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YUKON UTILITIES BOARD  
  
YUKON ENERGY CORPORATION 20 YEAR RESOURCE PLAN  
  
APPLICATION TO THE YUKON UTILITIES BOARD

Held at Gold Rush Inn  
  
Whitehorse, Yukon  
  
November 14th, 2006  
  
Volume 1 - A.M. Session  
  
Page 1 - 107

BEFORE BOARD MEMBERS:

- |                  |               |
|------------------|---------------|
| Wendy Shanks     | A/Chairperson |
| Brian Morris     | Member        |
| Richard Hancock  | Member        |
| Michael Phillips | Member        |

BOARD COUNSEL:

Renee Marx

BOARD STAFF:

- |              |                       |
|--------------|-----------------------|
| Pat Wickel & |                       |
| Dwayne Ward  | Technical Consultants |
| Deana Lemke  | Executive Secretary   |

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APPEARANCES:

|                            |                   |
|----------------------------|-------------------|
| Yukon Energy Corporation   | John Landry       |
|                            | David Morrison    |
|                            | Cam Osler         |
| City of Whitehorse         | Wayne Tuck        |
| Utilities Consumers' Group | Michael Buonaguro |
|                            | Roger Rondeau     |
| Yukon Conservation Society | J. P. Pinard      |

TRANSCRIBER:

Doug Ayers Reporting Services

1 (PROCEEDINGS COMMENCED NOVEMBER 14, 2006 9:20 A.M.)

2 THE CHAIR: Good morning,  
3 everyone. We would like to call this hearing to  
4 order. Can everybody here me okay? We seem to  
5 have a bit of an echo.

6 Today starts the oral public hearing phase of  
7 Yukon Energy Corporation's (YEC's) 20-year Resource  
8 Plan; 2006 to 2025. YEC filed, on June the 1st,  
9 2006, with the Yukon Utilities Board (the YUB) its  
10 20-year Resource Plan (the Plan) for the years 2006  
11 to 2025 inclusive.

12 The Minister of Justice directed the YUB in a  
13 letter of June the 5th, 2006 to carry out a review  
14 and hold a hearing on the Plan.

15 Based on that direction from the Minister, the  
16 Board had set up a process entailing several steps  
17 for this review. The process included preliminary  
18 Board information requests to YEC on July the 7th,  
19 2006 with responses received July the 21st, 2006, a  
20 Public Workshop with respect to the Plan on July  
21 the 25th, 2006 and a Pre-Hearing Conference which  
22 took place August the 30th, 2006. Further steps  
23 were outlined in Board Order 2006-7, which brings  
24 us today to the commencement of the oral hearing.

25 YEC's 20-Year Resource Plan contains the  
26 following: Resource Planning for Yukon Power

## Preliminary Matters

1 Systems; Proposed New Capacity Planning  
2 requirements; Proposed Near-Term Actions as well as  
3 Proposed Actions Relating to Industrial Development  
4 Scenarios and Opportunities.

5 Within the Plan, YEC has "committed to seek  
6 YUB review, prior to construction, of any new  
7 capital projects costing \$3 million or more."  
8 Further, in its December 2004 application to the  
9 YUB by YEC regarding 2005 Required Revenues and  
10 Related Matters, committed YEC to bring before the  
11 Board new or revised capacity planning criteria.  
12 The requirement is to be in advance of any capital  
13 investment in new generation for capacity reasons.

14 As was stated in the opening remarks at the  
15 Pre-Hearing Conference, YEC seeks review of its  
16 20-Year Resource Plan, including use of its new  
17 capacity planning criteria, the planning process;  
18 the criteria for longer term development  
19 opportunities, and the four near-term projects  
20 identified as the Aishihik Third Turbine Project,  
21 the Marsh Lake Fall/Winter Storage Project, the  
22 Carmacks-Stewart Transmission Project and the  
23 Mirrlees Life Extension Project.

