issue dealing with drought.
3 There is no question we went ahead and analyzed drought
4 as an issue. Whether we precisely analyzed that and came
5 back with a, you know, specific response to that, you
6 know, you can verify that as you read through the report,
7 but the -- you know, again, this is just one (1) example
8 of an allegation that found it's way into our work, but
9 not necessarily has a direct response.

10 And we have a -- a section in Chapter 1 of
11 our report indicating that, you know, we're -- we're
12 suggesting to the reader that they focus on the, you
13 know, findings relating to, you know, the analysis we did
14 and the -- the research we did and the issues we
15 analyzed, as distinct from individual specific alle --
16 allegations.

17 Because again, as I mentioned earlier,
18 there are contradictions in those allegations, there's
19 context to be understood, and we use that as a basis for
20 forming, again, what we were going to do in our Phase 2
21 report. And actually quite a bit of this is laid out in
22 our Phase 1 document too.

23 MS. ANITA SOUTHALL: Does the panel
24 consider the issue raised in this respect in issue number
25 216 to be material?

1 MR. WILL LIPSON: We consider the issue
2 of drought to be material. And otherwise, I think I've
3 responded to that question.

4 MS. ANITA SOUTHALL: And turning to the
5 last issue that we've pulled out of the public, the NYC
6 public document issue 235, the subject matter is:

7 "Stale and static prices were found to
8 be used in the HERMES system between
9 fiscal year '03/'04 and fiscal year
10 '06/'07, even as MISO was updated for
11 several years [sorry] even as MISO was
12 implemented in 2005, the decision
13 support system was not updated for
14 several years to be current with market
15 deregulation. Using stale prices, even
16 in deregulation, and the Drought [with
17 a capital 'D'] shows serious oversights
18 and mismanagement in the PS&O
19 department. Direct provincial losses
20 of \$44 million were noted in one (1)
21 year alone. Ratepayer increases have
22 had to fund these losses. Using stale
23 [and then there's a break] using stale
24 prices in deregulation was found to be
25 a huge disconnect in trading floor

1 operations by the division manager."

2 Do you recall seeing this particular issue
3 in the public document or an assertion to this effect,
4 using different wording, in the earlier consultant's
5 reports?

6 MR. JONATHAN ERLING: Yes, I'll answer
7 that question. This particular issue was certainly
8 contained within the earlier reports. It was one (1) of
9 the significant themes advanced by the consultant. And
10 as a result, if you look at the modelling chapter we do
11 spend quite a bit of time addressing the issue of the use
12 of price fore -- the use of price forecasts within the
13 modelling framework.

14 MS. ANITA SOUTHALL: Can you tell me if
15 KPMG identified any other assertions made by the New York
16 consultant respecting the drought period in 2003/'04?

17 MR. WILL LIPSON: Sorry, just -- just for
18 clarity, beyond these three (3)?

19 MS. ANITA SOUTHALL: Yeah, any other
20 general assertions. I'm not asking you to tell us word-
21 for-word what you read in the past. I'm saying, have you
22 identified any other general issues on your own, raised
23 by the New York consultant as part of your review study
24 with respect to the drought period, 2003/'04?

25 MR. JONATHAN ERLING: Well, I guess one

1 (1) comment I would have is that in reviewing the issues
2 raised by a consultant we didn't necessarily link them to
3 a particular historical period such as the drought
4 period.

5 You know, our -- really -- focus was on
6 identifying issues that she raised that might be systemic
7 or ongoing and in -- indicate underlying problems at
8 Manitoba Hydro. And so rather than revisit certain
9 events in the past, our focus was on looking at the
10 processes in general and, you know, are they sufficient
11 moving forward.

12 MR. WILL LIPSON: Yeah, and -- and maybe
13 if I can add to that. I did dig up a bullet in our Phase
14 1 report back, you know, again December '09 which reads,
15 "An issue," which is again what we were going to analyse,
16 capture the components of an allegation that reflect an
17 alleged underlying deficiency in Manitoba Hydro. So the
18 -- and it continues on.

19 But the stress, therefore, is we were
20 looking at the underlying deficiency as opposed to the
21 specific allegation itself. That's maybe a better way to
22 characterize what we've been trying to communicate, if
23 it's useful for the Board.

24 MS. ANITA SOUTHALL: It -- it's fair to
25 say, KPMG panel, that the New York consultant did address

1 certain specific issues with respect to the 2003/'04
2 drought, correct?

3 MR. JONATHAN ERLING: Yes, obviously,
4 given -- given the record.

5 MS. ANITA SOUTHALL: And -- and the
6 drought of 2003/'04 experience in Manitoba Hydro's
7 operations led to a loss in excess of \$400 million,
8 correct? Are you aware of that?

9 MR. WILL LIPSON: On memory, I am aware
10 of that. I'm just going back to confirm. Maybe we
11 didn't show it in the table. That is my recollection,
12 yes.

13 MS. ANITA SOUTHALL: Based on your
14 extensive review of the New York consultant's reports and
15 all of the other detail that -- that -- Mr. Lipson, that
16 you indicate were provided to KPMG with respect to the
17 consultant's interchange with Hydro, did the consultant
18 identify all of the major risks inherent in ex -- on the
19 export power sale side of Hydro's operations?

20 MR. WILL LIPSON: In my view, yes. In
21 the conduct of doing our assignment we did not uncover
22 any significant new risks that hadn't already surfaced
23 through the work.

24 MS. ANITA SOUTHALL: Could I ask you,
25 please, to turn to page 22 of the report, please?

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: And again, panel
4 members, please, whoever is the appropriate person to
5 address these questions, feel free. The general heading
6 of the section is Section 3, Forecasting Models, and on
7 page 22 under "Issue 1" it's my understanding that KPMG
8 summarized the New York consultant's assertions with
9 respect to each issue. And here there is a statement as
10 -- or based on KPMG's view of what the assertion meant,
11 that the consultant asserts that the HERMES model does
12 not incorporate current market prices and that it needs
13 to do so in order to serve as an appropriate basis for
14 decisions made to release water.

15 I'm not sure who should respond to that.

16 MR. JONATHAN ERLING: Sorry, and the
17 question is?

18 MS. ANITA SOUTHALL: Have I -- have I
19 characterized it properly? That -- that based on review
20 of all of the background information, that KPMG
21 determined that this was one (1) assertion made by the
22 consultant?

23 MR. JONATHAN ERLING: Yes, this is very
24 clearly a consertion -- assertion made by the consultant.

25 MR. ROBERT MAYER: Which he apparently

1 raises again in issue number 235. This is the same
2 market stale pricing?

3 MR. JONATHAN ERLING: Precisely, yes.

4

5 CONTINUED BY MS. ANITA SOUTHALL:

6 MS. ANITA SOUTHALL: And could you
7 explain --I -- I take it that the next several pages are
8 -- are -- the intent of them are to go on and deal with
9 this particular issue as well as -- as others that I
10 haven't raised?

11 MR. JONATHAN ERLING: Well, if you would
12 be referring to the section that says, "Key find -- key
13 findings," Section 3.2 on page 24, yes, certainly some of
14 our findings that relate to that matter are shown here in
15 the bullets that follow. At -- for example, if I could
16 read into the record, the first bullet says:

17 "We have had extensive discussions with
18 MH staff on their approach for
19 incorporating pricing and market rules
20 for power purchases and sales into the
21 planning models. We found that they
22 apply appropriate care and due
23 diligence in this process."

24 MS. ANITA SOUTHALL: And can you tell me
25 how KPMG --

1 MR. ROBERT MAYER: Don't stop there:

2 "In incorporating market price inputs,
3 MH needs to account for various
4 factors."

5 I'm reading a little -- something a little
6 bit more critical there about the same subject. This is
7 the same subject, isn't it?

8 MR. JONATHAN ERLING: Yes, it is. If --
9 I think, perhaps, if I could look at the second bullet,
10 or explain the wording there, perhaps the phrasing that
11 we used in the report is ambiguous. As you have
12 suggested, it could be taken to imply that in the first
13 bullet of the -- first sentence of the second bullet:

14 "In incorporating the market price
15 inputs MH needs to account..."

16 I would rephrase that as MH needs to
17 account and does account. We were not, by any means in
18 the second bullet trying to imply that they do not.
19 Rather, we were just pointing out that this is an
20 important part of the forecasting process that they do
21 so.

22 MR. ROBERT MAYER: Okay.

23 MR. JONATHAN ERLING: Okay. Sorry, if --

24

25 CONTINUED BY MS. ANITA SOUTHALL:

1 MS. ANITA SOUTHALL: So with respect to
2 the issue relating to stale-dated prices, sorry, I'm just
3 going to refer back to the bullet. I -- I'm putting
4 together the summary from the New York consultant's
5 public document and KPMG's statement of the consultant's
6 assertion at the top of page 22 with respect to HERMES
7 not incorporating current market prices.

8 And how did KPMG determine whether or not
9 stale-dated prices were utilized up until 2007? Did you
10 examine that?

11 MR. JONATHAN ERLING: We were certainly
12 aware through discussions with MH personnel that the
13 process for incorporating pricing data into the models
14 was subject to improvements between the time that the
15 consultant was writing of, wh -- 2006 to the current time
16 period. There was a significant amount of effort and
17 updates undertaken by Manitoba Hydro in, I believe, 2008.

18 So our focus in the report was saying, are
19 they now in a position to properly incorporate price
20 inputs, and we found that they do.

21 MS. ANITA SOUTHALL: So there was a
22 change between the time the New York consultant first
23 examined that issue and the time when KPMG did its
24 evaluation?

25 MR. JONATHAN ERLING: I think as noted

1 elsewhere in our report, and in general in our
2 introductory direct evidence, HERMES is subject to
3 ongoing improvements. That's the nature of the model.
4 It's continually improved to reflect new, and I would say
5 -- new information and -- and more experience with the
6 operation of the MISO market and changing conditions.

7 So inherent in the operation of HERMES and
8 in power system operations is -- is regular monitoring of
9 -- of price issues.

10 MS. ANITA SOUTHALL: Was there a
11 deficiency in this area prior to 2007?

12 MR. JONATHAN ERLING: I think you can
13 always state that models can be improved. And our
14 finding is that Manitoba Hydro has been actively
15 improving its models over time. And -- and certainly
16 improvements to the price inputs were done well before we
17 became involved in this review.

18 MS. ANITA SOUTHALL: Mr. Erling, could
19 you look at page 63 of the report under the heading,
20 "Power Pricing Data Inputs", and the last line of the
21 first bullet there. There's a statement:

22 "At the time of the consultant's
23 initial report, the link between model
24 price assumptions and purchased
25 forecasts was less clear."

1 Do you see that statement?

2 MR. JONATHAN ERLING: I do.

3 MS. ANITA SOUTHALL: Can you explain what
4 that means?

5 MR. JONATHAN ERLING: Initially, in the
6 HERMES framework, price inputs were based on transaction
7 history that predated MISO, you know, that -- that
8 Manitoba had accumulated historic information on its
9 ability to transact at various volumes and the impact
10 that that would have on price in a non-MISO framework,
11 which is really bilateral type transactions conducted not
12 through a open market, open and transparent market.

13 With the opening of MISO, obviously there
14 was a change in the framework in which it undertook sales
15 transactions, and it took some time to accumulate
16 experience on how the market would operate and what the
17 price relationships would be. So it's -- it's certainly
18 reasonable that there was some time to fully incorporate
19 that experience in -- into the planning process.

20 MS. ANITA SOUTHALL: And all of that is
21 probably a lead up to explaining what this sentence
22 actually says, sir. If you could just go on and finish
23 that part of it. In other words --

24 MR. JONATHAN ERLING: Oh, yes.

25 MS. ANITA SOUTHALL: -- was -- was there

1 not a link between model price assumptions and purchased
2 forecasts as a result of all of that explanation?

3 MR. JONATHAN ERLING: Wha -- what I would
4 say here is that, at the time, model price assumptions
5 still incorporated data that reflected some of the
6 historical data, and there was a less clear link between
7 the price forecasts purchased and the specific inputs in
8 HERMES, where now there is a fairly clear link.

9

10 (BRIEF PAUSE)

11

12 MS. ANITA SOUTHALL: Just on that last
13 point, in terms of improvements in this area, Mr. Erling,
14 have Manitoba Hydro's processes improved in this regard?
15 It -- it sounded like that's what you were saying.

16 MR. JONATHAN ERLING: I -- I think
17 clearly that's what we had indicated, that -- that as
18 part of an ongoing process of updating and maintaining
19 the models, that there have been improvements in the --
20 the process of putting price information into the
21 planning models, and -- and that would be entirely
22 expected.

23

24 (BRIEF PAUSE)

25

1 MS. ANITA SOUTHALL: If I could just on
2 this top -- on this issue of pricing and price forecasts
3 for another moment, did KPMG examine, by way of the
4 inputs to the Manitoba Hydro's IFF, the price forecasts
5 that were the basis for the IFF prepared by Manitoba
6 Hydro? Did anybody look at that issue?

7 MR. ANURAG GUPTA: We certainly reviewed
8 the price forecasts that Manitoba Hydro purchased and
9 used for the IFF, yes.

10 MS. ANITA SOUTHALL: And how -- how far
11 back did KPMG go in terms of that review of forecasts,
12 how far back in time?

13 MR. ANURAG GUPTA: We reviewed the 2008
14 electricity price forecast which formed the basis for the
15 PRP '09/'10 and the IFF '09/'10, I think it is.

16 MS. ANITA SOUTHALL: And was KPMG
17 satisfied that the price forecast that was used in the
18 IFF-09 was an appropriate price forecast?

19 MR. ANURAG GUPTA: We devote a whole
20 section in our report on -- in -- esp -- specifically in
21 Chapter 4 on -- on the pricing methodology and we had no
22 reason to -- we found nothing to suggest that Manitoba
23 Hydro's -- the way they use electricity price forecast,
24 it was inappropriate.

25 MS. ANITA SOUTHALL: It's my

1 understanding that a price forecast from approximately
2 mid-2008 was used for the IFF-09. Do you want to
3 undertake to check that?

4 MR. ANURAG GUPTA: Can you repeat that
5 again, please?

6 MS. ANITA SOUTHALL: It's my
7 understanding that an electricity price forecast from the
8 forecast panel from mid-2008 was the basis of the IFF
9 prepared by Manitoba Hydro in 2009.

10 MR. ANURAG GUPTA: That is correct, yes.

11 MS. ANITA SOUTHALL: And for IFF-10, I
12 understand that the price forecast was from about mid-
13 2010. Do you know that to be the case?

14 MR. ANURAG GUPTA: I have not reviewed
15 IFF -- the latest IFF, sorry.

16 MS. ANITA SOUTHALL: What about the IFFs
17 from 2008 back to 2001. Did KPMG look at the supporting
18 electricity forecasts that were being used by Manitoba
19 Hydro in those periods?

20 MR. ANURAG GUPTA: We did not go back in
21 time and look at all the previous IFFs, no, but we did
22 study the -- the process and the methodology that they've
23 always had in place, and we specifically analyzed that
24 for the IFF-09/'10 and the PRP and we found that to be
25 appropriate, yes.

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: Just -- Mr. Gupta,
4 just on that last point you made, when you said that you
5 looked at the process and the appropriateness of use of
6 the price forecasts, are you saying that you confined
7 yourself to the period of time back to 2006, within the
8 time frame of the New York consultant's assertions?

9 I'm just trying to understand how far back
10 you went to examine the -- the methodology or how you
11 informed yourself of it.

12 MR. ANURAG GUPTA: We specifi -- we
13 specifically looked at the price forecast, the 2008
14 electricity price forecast and how that was being used in
15 the PRP and IFF. We also interviewed senior Manitoba
16 Hydro personnel who were involved in this process and
17 they confirmed to us that the process that we saw in --
18 in the '08 -- sorry, in the '09/'10 PRP and IFF was --
19 and the way they used that pricing to price the long-term
20 contract, the -- the term sheets for the long-term
21 contract was in place.

22 MS. ANITA SOUTHALL: So -- so KPMG did
23 not examine periods earlier than 2008?

24 MR. ANURAG GUPTA: We did not examine the
25 price forecasts completed earlier than '08.

1 MS. ANITA SOUTHALL: And you relied upon
2 Manitoba Hydro's personnel to explain to you that the
3 methodology was the same throughout?

4 MR. ANURAG GUPTA: Yes, as well as in the
5 IFF-09 -- sorry, in the PRP-09 and the electricity price
6 forecast '08, they make reference to how it has changed
7 from '07. So there's elements of the '07 price forecast.
8 And -- and -- and the main things was we saw a consistent
9 pattern, the way they were doing it in '07 they did it in
10 '08 and they used it in the PRP and the IFF, so that gave
11 us comfort about the process.

12

13 (BRIEF PAUSE)

14

15 MS. ANITA SOUTHALL: Did -- did KPMG form
16 an opinion about the 2007 period in terms of Manitoba
17 Hydro methodology?

18 MR. ANURAG GUPTA: In -- in the -- in
19 reviewing the 2008 electricity price forecast and its use
20 in the IRP and the IFF, like I've mentioned, we -- there
21 was references made to the 2007 price forecast and -- and
22 what had spoke about the 2007 price forecast was
23 consistent with what we were saying in the '08 and -- and
24 how it was applied.

25 MR. ANITA SOUTHALL: Did KPMG view use of

1 the 2008 price forecast in the IFF-09 to be appropriate
2 in terms of timeliness of the forecast information?

3 MR. ANURAG GUPTA: We certainly
4 questioned Manitoba Hydro about why they were using the
5 2008 electricity price forecast. It was acknowledged
6 even in the -- in the -- in the PRP-'09/'10 as to -- and
7 the reason is given as to why they are using the 2008
8 electricity price forecast, and we were satisfied with
9 the reasoning given.

10 MS. ANITA SOUTHALL: Could you just
11 explain to us what the reason is?

12 MR. ANURAG GUPTA: Can I consult with
13 Manitoba Hydro counsel on that because my understanding
14 is this -- this might not be in the public domain.

15 MS. ANITA SOUTHALL: Yes, absolutely.

16 MR. ANURAG GUPTA: Thank you.

17

18 (BRIEF PAUSE)

19

20 MR. ANURAG GUPTA: So the -- the use of
21 the 2008 electricity price forecast in the
22 '09/'10 IRP; the reasons given by Manitoba Hydro for
23 using the 2008 electricity price forecast for that IRP --
24 '09/'10 IRP -- was that the recent unprecedented
25 electricity price volatility and uncertainty and

1 potential impact on short-term price movements on the
2 long-term forecast, it was being prudent to maintain the
3 '08 electricity export price forecast for the long-term
4 planning assumptions in the '09/'10 power resource plan.

5 This is a summary, there's more detail
6 inside, but we were -- when we looked at this, we were
7 comfortable.

8 MS. ANITA SOUTHALL: And what is the
9 document that you're referring to?

10 MR. ANURAG GUPTA: This is the '09/'10
11 power resource plan.

12 MS. ANITA SOUTHALL: Okay, thank you.
13 Panel or Mr. Gupta -- I'm not sure who for this question
14 would be able to respond: Did KPMG correlate Manitoba
15 Hydro's IFF export and import price assumptions with
16 natural gas and coal generation costs of the last seven
17 (7) to eight (8) years? And, of course, that would cover
18 the periods of the IFF that I've been talking about.

19 MR. JONATHAN ERLING: Sorry, did we do an
20 analysis of the price forecasts with coal and --

21 MS. ANITA SOUTHALL: Natural gas.

22 MR. JONATHAN ERLING: -- natural gas?
23 No, we didn't undertake that type of analysis.

24

25 (BRIEF PAUSE)

1 MS. ANITA SOUTHALL: Part of the findings
2 of KPMG in the area we were looking at -- and here I can
3 refer you to the last bullet on page 24 of your report.
4 Page 24. The -- the KPMG main report.

5 MR. EWENSON: Yes.

6 MS. ANITA SOUTHALL: There is a statement
7 made:

8 "At KPMG's request, MH undertook a
9 number of special runs of the HERMES
10 model. These runs indicate that
11 inefficiencies in operating schedules
12 that could potentially result from
13 stale or inaccurate price inputs are
14 likely to have only a limited impact on
15 the financial results achieved."

16 And I take it that was KPMG's conclusion?

17 MR. JONATHAN ERLING: Yes.

18 MS. ANITA SOUTHALL: In undertaking the
19 analysis, and with respect to the special runs performed
20 in HERMES, did you consider the range of losses that may
21 occur to Hydro if it did not incorporate up-to-date
22 market data?

23 MR. JONATHAN ERLING: Sorry, I'm not sure
24 I follow the question. Did we consider the range of
25 losses that could occur?

1 MS. ANITA SOUTHALL: If Manitoba Hydro
2 was relying on stale or inaccurate price inputs.

3 MR. JONATHAN ERLING: Well, the intent of
4 our model runs was to really look at an example of the
5 impact that using stale prices could have on financial
6 results, and so, therefore, get an idea of the potential
7 quantum of impact.

8 MS. ANITA SOUTHALL: So -- so you -- are
9 you able to identify when you -- when you say it's --
10 it's -- sorry, I don't want to misstate it. It -- it's a
11 small impact?

12 MR. JONATHAN ERLING: Well, I think it's
13 -- I think it's difficult to know precisely. And we
14 discussed that in our discussion of the model runs, that,
15 you know, any analysis of this type is contingent on some
16 input assumptions. We tried to put together a plausible
17 analysis that -- that made sense and would indicate the
18 potential magnitude of losses. We can't know for sure --
19 for certain that we've -- we've quantified the issue
20 correctly, but I think I -- I am comfortable that we have
21 moved the analysis or understanding of the potential
22 issue forward with the model runs.

23 MS. ANITA SOUTHALL: So there wasn't an
24 actual quantification, I take it?

25 MR. JONATHAN ERLING: I think we report

1 on the specific financial impacts from those model runs,
2 and then have a number of suggestions as to why we think
3 the financial impacts that we found are probably an
4 overestimate of the actual impact, and that's outlined in
5 more detail. I'd have to look up the correct page
6 reference, but it's later in the chapter.

7 MS. ANITA SOUTHALL: Do you want time,
8 Mr. Erling, to locate --

9 MR. JONATHAN ERLING: Sure, if you'd --

10 MS. ANITA SOUTHALL: -- what you're
11 defining?

12 MR. JONATHAN ERLING: -- if you'd give me
13 a minute --

14 MS. ANITA SOUTHALL: Sure.

15 MR. JONATHAN ERLING: -- I could find...

16 I have been told by legal counsel it is
17 page 108, and I always believe everything that my legal
18 counsel tells me, so -- I know that might be a mistake,
19 but...