24 As was stated in YEC's November 9th, 2006  
25 update to the YUB and parties regarding these  
26 projects, YEC's Resource Plan will no longer

## Preliminary Matters

1 include any plans to pursue the Marsh Lake  
2 Fall/Winter Storage Project.

3 The Minister of Justice specifically requested  
4 the Board, in the letter of June 5th, 2006 to:  
5 Number 1, review YEC's plan with emphasis on: (a)  
6 those projects related to the 20-Year Resource Plan  
7 which require commitments by Yukon Energy  
8 Corporation before the year 2009 for major  
9 investments with anticipated costs of \$3 million or  
10 more for feasibility assessment and engineering,  
11 environmental licensing, or construction; and (b)  
12 planning activities related to the 20-Year Resource  
13 Plan which Yukon Energy may be required to carry  
14 out in order to commence construction on other  
15 projects before the year 2016 to meet the needs of  
16 potential major industrial customers or other  
17 potential developments in the Yukon.

18 Number 2, the YUB review is to consider: (a)  
19 significant utility spending commitments related to  
20 the generation and transmission of power in the  
21 Yukon that would affect long-term utility costs and  
22 rates; (b) the effect of the proposed spending  
23 commitments on electricity rates to be charged to  
24 Yukon consumers and; (c) with regard to proposed  
25 spending commitments and to the extent currently  
26 known, their physical and engineering

## Preliminary Matters

1 characteristics and their economic consequences,  
2 with emphasis on: item (i), effects relating to  
3 The electrical load forecast requirements,  
4 including requirements related to potential new  
5 major industrial customers or other major potential  
6 developments in the Yukon such as the need for  
7 spending commitments to meet such load forecast  
8 requirements; item (ii), the capability of existing  
9 generation and transmission facilities to provide  
10 reliable electric power generation to meet the load  
11 requirements in (i) taking into consideration  
12 capacity planning criteria appropriate and adequate  
13 to establish requirements for such electrical power  
14 generation capacity in accordance with principles  
15 established in Canada by regulatory authorities of  
16 the Government of Canada or of a province or of a  
17 territory regulating hydro and non-hydro electric  
18 utilities; number (iii), evidence that all  
19 reasonable alternative options have been considered  
20 and that the proposed spending commitments have  
21 been selected on reasonable grounds, i.e.,  
22 technical feasibility, cost-efficiency, and  
23 reliability; and item (iv), the analysis by Yukon  
24 Energy Corporation of potential risks from all  
25 aspects, including but not limited to economic and  
26 financial risks, modifications to the scheduling

## Preliminary Matters

1 and design resulting from environmental review and  
2 related regulatory approvals.

3 The Board was further instructed to hear  
4 submissions from any persons or groups or classes  
5 of persons who have an interest in the matter and  
6 to forward a report on its findings to the  
7 Commissioner in the Executive Council and make it  
8 public not later than October 31st, 2006.

9 Based on submissions from interested parties,  
10 the Board submitted a letter dated July the 26,  
11 2006, to the Minister of Justice to extend the  
12 deadline for completion of its review to January  
13 the 15th, 2007.

14 The Minister of Justice agreed to the deadline  
15 request in correspondence to the Board dated August  
16 the 29th, 2006. In that letter, the Minister also  
17 stated the following: It is our government's  
18 understanding that no final decision has been made  
19 to implement any of the projects proposed.  
20 However, the Resource Plan and the input received  
21 as a result of your review will be valuable in  
22 assisting YEC in planning and decision-making in  
23 future. Of course, any specific projects to be  
24 implemented by YEC will be subject to various  
25 regulatory approvals and reviews. In addition, we  
26 would like to note that prior to the implementation

## Preliminary Matters

1 of any proposed significant energy projects by YEC  
2 (example, construction of the Carmacks to Stewart  
3 transmission line), it is the government's  
4 intention to refer the details of such projects to  
5 the YUB for review and recommendation under  
6 provisions of Part 3 of the Public Utilities Act.