20 Yes, if -- there's a number of bullet
21 points that indicate why we think the financial outcomes
22 produced by the model runs are likely to be an over
23 estimate.

24

25 (BRIEF PAUSE)

1 MS. ANITA SOUTHALL: Mr. Erling, just on
2 that page, on page 108, the summary -- summary paragraph at
3 the bottom of the page, there is a statement that:

4 "Inefficiencies in operating schedules
5 that could result from stale or
6 inaccurate price inputs are likely to
7 have only a limited impact on financial
8 results achieved."

9 And then this statement:

10 "Variations in water flow are likely to
11 have a much larger influence on optimal
12 operating schedules and on MH's
13 financial returns."

14 Do you see that?

15 MR. JONATHAN ERLING: Yes, I do.

16 MS. ANITA SOUTHALL: In terms of -- in
17 terms of comparison between the -- these two (2) items
18 identified, is like one (1) 10 percent and one (1) 90
19 percent? Are you able to talk in those terms in terms of
20 the comparable exposure for those two (2) items?

21 MR. JONATHAN ERLING: I'm a little
22 reluctant to do that off the top of my head because I
23 don't have the same feel for the numbers that Manitoba
24 Hydro personnel do. They've -- obviously more familiar
25 with the system and seen how it operates over time, but,

1 you know, a ten (10) to one (1) ratio between the two (2)
2 is -- sounds reasonable to me, subject to check, but we
3 haven't -- I haven't done any analysis to support a
4 specific ratio.

5 You know, fundamentally, the issue with
6 water flow is if the water flow is not there, and we've
7 seen the tremendous variation from year-to-year in the
8 hydro-electric or hydraulic generation that's available,
9 that that is a loss of energy that will need to be made
10 up somehow and obviously will have enormous financial
11 implications.

12 MS. ANITA SOUTHALL: I think just to --
13 just to conclude on this point and for clarification,
14 there is no attempt to quantify these particular
15 exposures, I take it, in the summary section on page 108?

16 MR. JONATHAN ERLING: We did not attempt
17 to quantify beyond the analysis that has been done and
18 presented here. I think it's important to recognize one
19 (1) of the factors that minimizes the effect that price
20 can have on ultimate financial results is that there are
21 some inflexibilities within the Manitoba Hydro system
22 that restrict Manitoba -- Manitoba Hydro's ability to
23 shift production between time periods.

24 Obviously, we're familiar with the upper
25 limits on lake level balances at Lake Winnipeg, that it

1 can't store water above a certain level. There are flow
2 restrictions during the wintertime that mean it -- that
3 means it has to ensure that maximum hydraulic output that
4 can be obtained is obtained during that period of time,
5 particularly given the impact of winter heating loads.
6 There are restrictions on tie-line capacity that limit
7 the availability to schedule additional imports and
8 exports in a particular period.

9 So all of these things serve to constrain
10 Manitoba Hydro -- my -- Manitoba Hydro's ability to
11 reschedule production. It does not have, from what we
12 can tell, the same storage flexibility that say Hydro
13 Quebec would have.

14 THE CHAIRPERSON: Sir, I'm not disputing
15 what you're talking about, but I'm just saying aren't you
16 running the risk of minimizing the significance of price
17 inputs given that let's say 50 percent of the exports
18 each year are sold on the opportunity market, and there
19 can be -- well, there has been significant variation as a
20 result of the recession and natural gas developments and
21 load forecast drops and things of that nature?

22 MR. JONATHAN ERLING: Yes, absolutely.
23 And I -- I think maybe I'd draw a distinction between
24 maybe two (2) issues associated with this price forecast
25 that I'd like to maybe draw attention to or maybe make

1 more clear in is where I was speaking about is the extent
2 to which, you know, if you have a different price
3 forecast and you ha -- have a different view of what
4 prices are going to be in the future and, say next winter
5 versus next spring, you may decide to shift the pattern
6 of production to maximize your net export revenues with
7 the given quantum of water.

8 And that was what the analysis that is
9 summarized in three point eight point four (3.8.4) was
10 trying to get at, which was to the extent that you use
11 incorrect prices, will you therefore also come up with a
12 production schedule that is suboptimal.

13 I think the additional issue that -- that
14 you have raised is that even for a given production
15 schedule, and perhaps if you can't change that schedule
16 because you're subject to the capacity limitations, the
17 revenue that you can earn will be significantly different
18 if prices change.

19 And I think that's a different issue. It
20 says it's the -- it's certainly a revenue impact. It
21 will have a financial impact on the Corporation, but it's
22 different than the issue that -- that we were trying to
23 get at in three point eight point four (3.8.4), which is
24 to what extent is Manitoba Hydro foregoing revenue
25 because it is inefficiently scheduling production.

1 I think -- to some degree, I -- I think I
2 accept Manitoba Hydro's view that external prices are
3 largely outside of its control. And, therefore, if -- if
4 market prices drop in the future, while there's not a lot
5 that it can do about a significant price deli -- decline
6 in -- in MISO, the concern -- really, the concern that
7 we're addressing here is a smaller issue, which is to the
8 extent that it somehow uses poor forecasts, is it
9 misallocating production in time periods. And I think
10 that's -- I -- I hope I haven't -- I've made that cle --
11 if -- if I haven't been clear or if -- somehow I hope
12 that explanation makes sense.

13 THE CHAIRPERSON: It will help me. Thank
14 you.

15
16 CONTINUED BY MS. ANITA SOUTHALL:

17 MS. ANITA SOUTHALL: Mr. Erling, could
18 you -- or panel members for KPMG, could you go to Exhibit
19 3-22 at the top of page 103, please.

20 MR. JONATHAN ERLING: Yes.

21 MS. ANITA SOUTHALL: And that exhibit I
22 understand provides a graphical illustration of the
23 2008/'09 forecast and actual electricity prices?

24 MR. JONATHAN ERLING: Yes, it does. So
25 if you note that the forecast was somewhat more

1 optimistic than -- than what ultimately prevailed.

2 MS. ANITA SOUTHALL: And that -- that's
3 for the period April 2008 to March 2009, correct?

4 MR. JONATHAN ERLING: That's correct.

5 MS. ANITA SOUTHALL: Are you able to
6 explain the factors that created a thirty (30) to forty
7 dollar (\$40) a megawatt hour divergence in the forecast
8 versus the actual prices in this period?

9 MR. JONATHAN ERLING: No, actually. I
10 could take some guesses, but I haven't analyzed the MISO
11 market in any type of detail. It wouldn't surprise me if
12 decreases in natural gas prices were a factor, but I
13 don't know for certain.

14 MS. ANITA SOUTHALL: Is KPMG in a
15 position -- oh, sorry.

16 Is KPMG able to say whether the kind of
17 divergence in 2008/'09 is typical of Manitoba Hydro's
18 forecast versus actual price experience?

19 MR. JONATHAN ERLING: Well, I'm not sure
20 I would say this is typ -- I -- I would not say -- I --
21 I'm not sure I would refer to this as Manitoba --
22 Manitoba Hydro's price experience. I think it's almost
23 anybody's experience who participates in electricity
24 markets; that there is often significant divergence
25 between what -- what happens, particularly over a short

1 time period, given the volatility of electricity markets.

2

3 MS. ANITA SOUTHALL: Sorry, sir. This
4 was Manitoba Hydro's data. I take it that this is the
5 forecast information that Manitoba Hydro had as compared
6 to actual prices in the time period?

7 MR. JONATHAN ERLING: Yes.

8 MS. ANITA SOUTHALL: If this kind of
9 divergence were to continue and this kind of pattern
10 persis -- persist, what would be the consequential impact
11 on Hydro's future IFFs?

12 MR. JONATHAN ERLING: Sorry. When you
13 say this type of divergence, are you referring
14 specifically to the decrease or the difference or...?

15 MR. ANITA SOUTHALL: Well, the
16 difference, assuming, going forward, that Hydro's
17 forecasts are suggesting that the prices are higher than
18 what the actuals turn out to be. So that's what I mean
19 by if this pattern persists, what is the consequential
20 impact on Hydro's future IFFs.

21 MR. JONATHAN ERLING: Well, I would be
22 reluctant to conclude that there was a general trend or
23 experience that actuals were always less than forecast.
24 Certainly I wouldn't conclude that based on the
25 experience in this particular time period, and I haven't

1 seen any data that suggests that there is a -- I have not
2 seen any data suggest that there is a general bias in --
3 in the process that -- that you might be suggesting.

4 MS. ANITA SOUTHALL: I'm not asking you,
5 will it happen, sir. I'm asking you to take as a
6 hypothetical that if this kind of divergence between
7 forecast prices for Hydro and actuals continues, what
8 impact would that have on its IFFs?

9 MR. JONATHAN ERLING: Well, clearly, if
10 your forecast prices are less than -- sorry, I had --
11 think I have that backward.

12 I think if your actual prices turn out to
13 be lower than forecast, that would clearly have a -- a
14 negative financial impact that cannot be disputed.

15

16 (BRIEF PAUSE)

17

18 MS. ANITA SOUTHALL: Panel, did you look
19 at -- beyond the -- this price forecast date and this
20 comparison in Exhibit 3-22? Did you look at any other
21 time periods to assess whether or not similar divergences
22 had occurred in the past?

23 MR. JONATHAN ERLING: Sorry, be -- before
24 I address that question, I have been reminded that I
25 should point something out, at least with respect to the

1 planning process or the production scheduling process, is
2 that the forecast that they actually use in HERMES
3 modelling is updated monthly, so this shows a forecast
4 that's in place in the beginning of April. In the actual
5 HERMES planning process, you know, the forecast would be
6 updated monthly and that's part of the process of -- of
7 price inputs to the model.

8 To address your question which I -- is, I
9 think: Have we done an assessment of the reliability of
10 the forecasts and their track record with respect to
11 actuals? No, we have not. Our understanding is that the
12 price forecasts for the IFF process are a compellation of
13 purchased forecasts that are then reviewed and then I
14 think averaged somehow to produce a consensus forecasts.
15 And there are prob -- presumably periodic reviews of the
16 effectiveness or -- of that general process, but we did
17 not undertake an assessment of the reliability of the
18 purchased forecasts.

19 MS. ANITA SOUTHALL: Do we want to have a
20 brief afternoon break? How does -- how are we running
21 this Hearing process? Sorry, I've dropped in for this
22 few days, so...

23 THE CHAIRPERSON: In twelve (12) minutes,
24 if you don't mind.

25 MS. ANITA SOUTHALL: In twelve (12)

1 minutes, certainly. That's what I call quantified.

2

3 CONTINUED BY MS. ANITA SOUTHALL:

4 MS. ANITA SOUTHALL: Could I ask the
5 panel to turn to the section on modi -- model validation
6 for HERMES and SPLASH and, specifically, page 44. There
7 is a statement in the third paragraph on that page which
8 says:

9 "HERMES' primary use is to generate a
10 suggested production schedule that will
11 meet load requirements while maximising
12 net export revenues and minimizing
13 production costs given various input
14 assumptions."

15 And I take it that's KPMG's understanding
16 of HERMES?

17 MR. JONATHAN ERLING: Yes, it is.

18 MS. ANITA SOUTHALL: If the inputs or
19 assumptions utilized in the model are wrong this will
20 lead to suboptimal outputs, I take it?

21 MR. JONATHAN ERLING: Potentially, of
22 course, yes.

23 MS. ANITA SOUTHALL: And HERMES is used,
24 as is indicated here, to generate a suggested production
25 schedule. It's used in operations for Manitoba Hydro,

1 correct?

2 MR. JONATHAN ERLING: Yes, I think that
3 they would characterize the process is that it generates
4 a suggested production schedule. The production schedule
5 is reviewed by management against some other constraints
6 that not -- may not be incorporated within the HERMES
7 framework, and the day-to-day scheduling is done, I
8 think, within another module.

9 HERMES is a suggested pe -- production
10 schedule for, you know, a weekly time step that pro --
11 that the system has to be managed on a more short-term
12 basis, so it's a step in the process, it doesn't manage
13 the system directly, but it certainly suggests a
14 production schedule over the medium to -- to -- medium
15 being for the next year or so.

16 MS. ANITA SOUTHALL: And HERMES outputs
17 are used in the decision making process for tha -- for
18 that production scheduling, correct?

19 MR. JONATHAN ERLING: Yes, it is.

20 MS. ANITA SOUTHALL: So if there were
21 suboptimal outputs that would impact the decision making?

22 MR. JONATHAN ERLING: I think that --
23 yes, of course.

24 MS. ANITA SOUTHALL: I understand, based
25 on KPMG's discussion with Manitoba Hydro, there appears

1 to have been no independent review of HERMES; is that
2 correct?

3 MR. JONATHAN ERLING: That's correct.

4 MS. ANITA SOUTHALL: There is a reference
5 on page 45 of KPMG's report in the last paragraph on the
6 page that Manitoba Hydro took the HERMES model to
7 workshops in 2001. Do you see that reference?

8 MR. JONATHAN ERLING: I do.

9 MS. ANITA SOUTHALL: And can you explain
10 how that reference is applicable to enhancing the HERMES
11 model given that it's about ten (10) years ago? And it's
12 just hard to understand why that reference is there.
13 Maybe there's more to it than is contained in the report.

14 MR. JONATHAN ERLING: It's just to
15 indicate that -- that the staff involved in HERMES are
16 involved in industry fora with respect to hydraulic
17 modelling. So they are not certainly isolated from
18 broader industry trends, and they mon -- monitor what
19 goes on in other organizations.

20 MS. ANITA SOUTHALL: KPMG says at the --
21 about the fifth paragraph -- sorry, fourth paragraph down
22 on that same page, page 45:

23 "An independent review can help
24 identify potential model deficiencies
25 and enhance the credibility of the

1 model."

2 Do you see that?

3 MR. JONATHAN ERLING: We do.

4 MS. ANITA SOUTHALL: And can you explain
5 what is -- first of all, what is meant by "an independent
6 review"?

7 MR. JONATHAN ERLING: Well, I believe
8 what we mean by "an independent review" is -- is noted in
9 the first par -- first sentence of that paragraph. You
10 know, an independent review is a review conducted by a
11 party who is not involved in the -- in the development of
12 the model. So I think that, you know, it could be in-

13 house, it could be external.
14 MS. ANITA SOUTHALL: What would the -- be
15 needed in terms of skill set for it to be in-house? Who
16 would be capable of conducting that kind of independent
17 review of the model?

18 MR. JONATHAN ERLING: Well, that's a --
19 that's a good question. You know, and I think it speaks
20 to an issue that kind of underlay our review. It's
21 actually difficult to find who the right person is to
22 review such a model.

23 The HERMES model, you know, encompasses a
24 wide variety of technical disciplines, whether it's
25 hydraulic modelling, and, you know, as I noted this
morning in the direct, you know, the process of

1 estimating future stream flows perhaps based on input
2 precipitation data, it relates to, you know, the
3 behaviour of water flows through a hydroelectric facility
4 and how that might be impacted by ice and -- and level of
5 output and interaction with other facilities on the
6 system, and then through to pricing issues that relate to
7 the price that will be received for power that's exported
8 as a result of production scheduling decisions.

9 So there's a, you know, wide range of
10 disciplines that you would want involved if you were
11 going to do a review. And -- and I think it's -- it's
12 tough to find people that -- that would have depth in all
13 -- tough -- I would almost say impossible to find people
14 externally who may -- with -- within the organization who
15 -- who would have all of those necessary qualifications.

16 So I think -- and -- and -- and people in
17 other organizations external to Manitoba Hydro may not
18 have an appreciation for the -- the particular issues or
19 constraints that may drive how Manitoba Hydro has set up
20 its model.

21 So there is quite an education process is
22 -- that would be required for an independent review. So
23 I -- I think that's a tough question to answer. I -- I --
24 - I don't have a perfect answer to who you might want to
25 select to do that.

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(BRIEF PAUSE)

MS. ANITA SOUTHALL: Does KPMG have any knowledge of whether or not these kinds of external reviews are done at other utilities or -- or peer reviews of some sort?

MR. JONATHAN ERLING: I would expect that other utilities would, you know, make an effort or sometimes try to do such a peer review. But I -- you know, it is a difficult process.

Ideally, you'd be able to get somebody to come in and -- and do a review of your models and say, Are they reasonable and -- and do they meet accepted standards? But when you get into the practicalities of that, it's -- it's -- it's maybe more difficult than -- and time consuming and expensive than it might be at -- at first evident.

And I -- and I think that, you know, that was one (1) of the issues we faced in the model team in trying to -- to bring something of value to -- to this and -- and -- and coming to some conclusions as external parties.

MS. ANITA SOUTHALL: If you could turn to page 46, there is a statement, the third paragraph down.

1 MR. JONATHAN ERLING: Yes.

2 MS. ANITA SOUTHALL:

3 "Based on our discussion with Manitoba
4 Hydro staff, it appears that no
5 systematic validation has been
6 performed on the forecasting modules."

7 Can you just explain what that statement
8 is indicating?

9 MR. JONATHAN ERLING: Well, I -- I think
10 it -- it's -- it's indicating what it states, and I -- I
11 -- it -- which is that we -- we have not seen evidence
12 that, you know, there's been a structured process where -
13 - oh, sorry, you know, we didn't see evidence, for
14 example, that there's a structured process for viewing
15 actual outputs with -- with -- forecast outputs for
16 specific modules, for example.

17 You know, there is within the operation of
18 the SERME -- HERMES system a fair bit of ongoing updating
19 and calibration of model parameters, so I think that
20 occurs on an informal basis, but not -- maybe not -- not
21 in a very structured way.

22 THE CHAIRPERSON: Okay. We'll -- I think
23 we'll probably -- we'll have the break now. I admit it's
24 two (2) minutes early, but such is life.

25 MS. ANITA SOUTHALL: Thank you.

1 --- Upon recessing at 2:58 p.m.

2 --- Upon Resuming at 3:17 p.m.

3

4 THE CHAIRPERSON: Okay, Ms. Southall.

5

6 CONTINUED BY MS. ANITA SOUTHALL:

7 MS. ANITA SOUTHALL: Just back on page
8 46, please, of the report. Still on the -- on the point
9 we were discussing with respect -- pardon me, with
10 respect to the conclusion that there appears to be no
11 systematic validation on the forecasting modules.

12 Two (2) modules are identified in the
13 paragraph above it as examples, flow forecasting and load
14 forecasting. Do you see that?

15 MR. JONATHAN ERLING: Yes, I do.

16 MS. ANITA SOUTHALL: And I take it that
17 there are other modules that are included in that
18 conclusion with respect to no systematic validation. Is
19 that right?

20 MR. JONATHAN ERLING: Yes. I mean, a
21 more complete description of the HERMES decision support
22 system is in the Exhibit 3-1 on 36. So, you know,
23 there's --

24 MS. ANITA SOUTHALL: Are you referring us
25 to page 36?

1 MR. JONATHAN ERLING: Well, that would
2 indicate other modules within HERMES if you're looking
3 for a -- a reference to the modules that are contained
4 within the system.

5

6 (BRIEF PAUSE)

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8 MR. JONATHAN ERLING: For example, I
9 think there's a market forecasting module system control
10 maintenance scheduling module.

11 MS. ANITA SOUTHALL: I'm sorry, Mr.
12 Erling, we were just trying to locate -- my -- my copy of
13 the redacted version, the -- the diagram you're
14 describing didn't come through properly, I can't read it.
15 So I'm trying to find a version that I can follow.

16 MR. JONATHAN ERLING: It's -- it's also
17 in the presentation of the direct evidence from this
18 morning.

19 MS. ANITA SOUTHALL: Thank you. Sorry,
20 and you were indicating on reference to that diagram,
21 which -- which is also, as you say, included on page 17
22 of today's presentation, that there are other modules
23 other than the one's you referred to in the report that
24 are report -- represented here?

25 MR. JONATHAN ERLING: Yes, because the

1 sentence reads:

2 "Fundamentally, HERMES consists of a
3 number of forecasting modules --
4 modules, e.g., flow forecasting and
5 load forecasting."

6 End of brackets, and I think you were
7 looking for an indication of what other modules may be
8 contained within HERMES.

9 MS. ANITA SOUTHALL: Right. And are they
10 found only under the forecasting heading, or are there
11 other modules represented on this diagram?

12 MR. JONATHAN ERLING: Well, I think
13 actually if you're specifically referring to forecasting,
14 then I would just look at the third vertical section, so
15 hydraulic performance forecasting, flow forecasting,
16 market forecasting, load forecasting.

17 MS. ANITA SOUTHALL: And so the
18 conclusion applies to all of those forecasting modules, I
19 take it?

20 MR. JONATHAN ERLING: I think our
21 conclusion is we -- is essentially that we didn't see
22 evidence that there was system -- systematic validation.
23 However, as noted elsewhere, you know, there is ongoing
24 calibration of various modules, particularly the flow
25 forecasting modules which need to be updated for current

1 conditions. For example, during the winter, icing
2 conditions change the parameters that should be used to
3 forecast flow in a particular channel section. Ice cover
4 may affect the flow that will result under certain
5 conditions, and that has to be taken into account, and we
6 certainly saw evidence of that.

7 MS. ANITA SOUTHALL: Who actually made
8 this specific conclusion with respect to the validation
9 issue on page 46, who as part of the KPMG team?

10 MR. JONATHAN ERLING: Well, I certainly
11 was a primary author of Chapter 3. The report as a whole
12 is a KPMG report. It's been reviewed by many people in
13 addition to myself, so I -- I'm not sure I'd identify a
14 specific individual for that sentence.

15 MS. ANITA SOUTHALL: Well, whose
16 responsibility was it to examine the documentation or
17 make inquiries of Manitoba Hydro such that that
18 conclusion could actually be reached? Is somebody
19 responsible for that at KPMG?

20 MR. JONATHAN ERLING: Well, I think I
21 would be responsible as -- as the overseer of the
22 modelling chapter, for the conclusions that are in this
23 chapter.

24 MS. ANITA SOUTHALL: And when you say it
25 was a team effort, Mr. Erling, are you indicating that

1 there was a team who gathered the necessary information
2 to supply to you so that you could make the conclusion?
3 In other words, other people met with the Hydro staff,
4 other people examined the documentation?