7 During the Pre-Hearing Conference of August  
8 the 30th, 2006, the interested parties were  
9 requested to provide feedback on the Minister's  
10 letter, the role of the YESA Board (Yukon  
11 Environmental and Socio-Economic Assessment Board)  
12 and comments on the issues list.

13 Through Board Order 2006-8, the Board ruled  
14 that none of the projects identified in the Plan  
15 presently fall under Part 3 of the Public Utilities  
16 Act and that environmental considerations are  
17 within scope of the review. With respect to the  
18 review of the environmental considerations, the  
19 Board stated this review will be limited to general  
20 comparative information in terms of potential  
21 economic impacts to ratepayers. In this Order, the  
22 Board also provided the final issues list for the  
23 oral public hearing that was set for today.

24 As we proceed with the oral public hearing  
25 phase, I would like to introduce my fellow Board  
26 members. They are Michael Phillips, Richard

## Preliminary Matters

1 Hancock and Brian Morris.

2 I would like to further introduce Board  
3 Counsel, Renee Marx; Board staff, Pat Wickel and  
4 Dwayne Ward; and the court reporter, Doug Ayers.  
5 Parties wishing copies of the transcript for this  
6 hearing should contact Mr. Ayers. If anyone has  
7 questions with respect to procedure or process,  
8 please contact Ms. Deana Lemke or Ms. Marx.

9 I would like to discuss the schedule we intend  
10 to follow for this hearing. We would like to sit  
11 from 9:00 to 5:00 each day, with a 15-minute  
12 mid-morning break around 10:30, but I now realize  
13 we are starting a bit late so the 15-minute break  
14 may be pushed on a little bit further. We will  
15 have lunch around 12:00 to 1:30 and we will have an  
16 afternoon break around 3:30.

17 On Wednesday evening the Board will provide an  
18 opportunity for general public comments on the  
19 Resource Plan. This will begin at 6:00 p.m.  
20 Depending on how the hearing is progressing on  
21 Wednesday, we will aim to adjourn around 4:00 p.m.

22 I would also like to note that I have been  
23 informed that Dr. Billinton will only be available  
24 for questions today and Wednesday, and depending on  
25 how the hearing progresses today, we may have to  
26 juggle some of the cross-examination questions to

## Preliminary Matters

1 ensure that all questions can be asked of him. We  
2 will know better if this is necessary at the end of  
3 today.

4 If any party has a cell phone, I would ask  
5 that they turn them off at this time for the  
6 duration of the proceeding.

7 To facilitate the efficient marking of  
8 exhibits, the Executive Secretary of the Board has  
9 circulated a list of the exhibits received to  
10 date. The Board has marked that list as Exhibit  
11 A-23.

12 Now, Mr. Landry, I understand that YEC has a  
13 one-hour presentation that they would like to  
14 give. If you are prepared, would you like to  
15 proceed with that?

16 MR. LANDRY: Thank you, Madam  
17 Chair. Madam Chair, what we are intending to do  
18 today is that I will introduce the panel members  
19 that we have. Yukon Energy is only intending, as  
20 you know, to call one panel, which is the panel  
21 that is to my right. Mr. Morrison will have a  
22 brief opening statement and then we will go into an  
23 approximately hour presentation which really is  
24 intended to effectively duplicate, in a general  
25 way, the presentation that was made by several of  
26 these panel members to the workshop at the

## Preliminary Matters

1 beginning of this process, which really, to outline  
2 in general, the Resource Plan and many of the  
3 issues that you have raised in your opening  
4 remarks.

5 And then at the end of that, I will have a few  
6 questions of Dr. Billinton just on the issue of  
7 capacity planning criteria. So that is the way we  
8 are intending to proceed this morning, and I spoke  
9 to Ms. Marx about that.