5 MR. JONATHAN ERLING: Well, I think this
6 -- this sentence, if I -- maybe to answer the question,
7 and I hope it answers the question -- it -- it -- you
8 know, we found no evidence or no evidence was put forward
9 of a sys -- systematic validation process, which is, I
10 think to my mind, a process where you structure a
11 validation process that is called a validation process
12 that is separate from the ongoing operation of the model.

13

14 But the -- you know, the validation and
15 calibration of the model is inherent and the ongoing
16 operation of the model but there was no identified
17 separate process for validation. I do also note that, I
18 mean, one (1) of the advantages or one (1) of the
19 outcomes of having a suite of models and -- and -- is
20 that there is an ability at the interfaces of the models
21 to check that one (1) model is consistent with another.

22 For example, the HERMES model for -- is
23 used in the IFF forecasting process for the first two (2)
24 years of the horizon, and then SPLASH is used for the
25 subsequent years of the horizon. So there is some

1 ability at the interface or at the overlaps of those
2 systems to -- to find that they're coming to consistent
3 conclusions and have a consistent outcome for particular
4 input parameters. So that provides significant comfort
5 that a) the models are consistent and, b) that they're
6 reasonable in their outcome.

7 Similarly, at the short-term end of the
8 process, you know, HERMES interacts with shorter-term
9 models that are used to -- to manage day-to-day trading
10 and day-to-day operations. I believe the short-term
11 model is the MOST, and also there's the QSIM -- is that
12 the right name -- for the managing the -- the day-to-day
13 operation of the system.

14 And -- and that provides another
15 opportunity to -- to show consistency between the various
16 models and -- and actual results that are obtained in the
17 short-term.

18 MS. ANITA SOUTHALL: What -- what would
19 the validation process include if there was some sort of
20 systematic evaluation -- or, pardon me, validation?

21 MR. JONATHAN ERLING: I think if you were
22 looking for a systematic validation that you would call a
23 separate validation exercise it might be, you know, a
24 separate project or process that is labelled as a
25 validation process and that specifically said, Okay, this

1 is our objective to validate this, and this is how we're
2 going to go about it and these are our conclusions.

3 So it's -- it's perhaps more around
4 documentation of things that I think already occur as a
5 matter of course within Manitoba Hydro, but, you know,
6 ultimately when you come in after the fact as an external
7 party as we were, it's perhaps difficult to see as much
8 evidence as you might expect if you were going to
9 conclude that there had been a systematic validation
10 process.

11 MS. ANITA SOUTHALL: If you were
12 identifying a validation process for Manitoba Hydro, what
13 specific steps would it include?

14 MR. JONATHAN ERLING: Well, I -- I'd --
15 I'd have to think about that because it's -- I -- I'm --
16 it's not something I've given thought to, and I'm -- I'm
17 reluctant to sort of dream and answer up on the spot,
18 because I -- I haven't given -- I haven't sat down and
19 thought about what I think would be appropriate for that.
20 We didn't elaborate on that in the report. Perhaps we --
21 we should have.

22 It was an observation that we made. We
23 didn't elaborate on -- on maybe what a -- a validation
24 process should look like if we were going to call it such
25 a -- such a process.

1 (BRIEF PAUSE)

2

3 MS. ANITA SOUTHALL: Does KPMG consider
4 important as part of a validation exercise that there be
5 independent test runs run on the molo -- model as part of
6 the validation process?

7 MR. JONATHAN ERLING: Yes, I might want
8 some clarity on what you mean by an independent test run.
9 I'd have to think about what that means or implies. If -
10 - maybe if you could clarify.

11 MS. ANITA SOUTHALL: Well, my Board
12 advisor is telling me that we'd like you to tell us what
13 you understand to be independent test runs, if -- if you
14 know it as a term, or you know it as a concept. If you
15 don't know it as a concept you can say that.

16 MR. JONATHAN ERLING: Well, I don't know
17 tha -- did we use this term in the report? I don't
18 recall.

19 MS. ANITA SOUTHALL: No, it's not a term
20 that you used.

21 MR. JONATHAN ERLING: It's -- it --

22 MS. ANITA SOUTHALL: I -- I put it to
23 you.

24 MR. JONATHAN ERLING: It strikes me as a
25 term that could mean different things used by different

1 people. That's perhaps why I clari -- asked the question
2 of clarification. You know, I mean, it's not a -- it's
3 not obvious to me what it -- it would mean. I mean, it
4 could be independent from actual operations, or it could
5 be independent in terms of the people doing it.

6 MR. ROBERT MAYER: Your words on page 45
7 say "structured independent review" which sounds pretty
8 close.

9 MR. JONATHAN ERLING: Yes. Yes, that is
10 -- that is -- that is close. I think in that context it
11 would suggest it would be personnel who are independent
12 of -- of the people who run the models, and "structured"
13 suggesting that it's some formalized process where, you
14 know, there's a -- a plan and a -- and a process of
15 analysis and then some formally documented conclusions.

16

17 CONTINUED BY MS. ANITA SOUTHALL:

18 MS. ANITA SOUTHALL: Mr. Erling or panel
19 members, has anyone done any of these on -- as part of
20 your work in the past, done any of these validation
21 exercises yourself or been part of a team that's done
22 them?

23 MR. ANURAG GUPTA: Sorry, clarify, in
24 past at Manitoba Hydro?

25 MS. ANITA SOUTHALL: No, not at Manitoba

1 Hydro. As -- as part of your past work experience, have
2 any of you done one (1) of these validation tests on this
3 kind of model?

4 MR. ANURAG GUPTA: Well, HERMES is a
5 pretty unique model, so I don't think on something like
6 HERMES, but I don't -- I used to work at Ontario Power
7 Generation and OPG had developed a -- what they call the
8 "CROP tool" -- C-R-O-P -- which -- which was used to
9 predict hourly Ontario electricity prices, taking into
10 account the whole system, imports/exports.

11 So I was part of a group which -- which
12 was in middle office and it -- it was charged with making
13 sure that the model, the CROP model, which had been
14 developed by front office, actually did what it purported
15 to do. But that was nowhere near as complex as the
16 HERMES system is.

17 MR. WILL LIPSON: And maybe just for
18 completeness, in -- in my early career, on two (2)
19 occasions I re-calibrated Transport Canada's forecasting
20 models for airports.

21 And, as part of that, the initial phase --
22 step in such an exercise is to do a sort of test review
23 on how well the model is performing.

24 I -- I think, you know, a number of us
25 have either done so or had some exposure to that kind of

1 exercise. It's not that uncommon.

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(BRIEF PAUSE)

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MS. ANITA SOUTHALL: Just moving on from that point, sir, there is a statement at the bottom of page 46 of the report that makes reference to Exhibit 3-4 on the top of the next page of the report, and indicates that:

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"As shown in Exhibit 3-4, the actual generation values are reasonably close to the forecasted generation values."

Do you see that reference?

MR. JONATHAN ERLING: I do.

MS. ANITA SOUTHALL: And I believe that one (1) of the corrections made this morning in -- in KPMG's direct presentation was that the data was later than July with respect to the -- the reference in the chart at Exhibit 3-4 a -- a couple months later.

MR. JONATHAN ERLING: Yes, I do.

(BRIEF PAUSE)

MS. ANITA SOUTHALL: Based on representations from Operations Planning staff at

1 Manitoba Hydro that they believe HERMES represents a
2 reasonable representation of the hydro system, what
3 independent analysis did KPMG undertake to verify this
4 assertion that's demonstrated in Exhibit 3-4?

5 MR. JONATHAN ERLING: Are you -- in terms
6 of the data points, I think we linked it to the data that
7 were presented in the IFF versus the actual generation
8 estimate that came out the following year. I think the --
9 -- we mischaracterized the IFF or the generation estimate
10 data as being from July but it was, in fact, later, so it
11 would have had perhaps an additional two (2) months of
12 water data.

13 MS. ANITA SOUTHALL: I'm sorry, I -- I --
14 I think you misunderstood what I was trying to ask, but
15 thank you for your -- your answer nonetheless. Did KPMG
16 do any kind of independent verification of the actual
17 data that underlay that table, leave -- leaving aside the
18 July description?

19 MR. JONATHAN ERLING: Other than
20 referencing it to some documentation at Manitoba Hydro,
21 no.

22 MS. ANITA SOUTHALL: And if you could
23 turn in our reference set of documents to Tab 7, please,
24 we're -- we're looking at reference documents in -- in
25 the Board's reference Tab 7.

1 MR. JONATHAN ERLING: Yes.

2 MS. ANITA SOUTHALL: And there's an IR
3 Response to PUB/MH/RISK-99(a). And I think again -- I
4 think this may have been referenced by the panel earlier
5 today in terms of the underlying data, correct?

6 MR. JONATHAN ERLING: Yes.

7 MS. ANITA SOUTHALL: Did KPMG prepare
8 this response or is that Hydro's response?

9 MR. JONATHAN ERLING: This is a Hydro
10 response.

11 MS. ANITA SOUTHALL: Did KPMG do any kind
12 of similar analysis independent or just rely on this
13 Hydro data?

14 MR. JONATHAN ERLING: When you say any
15 analysis, you mean for this particular set of data or
16 other processes within Manitoba Hydro?

17 MS. ANITA SOUTHALL: This particular set
18 of data.

19 MR. JONATHAN ERLING: No, we did not look
20 at and do any additional.

21 MS. ANITA SOUTHALL: Panel or -- or, Mr.
22 Erling, whoever is the appropriate one to respond, will
23 you agree with me that this analysis reflects that the
24 variability between what generation was projected in --
25 in the actual is greater in low flow years versus high

1 flow years?

2 So the -- the variability in terms of the
3 variance appears to be greater in low flow years?

4 MR. JONATHAN ERLING: Yes, it appears
5 that way. And in some degrees I -- that's not entirely
6 unexpected.

7 MS. ANITA SOUTHALL: 2003/'04 is
8 represented in that chart, correct?

9 MR. JONATHAN ERLING: Yes, it is.

10 MS. ANITA SOUTHALL: And it was a low
11 flow year, correct?

12 MR. JONATHAN ERLING: Yes, it -- yes, it
13 was.

14 MS. ANITA SOUTHALL: The variation or the
15 variance is minus 11 percent, correct?

16 MR. JONATHAN ERLING: Yes.

17 MS. ANITA SOUTHALL: And does KPMG
18 consider a variation or a variance of 11 percent
19 difference to be reasonably close in terms of that
20 Exhibit 3-4 actual versus forecast generation and the
21 statement on page 46?

22

23 (BRIEF PAUSE)

24

25 MR. JONATHAN ERLING: I'd say the

1 statement on 46 would be based on the exhibit overall.
2 The particular data point for 2003/'04 I don't think I
3 would characterize as reasonably close. It's -- I mean,
4 there's -- probably hard to have a definition of what
5 reasonably close is, but it's -- it's clearly a bit of an
6 outlier in terms of the -- the variance here.

7 MS. ANITA SOUTHALL: And that variance
8 with respect to gigawatt hours in 2003/'04 was negative
9 2,451 gigawatt hours, correct?

10 MR. JONATHAN ERLING: Yes.

11 MS. ANITA SOUTHALL: And in rough terms,
12 I'm asking you to accept that price achieved in the
13 period was eight cents (\$.08) a kilowatt hour. The math,
14 as I'm told by my advisor, with respect to that price for
15 2,451 gigawatt hours is about \$200 million in terms of
16 financial significance?

17 MR. JONATHAN ERLING: Now would the price
18 be -- I'm assuming is this a price for an export
19 transaction, or...

20 MS. ANITA SOUTHALL: Export or import.

21 MS. MARLA BOYD: Mr. Chairman, these are
22 -- you're putting facts to the witness that haven't been
23 established, and the suggestion of a price is -- is not
24 one that's been put to the witness. I'm not sure he's in
25 a position to speak to it at this point.

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(BRIEF PAUSE)

THE CHAIRPERSON: We're not quite sure where you're going, Ms. Southall.

MS. ANITA SOUTHALL: We simply wanted to put an example to the witness so that we could get it on the record, an understanding of the financial significance of the variance. So we picked eight (8) cents. We're just trying to get an understanding of the extent of the financial impact from this kind of variance for that variance in gigawatt hours of production.

MS. MARLA BOYD: We're going around, Mr. Chairman, in the same kind of calculations we did last week. This is mathematical calculations that aren't based on facts before the panel, and it's not appropriate. If you're looking for the financial significance of these numbers you should put the question to Manitoba Hydro, who's in a position to respond to it based on their Information Request and the information that they have, rather than asking a panel to make calculations speculatively.

THE CHAIRPERSON: We concur.

(BRIEF PAUSE)

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2 CONTINUED BY MS. ANITA SOUTHALL:

3 MS. ANITA SOUTHALL: If we don't talk in
4 terms of specific price, KPMG panel, you'll agree that
5 that kind of variance in production and back to 2003/'04
6 is going to have a significant financial impact on
7 Manitoba Hydro?

8 MR. JONATHAN ERLING: Yes.

9 MS. ANITA SOUTHALL: And if you could
10 look at 2001/2002, the variance was over 800 gigawatt
11 hours, correct?

12 MS. MARLA BOYD: Can you just give us a
13 minute, please? There's a little consultation going on.

14 MS. ANITA SOUTHALL: I'm sorry.

15

16 CONTINUED BY MS. ANITA SOUTHALL:

17 MS. ANITA SOUTHALL: I -- I was just
18 directing the panel to look at the same chart. And with
19 respect to the 2001/2002 year, the variance is negative 3
20 percent, correct?

21 MR. JONATHAN ERLING: Yes.

22 MS. ANITA SOUTHALL: Does that have the
23 potential to have significant impact with a gigawatt
24 variance of output of negative 862 gigawatts -- gigawatt
25 hours, pardon me?

1 MS. MARLA BOYD: This is the same
2 question without a number in it. It's -- it's exactly
3 the same issue, Mr. Chairman.

4 MS. ANITA SOUTHALL: Well, with respect,
5 Mr. Chairman --

6 THE CHAIRPERSON: It seems like something
7 an expert panel should be able to answer.

8 MR. JONATHAN ERLING: If I could answer,
9 I think any shortfall or variance that's negative would
10 have the potential for significant financial impact. I
11 think that's obvious.

12

13 (BRIEF PAUSE)

14

15 CONTINUED BY MS. ANITA SOUTHALL:

16 MS. ANITA SOUTHALL: Mr. Erling, without
17 referring to the balance of the negative variances which
18 appear on the chart but taking into account the data
19 that's actually depicted on the chart, does KPMG still
20 feel it's appropriate to rest on the statement that
21 Exhibit 3-4 depicts actual generation values that are
22 reasonably close to the forecasted generation values?

23 MR. JONATHAN ERLING: Yes, I do. You
24 know, I think that the statement "reasonably close" was
25 based on the overall view of the exhibit. I think I

1 would characterize, as I did earlier, that '03/'04 is not
2 necessarily reasonably close but, in general, the values
3 in this table they are reasonably close in terms of the
4 percentage number, you know, the variances in most other
5 cases, you know, three (3) or one (1) or 2 percent.

6 That's not to imply, however, that there
7 isn't a significant financial impact from even those
8 small differences because Manitoba Hydro is a -- a large
9 system. There's large amounts of power involved, so 3
10 percent of a large number is still a pretty large number.

11 I'm not sure that's -- well, I'll leave it
12 at that.

13 MS. ANITA SOUTHALL: In years where there
14 is higher than forecast volumes, would you agree that
15 much of the variance in gigawatt hours surplus energy
16 revenue would be realized in off peak periods at prices
17 that don't match on peak periods? Can you speak to that?

18 MR. JONATHAN ERLING: I would -- I mean,
19 I'm not sufficiently well acquainted with Manitoba Hydro
20 to automatically state that they would necessarily be in,
21 I think off peak periods. Was that the question?

22 MS. ANITA SOUTHALL: Yes.

23 MR. JONATHAN ERLING: Certainly I do
24 accept that as flows increase and in high flow years that
25 Manitoba Hydro is more constrained. You know, it bumps

1 up against transmission limits on exports. It has water
2 level constraints, so it -- it has less flexibility in
3 when it sells power, and -- and, therefore, will -- there
4 will be more tendency to sell in -- in off peak periods
5 and pers -- perhaps in -- in less advantageous hours
6 within a given off peak segment.

7 MS. ANITA SOUTHALL: KPMG indicates that
8 reliability of the forecasts vary significantly depending
9 on when in the hydrology year the forecast is prepared.
10 Is that correct?

11 MR. JONATHAN ERLING: That's correct.

12 MS. ANITA SOUTHALL: Forecasts in
13 February and March are less reliable?

14 MR. JONATHAN ERLING: That is correct.

15 MS. ANITA SOUTHALL: And what specific
16 elements did KPMG consider in arriving at that
17 observation?

18 MR. JONATHAN ERLING: Well, certainly if
19 you look at the regression forecasting equations that are
20 used in the antecedent process, you can see differences
21 from month to month in the effectiveness of the
22 forecasting process using the antecedent methodology.

23 And if you look at a month's -- subject to
24 check, I think it's March, if you look at March looking
25 forward, there is not much of a relationship between

1 current flows and -- and near term flows because actual
2 near term flows are dependent on -- on, you know, late
3 spring rains to a large degree that may have yet to have
4 occurred.

5 Now I may not have the timing exactly
6 right, but -- but there is certainly a relationship. You
7 know, the antecedent process is more or less effective at
8 different points in the year.

9 MS. ANITA SOUTHALL: Sorry, sir. And the
10 specific elements that -- that impact it, you indicated
11 spring rainfall, was that one (1) of them?

12 MR. JONATHAN ERLING: That's my
13 understanding, but again I'm basing that on discussions
14 that we had with Manitoba Hydro staff.

15 MS. ANITA SOUTHALL: Do you know if the
16 February forecast is entirely based on actual river flows
17 in the preceding six (6) months?

18 MR. JONATHAN ERLING: Sorry, when you --
19 just to clarify when you talk about the February forecast
20 this would be at -- I'm not sure exactly what you would
21 mean by that. Is that a forecast done in February or is
22 a forecast for February or...

23 MS. ANITA SOUTHALL: A forecast done in
24 February.

25 MR. JONATHAN ERLING: It would be looking

1 forward to the end of the current fiscal year or farther
2 than that?

3 MS. ANITA SOUTHALL: The following fiscal
4 year.

5 MR. JONATHAN ERLING: My understanding,
6 and again subject to check, because I'm -- the details of
7 the antecedent process in each month -- I don't have
8 handy -- would be that beyond the end of the current
9 water year which ends in, I think, March 31st, the HERMES
10 typically takes as input kind of median historical flows
11 rather than something based on antecedent price
12 forecasting. But I -- I would like to confirm that
13 because I may -- I would just -- I would like to confirm
14 that.

15 MS. ANITA SOUTHALL: Yes, please if you
16 could do that, undertake to do that.

17 MS. MARLA BOYD: We will.

18

19 --- UNDERTAKING NO. 71: KPMG to confirm that the
20 details of the antecedent
21 process in each month would
22 be that beyond the end of the
23 current water year, which
24 ends on March 31st, the
25 HERMES typically takes as

1 input median historical flows
2 rather than something based
3 on antecedent forecasting
4

5 CONTINUED BY MS. SOUTHALL:

6 MS. ANITA SOUTHALL: I'm going to ask Mr.
7 Erling to state it in proper technical language if you
8 would.

9 MR. JONATHAN ERLING: Actually, if I'm
10 understanding it, David is motioning and he might -- if
11 it's okay I could take a moment and kind of clarify the
12 answer, it might short circuit the process.

13 MS. ANITA SOUTHALL: Thank you.
14

15 (BRIEF PAUSE)
16

17 MR. JONATHAN ERLING: I just had a brief
18 conversation with David Cormie and he suggested that I
19 was I think largely correct. That the median process --
20 or the -- the forecast beyond the current water year
21 would in general use a median measure based on historic
22 water flow patterns or kind of look at the historical
23 data and say what are the median flows. But they may
24 adjust from using a median forecast if they had other
25 information such as, you know, indications that there may

1 be flooding or heavy snow pack that would suggest to them
2 that, you know, for the following period they would use
3 something other than a median as the basis.

4 MR. ROBERT MAYER: Well, I think we all
5 know, nobody is predicting as of the end of February
6 which is today, nobody is predicting a flood -- nobody is
7 predicting a drought in the -- in the near term I take
8 it. I mean, the rest of the world -- we're talking about
9 floods in Manitoba, we're not talking about droughts. So
10 I'm assuming that some model might have taken into
11 account that that might be an issue this year, but...

12 MR. JONATHAN ERLING: Well, I wasn't
13 speaking specifically about this year but certainly this
14 is a year in which I understand that might be a
15 consideration.

16

17 CONTINUED BY MS. ANITA SOUTHALL:

18 MS. ANITA SOUTHALL: And I take it, Mr.
19 Erling, that a forecast undertaken in July, for example,
20 by comparison to February there is four (4) months of
21 actual flow data to support the forecast beyond which
22 you'd have in February. Is that true?

23 MR. JONATHAN ERLING: yes. I mean, I
24 think that gets at a slightly different issue. If you
25 look at the -- the Exhibit 34, I mean, some of the

1 forecast data includes actuals so therefore it's
2 obviously a good predictor. But I think there's a
3 separate issue, which is to say when you are using
4 regression analyses, which is the basis of antecedent
5 forecasting, in July and forecasting flows forward, that
6 the accuracy of the forecast done in July for water
7 flows, you know, August, September, October, is better
8 than the accuracy that you would get trying to do an
9 antecedent forecast in say March and predicting flows in
10 April, May, June.

11 MS. ANITA SOUTHALL: And I'm told, Mr.
12 Erling, that the flow for Manitoba Hydro for the period
13 March -- or pardon me, April to July in any given year
14 accounts for at least 50 percent of the annual flow for
15 the fiscal year. Do you know whether or not that's
16 correct?

17 MR. JONATHAN ERLING: That's -- just I'm
18 not familiar enough with the data to know whether that's
19 accurate or not.

20 MS. ANITA SOUTHALL: There is -- if you
21 could turn to page 32, please, of the report.

22 MR. JONATHAN ERLING: Yes.

23 MS. ANITA SOUTHALL: The second last
24 paragraph on that page is a statement by KPMG. The
25 statement is:

1 "It should also be noted that model
2 forecasting errors do not lead directly
3 to operational errors. The models that
4 we reviewed are used for planning.
5 They support management decision-making
6 but are not used for operational
7 purposes."