10 The panel that is here before you today, Madam  
11 Chair and Board members, several of them have  
12 appeared before you before, and I will briefly  
13 introduce them not only for the record, but for the  
14 people in the room. Just for the record, their  
15 detailed C.V.s are located at Exhibit B-16.

16 MS. MARX: Madam Chair ... pardon  
17 me, Mr. Landry ... perhaps before Mr. Landry  
18 begins, we could have the intervenors register  
19 their appearances today and then have Mr. Landry  
20 begin.

21 THE CHAIR: Okay, Ms. Marx, would  
22 you like to call for appearances.

23 MS. MARX: I do not have a  
24 microphone here, but perhaps we could start with --  
25 I do not think it matters the order that parties  
26 come up, so perhaps we can start with UCG.

## Preliminary Matters

1 MR. RONDEAU: Good morning, everyone,  
2 I will introduce myself. I am Roger Rondeau. I am  
3 the representative and the in-house consultant for  
4 the Utilities Consumers' Group. I have with me  
5 Mr. Michael Buonaguro, and he is our legal  
6 representative. He is from the Public Interest  
7 Advocacy Centre in Ottawa, commonly known as PIAC.  
8 And we also have Mr. Pat McMahon as a consultant.  
9 We have been in constant contact with him, and we  
10 still remain so through the hearing. Thank you.

11 MS. MARX: Yukon Conservation  
12 Society?

13 MR. PINARD: Hello, my name is Jean  
14 Paul Pinard otherwise J.P. I am with the Yukon  
15 Conservation Society. I will have an assistant,  
16 Nick De Graff who represents YCS, and also Lewis  
17 Rifkin, who is not present today but may be present  
18 on Thursday should this proceeding continue.

19 MS. MARX: I don't believe there  
20 is anyone here from The City of Whitehorse. I had  
21 spoken to Mr. Tuck this morning, and he indicated  
22 that he would not be able to attend today but  
23 anticipates being here tomorrow.

24 Are there any other registered intervenors?  
25 I do not see any further intervenors, Madam Chair.

26 THE CHAIR: Thank you, Ms. Marx.

## Preliminary Matters

1           Mr. Landry, would you like to proceed.

2           MR. LANDRY:                            Yes. I suppose for the  
3           record, I should introduce myself. My name is John  
4           Landry and I am counsel for Yukon Energy  
5           Corporation.

6           Yes, I would like to introduce the panel  
7           members, Madam Chair, and I will start to the far  
8           right with David Morrison. Mr. Morrison, who is a  
9           long-term Yukon resident, is the President and CEO  
10          of Yukon Energy Corporation and the Chief Executive  
11          Officer of Yukon Development Corporation. He  
12          graduated from the University of Carleton in 1986  
13          and since that time has completed a number of  
14          post-graduate certification programs including at  
15          the Banff School of Management and Negotiation for  
16          Senior Executives and the Harvard Business School.  
17          Mr. Morrison was the chairman of Yukon Energy  
18          Corporation, Yukon Development Corporation and the  
19          Energy Solution Centre in 2003 to 2004, before  
20          joining Yukon Energy Corporation in his present  
21          capacity in 2004.

22          To Mr. Morrison's left is Mr. Cam Osler, who  
23          the Board and many of the intervenors are familiar  
24          with. He is a founding partner and President of  
25          InterGroup Consultants Limited; graduated from the  
26          University of Manitoba in 1964 and completed his

## Preliminary Matters

1 Masters in Economics in 1968 from Simon Fraser  
2 University. Mr. Osler has provided utility  
3 regulation expert analysis and testimony at  
4 numerous hearings not only in the Yukon but in  
5 Manitoba, British Columbia and Ontario. Mr. Osler,  
6 as this Board is aware, provided expert testimony  
7 for Yukon Energy before this Board since '89  
8 including the hearing that was held relating to  
9 major capital projects 1992 and electricity costing  
10 and rates related to all rate applications since  
11 that time.

12 Next to Mr. Osler is Hector Campbell, who is  
13 the Director of Resource Planning and Regulatory  
14 Affairs for Yukon Energy. He has been directly  
15 involved in the operation and management of Yukon  
16 Energy since 1990. He is a graduate of the  
17 University of Calgary in mechanical engineering and  
18 obtained his professional engineering certification  
19 back in the mid '70s in Alberta and then in 1990 in  
20 the Yukon.

21 Next to Mr. Campbell is Patrick Bowman who is  
22 also a principal and consultant at InterGroup. He  
23 graduated from college in 1994 and then completed  
24 his Masters in Natural Resource Management from the  
25 University of Manitoba in 1998. Since joining  
26 InterGroup, Mr. Bowman has worked as a research

## Preliminary Matters

1 analyst, consultant and principal. He specializes  
2 in the area of regulatory economic analysis and  
3 socio-economic impact assessment primarily in the  
4 energy field. He has done extensive work in  
5 utility regulation and has appeared as an expert  
6 witness in a number of Canadian jurisdictions for  
7 both electrical and gas utilities.

8         Next to Mr. Bowman is Dr. Roy Billinton, and  
9 Yukon Energy is pleased to have Dr. Billinton with  
10 us here today. Dr. Billinton is presently Emeritus  
11 Professor of Electrical Engineering in the College  
12 of Engineering at the University of Saskatchewan.  
13 Dr. Billinton graduated from the University of  
14 Manitoba in 1960 and he obtained his Master's  
15 degree from the University of Manitoba in '63 while  
16 working for Manitoba Hydro in the System Planning  
17 and Operation Divisions. In '64, Dr. Billinton  
18 joined the University of Saskatchewan as assistant  
19 professor in the Department of Electrical  
20 Engineering and obtained his Ph.D. degree in '67.  
21 He was also awarded the Doctor of Science degree by  
22 the University of Saskatchewan in '76 for his work  
23 in the area of Reliability Evaluation of Electric  
24 Power Systems. He also served as Chairman of the  
25 Power System Planning and Operating Section and  
26 Chairman of the Engineering and Operating Division

## Preliminary Matters

1 of the CEA.

2 Dr. Billinton has co-authored eight books on  
3 reliability evaluation and over 850 technical  
4 papers, many of them in the area most relevant to  
5 the issues that he will deal with here today. He  
6 is a fellow of the Institute of Electronic  
7 Engineers, the Canadian Academy of Engineering, the  
8 Engineering Institute of Canada and the Royal  
9 Society of Canada.

10 So that, Madam Chair, is the panel that will  
11 be testifying here today. Mr. Morrison has a  
12 preliminary opening statement that he would like to  
13 give, a brief one, and then we will go immediately  
14 into the presentation. And Madam Chair, what we  
15 are intending to use is a Power Point presentation,  
16 but the Power Point presentation really is going to  
17 review the Power Points that were put into evidence  
18 after the workshop, and it's actually Exhibit B-7  
19 that people can refer to as the Power Point  
20 presentation is gone through. So with that, Madam  
21 Chair, we will put it over to Mr. Morrison.

22 THE CHAIR: Thank you. Please  
23 proceed, Mr. Morrison.

24 OPENING REMARKS BY YEC:

25 MR. MORRISON: Thank you, Madam  
26 Chair. Good morning. My opening remarks will, as

## Opening Remarks (YEC)

1 Mr. Landry said, be very brief, but I think just to  
2 put matters in context, I would like to make a few  
3 points this morning.

4 As was previously mentioned in the  
5 introduction to the hearings, YEC made a  
6 commitment, both in our Revenue Requirement Hearing  
7 in 2005 and in a number of occasions subsequent to  
8 that, to find a way to ensure that all of our  
9 projects over the \$3 million capital level were  
10 reviewed by the Yukon Utilities Board. And I am  
11 very pleased that we are here today to do that.  
12 This is, from Yukon Energy's point of view, a very  
13 significant step. It is a long overdue step and I  
14 think a significant move on our part to make sure  
15 that these projects are thoroughly reviewed both by  
16 the Board and receive the kind of public scrutiny  
17 that they deserve prior to the Corporation going  
18 ahead with construction of large new capital  
19 projects.