8 Do you see that statement?

9 MR. JONATHAN ERLING: I do.

10 MS. ANITA SOUTHALL: Now, we discussed a
11 little bit earlier that HERMES as a model is used to
12 support operations scheduling, correct?

13 MR. JONATHAN ERLING: That's correct.

14 MS. ANITA SOUTHALL: So with respect to
15 HERMES at least, this statement isn't applicable I take
16 it? The model -- in other words, the models that you
17 reviewed aren't used just for planning, they're also used
18 for operations in respect of HERMES.

19

20 (BRIEF PAUSE)

21

22 MR. JONATHAN ERLING: I think what I was
23 trying to get at here and -- and -- I mean, HERMES is
24 used to support operations, there's -- there's no doubt
25 about that. Really, all the point of the first sentence

1 was model forecasting errors do not lead directly to
2 operational errors. There is a interface, management
3 takes the outputs from the model makes decisions based on
4 the model and other things, so they don't lead directly
5 to operational errors. I wasn't making -- clearly, it
6 would be a concern if there were significant errors in
7 the model because that would influence decision-making, I
8 wouldn't -- I want -- you know, I would like to make that
9 point.

10 MS. ANITA SOUTHALL: Could you -- could
11 you just explain the difference, Mr. Erling, or panel
12 members, between forecasting errors and operational
13 errors? What is meant by that particular distinction?

14 MR. JONATHAN ERLING: Well, if I could
15 just take a minute. I mean, I think the broader context
16 of this sentence maybe is the -- is the first major
17 paragraph under the bullets towards the top of the page
18 where we say:

19 "When identifying concerns with the
20 data and assumptions in MH's models,
21 the consultant in many cases quoted
22 financial values associated with model
23 risks or operational errors. It is not
24 always clear what these values are
25 intended to represent."

1 And then I list a number of things that
2 they could represent.

3 "Depending on the context, each value
4 may represent one (1) or more of the
5 following:

6 An estimate of the risk associated with
7 forecast financial results, or, in
8 other words, the potential variability
9 in results from the expected value."

10 Bullet 2 is:

11 "An estimate of the direct financial
12 losses incurred by Manitoba Hydro
13 relative to the results that it would
14 achieve if not for the operational
15 errors."

16 Bullet 3 is a measure of the capital that
17 needs to be set aside to cover the results of a
18 particular activity. I'm -- I'm paraphrasing here
19 because I don't want to go on too long. Or a measure of
20 the variation in market value that may accrue with
21 changes in market conditions or prices.

22 And so the context for this discussion was
23 the finan -- the New York consultant often quoted numbers
24 that related to what -- what it referred to as
25 operational errors or financial risks. And -- and what

1 we wanted to distinguish in this discussion was the fact
2 that in some cases, yes, financial results may vary but
3 that may be inevitable be -- because, you know, the
4 forecast was not -- you know, that actual results
5 changed. Actual water flows were different than forecast
6 or prices were different than forecast and -- and that's
7 part of the process of making forecasts is that you --
8 you know, you -- there are differences between the
9 forecast and actual results when -- when the actual
10 results come to pass.

11 And in some cases those are unavoidable.
12 If -- if the water does not arrive and Manitoba Hydro has
13 less energy to sell in export markets, it incurs a
14 financial result but that not -- may not be something
15 that's attributable to an inadequate decision by
16 management because to the extent the water's not -- is
17 not there, that there's nothing that really can be done
18 about that.

19 MS. ANITA SOUTHALL: I take it you didn't
20 clarify because you didn't talk with the New York
21 consultant what the difference between model forecasting
22 errors and operational errors actually were?

23 MR. JONATHAN ERLING: That was -- yes,
24 that would've been one (1) reason that we didn't clarify
25 the incorrect meaning of the -- of the term, or the

1 intended meaning of the term is is what I should say.

2 MS. ANITA SOUTHALL: Does KPMG understand
3 the concept of operational error in terms of use of the
4 data that Manitoba Hydro staff would be using to make
5 decisions regarding the HERMES model? What -- because
6 from what you've described I -- I would not take the
7 uncontrollable system to be an error issue.

8 I wonder if KPMG could explain what would
9 be meant by an operational error as opposed to just other
10 uncertainties?

11 MR. JONATHAN ERLING: Well again, this
12 was a term that was used by the consultant, so I -- I
13 find it a term that I -- I find it a bit ambiguous
14 without it have been -- having been defined. So I'd be
15 reluctant to -- to guess at a meaning. I mean I could
16 suggest potential meanings and I -- maybe I'll look to
17 see if any of my colleagues would be any assistance here
18 and -- 'cause I feel I'm not responding very well to your
19 question and I apologize, but the dilemma is the
20 operational error is not my term and I always had
21 difficulty with what it represented in her use of it.

22

23

24

(BRIEF PAUSE)

25

1 MS. ANITA SOUTHALL: I -- I understand
2 the difficulty you may have with that. I understand that
3 it wasn't KPMG's term, Mr. Erling. Thank you.

4 MR. JONATHAN ERLING: Thank you.

5 MS. ANITA SOUTHALL: If I could ask you
6 to look at the last line of the second-last paragraph on
7 page 32 in the paragraph where I started on this
8 reference. There is a statement:

9 "Operational factors that are ignored
10 in the models may still be taken into
11 account in day-to-day operations."

12 Can you explain what that means, sir?

13 MR. JONATHAN ERLING: Yes. I think one
14 (1) example would be an example that's been cited
15 earlier, which is just that if management knows that
16 there are -- heavy amount of snow pack that might adjust
17 their use of the antecedent forecasting process and their
18 selection of the percent -- particular percentile number
19 to take.

20 I think other examples would be related to
21 maybe management of water levels. There may be
22 restrictions or considerations with respect to how water
23 flows or -- or water levels on lakes are managed that may
24 reflect concerns of stakeholders, but that are not
25 explicitly represented within the HERMES optimization

1 modules, if that helps.

2 MS. ANITA SOUTHALL: Thank you. On page
3 30 of the report, sir, if you could turn there? There is
4 a statement near the top of page 30 in this section that
5 indicates that when KPMG was conducting its review it
6 considered a number of general factors, and the first
7 bullet indicates that:

8 "Various assumptions appear to have
9 been made by the consultant on [that be
10 the New York consultant] on how the
11 results of the models are used. The
12 consultant appears to have assumed that
13 the forecasts produced by the models
14 are directly used MH in operation and
15 power trading decisions without further
16 judgment and/or oversight applied."

17 And then the last sentence is what I want
18 to focus on.

19 "Some of the consultant's assumptions
20 are incorrect, and as a result, the
21 implications identified are not
22 meaningful."

23 So have I accurately stated it, and --
24 and, specifically, the last statement?

25 MR. JONATHAN ERLING: Yes. Yes, you've

1 certainly correctly cited that paragraph.

2 MS. ANITA SOUTHALL: In inf -- the
3 information request process, PUB counsel attempted to
4 obtain a description of the consultant's assumptions that
5 were incorrect, as is noted in this bullet. And the KPMG
6 response, as we understand it -- and by the way, the
7 reference here is to Tab 8 in the -- in our reference
8 materials if you want to just verify.

9 And it goes to the issue, if you look --
10 could look at the KPMG response, to the general approach,
11 as I understand it, that KPMG took with respect to the
12 NYC's asser -- assertions. I'll skip partway down
13 through the response to the statement:

14 "In assessing the issues, we took the
15 approach that our work would not
16 necessarily result in a total
17 concurrence with or rejection of the
18 assertions underlying an issue. In
19 some instances, we have found that we
20 concur with some elements of an
21 assertion and reject other elements.
22 Accordingly, we would suggest the
23 readers of this report focus on the
24 analysis of the issues as well as any
25 recommendations that relate to the

1 issues rather than focussing on whether
2 we concur with or reject any particular
3 assertion."

4 Do you see that?

5 MR. JONATHAN ERLING: Yes, I do.

6 MS. ANITA SOUTHALL: And -- and I -- I
7 believe that's found in your main report as well, that
8 particular approach that you recommend?

9 MR. JONATHAN ERLING: Yes, it is.

10 MS. ANITA SOUTHALL: You do though in the
11 response, in this particular question at Tab 8 in PUB MH
12 Risk-96A, go on to identify a key error made by the NYC.
13 Do you see that?

14 MR. JONATHAN ERLING: I do.

15 MS. ANITA SOUTHALL: And, sir, I'm
16 wondering just how KPMG determined which of the items it
17 was going to analyze in that specific way because clearly
18 KPMG was able to identify a key error made by the NYC
19 that's represented in this response, and which ones were
20 going to be responded to with respect to the general
21 approach if I can call it that.

22 And, sorry, the whole panel or Mr. Lipson,
23 anyone else who feels they could speak to that, please
24 do.

25

1 (BRIEF PAUSE)

2

3 MR. JONATHAN ERLING: My apologies. I
4 think so much time has elapsed that I'm afraid that I've
5 -- I thi -- think your question was how do we -- you
6 know, sort among the issues raised by the consultant with
7 -- with respect to which we addressed with the general
8 comment at the top and which we've provided some specific
9 direction?

10 MS. ANITA SOUTHALL: Yes, that was my
11 question.

12 MR. JONATHAN ERLING: I think just we
13 were trying to be helpful here in providing an example of
14 something that seemed obvious to us from reading the
15 material in terms of how she was interpreting -- or some
16 assumptions she was making about Manitoba Hydro's sales
17 activities.

18 MS. ANITA SOUTHALL: Are you able to
19 undertake and tell us, from the identification KPMG's
20 made as to the key assertions by the New York consultant,
21 which ones are agreed with, which ones are found to be
22 invalid, and which ones would fall under this sort of
23 general approach, like it's not useful to talk about it
24 that way?

25 MR. WILL LIPSON: Yeah, I don't think

1 that's a practical exercise, and that's, in part, why we
2 had that general response that you just made reference
3 to. There were hundreds and hundreds of assump -- or,
4 sorry -- allegations and assertions. They were
5 contradictory in some respects, you know, in some
6 examples.

7 They -- you know, to sit there and draft a
8 report that said, Here is, you know, assertion number
9 618, as an example, and give a "yes" or a "no" and put a
10 check mark saying "concur" or "don't concur" or
11 "partially concur". That just wasn't practical. That --
12 that wasn't the assignment that we undertook to do. What
13 we did do, as I described earlier today, was consider all
14 the assertions in identifying the issues and then analyze
15 the issues.

16 MS. ANITA SOUTHALL: I -- I'm just
17 wondering, Mr. Lipson, what is meant by, on page 1 of the
18 executive summary, what is meant by the bullet:

19 "Perform a review and validation study
20 of the merits of the consultant's
21 assertions and services."

22 So you're saying that having done that, in
23 most instan -- or, I shouldn't say in most instances --
24 in many instances it wasn't found to be a useful exercise
25 to validate or --

1 MR. WILL LIPSON: Again, you're --

2 MS. ANITA SOUTHALL: -- consider the
3 merits?

4 MR. WILL LIPSON: -- you're seeing the
5 results of what we mean by that through the generation of
6 the April 15th report.

7 MS. ANITA SOUTHALL: Could I ask you all
8 to turn to page 54, please.

9

10 (BRIEF PAUSE)

11

12 MS. ANITA SOUTHALL: On page 54 under the
13 heading "Model Optimization Method Linear Programming
14 Approach," KPMG states that one of the key assumptions in
15 the HERMES system is that the operations problem can be
16 presented with a linear programming formulation, correct?

17

18 MR. JONATHAN ERLING: That's correct.

19 MS. ANITA SOUTHALL: And there is a
20 statement in the second-last paragraph on that page to a
21 term referred to as "the perfect foresight issue" by the
22 New York consultant.

23 Do you see that?

24 MR. JONATHAN ERLING: Yes, I do.

25 MS. ANITA SOUTHALL: And can you explain

1 what you understood to be the perfect foresight issue
2 around this issue of the linear programming formulation
3 for HERMES -- what -- what you understood that to be as
4 the consultant was identifying it?

5 MR. JONATHAN ERLING: Yes, my
6 understanding or I think the issue is that with respect
7 to, you know, using HERMES to identify optimal production
8 schedule, HERMES takes the various inputs or forecasts of
9 various items and -- and treats them as known items.

10 So it will have a forecast of water flows
11 and it will have a -- a forecast of prices, and then it
12 will decide what's an appropriate production schedule
13 given those input assumptions. And -- and that will
14 optimize the schedule, and it will be the optimum
15 schedule should those conditions come to pass.

16 And the other, of course, important
17 condition that I didn't mention is -- is load. There is
18 significant variation in -- in the actual Manitoba Hydro
19 load, particularly in the winter months given temperature
20 fluctuations.

21 So there are a bunch of unknowns and, in
22 fact, actual conditions will be different than were used
23 as inputs and -- and -- and this might suggest somewhat
24 of a different schedule. But, you know, the HERMES does
25 the optimization process assuming that the -- the various

1 inputs are -- are -- are known.

2 MS. ANITA SOUTHWALL: And just looking to
3 the bottom of page 54, I -- I think KPMG -- and I'm not
4 sure if it was you who drafted this section, but goes on
5 to explain in more detail the -- that perfect foresight
6 is likely to be more significant as an issue in extreme
7 flow scenarios, drought or flood years, correct?

8 MR. JONATHAN ERLING: Yes, it is correct,
9 and that -- and that reflects the fact that, you know, in
10 a low flow scenario, for example, you're more likely to
11 be importing power, and, therefore, more exposed to MISO
12 market powers, prices in terms of that import power.
13 Similarly, in high flow situations you're exporting more.
14 And -- and, therefore, also, you have more potential
15 revenues, and, therefore, more exposed to price
16 differences on those revenues.

17 And those considerations mean that to the
18 extent that you could optimize if you knew in advance
19 what actual conditions were going to come to pass, you
20 probably would have a better output than -- than you
21 would in real life when you don't know the actual
22 conditions that will come to pass. And a particularly
23 significant issue, of course, is that, for example, you
24 might be forecasting that low flows continue. But if --
25 if in fact there is an influx of water flow that was not

1 predicted, you may not have -- you may have made some
2 decisions that you didn't need to -- to ensure system
3 reliability that -- but that in hindsight turned out to
4 be somewhat expensive.

5 And I think -- you know, I think the
6 record shows that was perhaps the case in 2003/'04 and --
7 and is -- is a general issue in -- in a low flow period.

8 MS. ANITA SOUTHALL: And what you've just
9 described, is that an explanation for the statement at
10 the top of page 55? If I could ask you to turn over to
11 that page, there is the statement by KPMG:

12 "Overall, it is likely that the HERMES
13 and SPLASH models may then give more
14 optimistic results than what would
15 actually happen in real life under a
16 flood or a drought scenario. By
17 optimistic, we mean that it will tend
18 to understate the actual costs
19 incurred."

20 MR. JONATHAN ERLING: Yes, that's
21 correct. Now, we did also note in the direct testimony
22 that in some degrees the en -- understatement -- you
23 know, there are issues of timing so that the costs may be
24 understated in the current period, but -- but there will
25 be offsets in future periods to the extent that you enter

1 future periods with more water in storage.

2 MS. ANITA SOUTHALL: And without going
3 back to your presentation, you also indicated that there
4 are losses which may not be recovered in future periods,
5 correct?

6 MR. JONATHAN ERLING: Yes, that -- and
7 the -- and the losses rate -- relate to the issue of
8 maintaining reservoir levels that -- that -- to the
9 extent that you maintain higher reservoir levels to
10 ensure future system reliability and the ability to meet
11 firm loads, then you are at more risk if in fact there is
12 a sudden influx of water -- flow, of filling up the
13 reservoirs to the maximum level more quickly, and -- and
14 therefore having to spill water without benefiting from
15 hydro-electric production from that water.

16 So, you know, that is one (1) of the
17 implications of -- of operating the system more
18 conservatively and -- and trying to maintain system
19 reliability. And it's -- it's sort of an inevitable
20 result of -- of taking into account the need to meet
21 Manitoba load.

22 MS. ANITA SOUTHALL: At -- you don't have
23 to turn there unless you want to verify it because I'm
24 going to read it into the record, but at page 279 of the
25 KPMG report there is a statement that KPMG recommends

1 Manitoba Hydro should explicitly consider uncertainty in
2 future water flows in the modelling process used to
3 identify optimal production decisions. If you want to
4 look at it it's on page 279.

5 MR. JONATHAN ERLING: Yes.

6 MS. ANITA SOUTHALL: It is the -- it's --
7 it's a dash item under the second bullet on that page.
8 It's the last dash item.

9 MR. JONATHAN ERLING: Yes, I see that.
10 And certainly I recall that reference.

11 MS. ANITA SOUTHALL: And what do --
12 what's meant by the word "explicit"?

13

14 (BRIEF PAUSE)

15

16 MR. JONATHAN ERLING: Well, I guess maybe
17 the implicit consideration that takes place today is
18 perhaps, you know, as we noted in the antecedent
19 forecasting process, that management make -- well, they
20 take into account meteorological conditions in choosing
21 the particular flow scenario to use.

22 I had another point that I had thought of
23 just now that I have almost just forgotten.

24 Oh, I know, that the -- what I was going
25 to speak to is that I think we discussed this morning the

1 fact that -- that during that scheduling process, HERMES
2 will identify an optimal production schedule, you know,
3 in any given run. You know, they'll run HERMES. They'll
4 identify a -- an optimal production schedule through to
5 the end of the forecast period, and that will be based on
6 their best estimate of what water flows would be.

7 But then they step back and they say,
8 Well, let's check to make sure that we're not going to
9 put ourselves at risk if the forecast water flows do not
10 materialize.

11 So then they rerun HERMES by putting in
12 forecast flows at the -- I think the 50 percentile level,
13 which is the level of flows that, under similar
14 conditions in the past, would only be -- or, you know,
15 similar forecasting conditions they'll pick the point
16 that's the lower tail of the forecast range and say,
17 Well, let's test the forecast against water flows of that
18 magnitude rather than the median that we generally use in
19 the forecasting process and make sure that we don't
20 violate the -- the parameters or the -- I think it was
21 the drought reserve levels -- I may not have that acronym
22 right, but I spoke to it this morning -- make sure that
23 the load can be maintained even if -- if -- if a low flow
24 you know, even though HERMES does not allow explicit consideration
25 of forecast or input variability in the optimization

1 process, they can run the model in a way that it does
2 look at that issue by doing separate runs, essentially.

3 And I think we talk in the report about
4 some updates that they're planning to the HERMES model,
5 specifically the stochastic tree model. I -- there's a -
6 - it is referred to in the report, I don't have the page
7 reference handy, but this would be another way of
8 explicitly taking into account uncertainty in the
9 optimization process.

10 So I am, you know, pleased to see that --
11 that Manitoba Hydro is certainly already moving down that
12 path and -- and we were comforted by that in the process
13 of writing our report.

14 MS. ANITA SOUTHALL: I -- I'm -- I'm
15 going to go right to what you've just spoke of, and I can
16 refer you to page 55, Mr. Erling, because that's the --
17 that's the area I believe where there's reference to
18 stochastic programming.

19 MR. JONATHAN ERLING: Then I did a good
20 job of forecasting where you were going.

21 MS. ANITA SOUTHALL: Congratulations, and
22 it's near the end of the Hearing day, so.

23 MR. JONATHAN ERLING: Well, that's good
24 to hear.

25 MS. ANITA SOUTHALL: There is a statement

1 right under the heading "Alternative Optimization
2 Approaches" that KPMG notes:

3 "Manitoba Hydro staff are aware that
4 algorithms in the scheduling models
5 take inputs as known events and,
6 therefore, do not account for forecast
7 uncertainty."

8 Correct?

9 MR. JONATHAN ERLING: That's correct.

10 MS. ANITA SOUTHALL: And, as I indicated,
11 there is a descrip -- or -- or reference to "dynamic
12 stochastic programming." That's in the next paragraph;
13 in fact, it's at the end of the last paragraph that I
14 just referred to:

15 "There is an optimization approach
16 called 'dynamic stochastic programming'
17 that can deal with optimization under
18 uncertainty."

19 Do you see that reference?

20 MR. JONATHAN ERLING: I do.

21 MS. ANITA SOUTHALL: And can you describe
22 what, at a -- at a high level, please, what the
23 stochastic tree model involves that -- going on to
24 "Modelling Improvements," there's a reference on page 56,
25 for example, to the stochastic tree model that you

1 referred to a few minutes ago, at the bottom of the page
2 -- third line from the bottom.

3 MR. JONATHAN ERLING: Yes. Now I would
4 clarify that the stochastic tree model that Manitoba
5 Hydro is implementing would not be equivalent to the
6 dynamic stochastic programming that we refer to here or
7 at the top of the paragraph or earlier in the section.
8 They are separate concepts. Stochastic tree model, as I
9 understand it, is really a -- a development that still
10 uses the linear programming framework. Dynamic
11 stochastic programming is something somewhat different.

12 MS. ANITA SOUTHALL: Okay. And could you
13 just -- from that point could you explain, again at a
14 high level, what dynamic stochastic programming involves?

15 MR. JONATHAN ERLING: Well, I am by no
16 means an expert on dynamic stochastic programming so I'm
17 -- I'm going there with a little bit of trepidation. I -
18 - my understanding is that it would -- it would take into
19 account the uncertainty of a given variable at each step
20 in the process before it moves to the next step in the
21 process.

22 You know if you have a -- a horizon over
23 which you're trying to optimize of different time periods
24 the linear programming model takes the inputs for each
25 time period as known at the time of the optimization and

1 then can identify the optimal solution, whereas a dynamic
2 stochastic process really moves through the time periods
3 more in a sequential or itiv -- iterative process and
4 takes into account at each step the variability that you
5 might encounter moving from that time period to the next
6 subsequent subperiod within the forecast horizon. But
7 how that -- you know, I -- I may not have explained it
8 very well and I'm not sure I really understand it very
9 well but that's my attempt.

10 MR. ROBERT MAYER: I un -- I understand
11 what the word "dynamic" means but you really lost me on
12 stochastic. And -- and don't -- don't even try it again.

13 MR. JONATHAN ERLING: Thank you.

14 THE CHAIRPERSON: Actually, I thought you
15 did a pretty good job. I think we'll reflect on this one
16 overnight and we'll see you back tomorrow at 9:30.

17 MS. ANITA SOUTHALL: Thank you, Mr.
18 Chairman. Thank you all.

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20 (PANEL RETIRES)

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22 --- Upon adjourning at 4:28 p.m.

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1 Certified Correct,

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6 Cheryl Lavigne, Ms.

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