20 In response to that commitment, as mentioned  
21 previously, we submitted our 20-Year plan. I am  
22 very pleased to have that plan in front of the  
23 Board today. This plan took a considerable amount  
24 of effort by the Corporation and both staff and  
25 advisors over the period of the last year, and in  
26 our view, presents a very good overview of not only

## Opening Remarks (YEC)

1 projects but the other details and issues that need  
2 to be dealt with when you talk about planning, and  
3 so projects are one thing, and they are one area of  
4 the Plan itself, but we have also been able to  
5 build into this the need to look at planning on a  
6 long-term basis and to deal with such issues as  
7 capacity planning and long term study. So I am  
8 very pleased to have the Plan in front of the  
9 Board.

10 The Plan is also consistent, I think, with our  
11 role as the primary generator and transmitter of  
12 power within the territory. And yes, we do have a  
13 private utility that distributes power in a number  
14 of communities and also generates in other  
15 communities, but it has been traditionally Yukon  
16 Energy's role to be the primary generator of power  
17 and also it is clear that Yukon Energy is the main  
18 transmitter of power within the integrated grids.

19 More importantly from my perspective, it is  
20 management's responsibility within the planning  
21 context to make sure that the assets that the  
22 Corporation manages on behalf of ratepayers are  
23 utilized to the best extent possible. And it is in  
24 my very strong opinion that you cannot manage  
25 assets to the best extent possible without doing --  
26 or going through a planning exercise, and a

## Opening Remarks (YEC)

1 rigorous planning exercise to ensure that you are  
2 looking at all of the different avenues that have  
3 to be looked at in order to make sure these assets  
4 are providing a return generating the power that  
5 they could and should and that we are spending the  
6 ratepayers' money in an efficient manner.

7 We have had surplus hydro for some time on  
8 this system. I think this is the first time in a  
9 number of years that we have been able to bring  
10 forward a plan that would address how we might deal  
11 with the surplus hydro in the near-term.

12 It is also, I think, important that not only  
13 have we brought forward a Plan today, but it is our  
14 commitment, our further commitment, that this Plan  
15 will be brought forward on a regular basis. Our  
16 approach at the moment would suggest that we would  
17 look at this Plan on an annual basis, and if  
18 necessary, bring forward any major new projects or  
19 new initiatives that we had identified that were  
20 not in the Plan. We would commit to the Board  
21 that, on a five-year basis or perhaps even a three  
22 to five-year basis, depending on the necessity,  
23 that we would bring back this Plan on an update for  
24 public review. I think it is one thing to do the  
25 plan, but there is not much point in having a Plan  
26 if you are not going to use it and you are not

## Opening Remarks (YEC)

1 going to continually address the issues within the  
2 Plan to make sure that, as you go forward, that the  
3 Plan is still relevant.

4 As the chair mentioned previously, the  
5 Minister's letter has set out in detail the scope  
6 for this review and I think Yukon Energy has been  
7 consistent in its efforts to make sure that we get  
8 a full public review of our Plan and particularly  
9 the capital projects that are outlined in the  
10 Plan. We have, as everyone knows, not only  
11 submitted the Plan, but we have provided detailed  
12 and comprehensive material to answer the questions  
13 from intervenors and from the Board. This  
14 information is comprehensive in every fashion and  
15 provides, I think, a full -- an opportunity for a  
16 full assessment of the projects and -- projects in  
17 the Plan and as well as the items such as capacity  
18 planning.

19 We need to move forward as an organization at  
20 this time, and the Plan is, I think, the first step  
21 in that moving forward. We need to move forward  
22 for a couple of different reasons. One of those is  
23 that we have opportunity here to sell some surplus  
24 hydro; and the other is that we also have  
25 identified a need to make sure that we have  
26 adequate generation on the system in terms of

## Opening Remarks (YEC)

1 system capacity. And the time to look at both of  
2 these issues is now.

3 As part of preparing our capital plan, or the  
4 Resource Plan, we undertook a number of steps, and  
5 one of those was to examine our capacity planning  
6 criteria and whether or not the Plan -- the  
7 criteria itself was adequate at the time. In order  
8 to do that, we provided some internal resources  
9 towards looking at the examination, but as  
10 Mr. Landry mentioned earlier, we also engaged Dr.  
11 Billinton and Dr. Billinton, as you will know from  
12 his C.V., is one of the leading experts in the  
13 world on issues of reliability and capacity  
14 planning. We are very pleased that Dr. Billinton  
15 was able to assist us with this work, and we are  
16 very pleased as well that he is able to join us  
17 here today and answer questions.

18 It is capacity planning, and I think as well,  
19 there are issues around the operation of utilities  
20 that sometimes challenges all in terms of  
21 understanding how they work, but I think it is very  
22 important at this point to understand that capacity  
23 shortfalls come at a time when we have energy  
24 surpluses and these are difficult concepts.

25 We can all look back to last winter when we  
26 had a major power outage and understand that it

## Opening Remarks (YEC)

1 wasn't a question of having energy surplus, it was  
2 a question of whether or not we had the right  
3 amount of capacity in the system to meet the need  
4 at that time. So when we look at the capacity  
5 shortfall issue, and we believe there is one at the  
6 present time, we have addressed that by bringing  
7 forward a number of projects in the near-term  
8 focus. We have also brought forward a number of  
9 projects in the near term that focus on our  
10 opportunity to sell this surplus hydro that  
11 I mentioned earlier. So the near-term projects  
12 take two different tracks but both I think prove  
13 the need to build and to have these projects go  
14 forward.

15 As mentioned, we have withdrawn our project or  
16 proposed project to establish some winter storage  
17 -- additional winter storage at Marsh Lake. We  
18 still intend to go forward with the Mirrlees Life  
19 Extension, the Aishihik Third Turbine, and  
20 particularly the Carmacks-Stewart Transmission Line  
21 Extension.

22 The last part of the Plan, and not by any  
23 means the least, but the last half of the Plan,  
24 looks at the need to address long term resource  
25 planning. In that regard, we are trying, and I  
26 think have fairly outlined the need to look at

## Opening Remarks (YEC)

1 potential future opportunities, what are the  
2 requirements going to be on the system coming past  
3 the near-term and into the longer term periods, and  
4 how do we plan to deal with those questions,  
5 because sitting and waiting for things to happen is  
6 not going to get us a capacity on the system to  
7 meet future requirements.

8 We have set out, I think, within the Plan,  
9 resources that we are likely to pursue for a range  
10 of scenarios based on industrial load, size and  
11 duration and, in many cases, life of an industrial  
12 load, as we all know, is more important than its  
13 size.

14 With those opening remarks, Madam Chair,  
15 I will turn the presentation over to my colleagues  
16 on the panel, and we are here to answer your  
17 questions as the proceedings go forward and thank  
18 you for the opportunity this morning. Thank you.

19 THE CHAIR: Thank you,  
20 Mr. Morrison.

21 MR. MORRISON: Mr. Osler.

22 MR. OSLER: Madam Chair, I am  
23 focusing on the slide show that we used, Exhibit  
24 B-7, in the workshop that was held on July 25th.  
25 There are copies available from Mr. Landry and  
26 company for anybody that needs an extra copy

## Opening Remarks (YEC)

1 today.

2 The intent of what I am going to do is try and  
3 get this presentation, it took a lot longer in the  
4 workshop, done much faster, to highlight the places  
5 where there have been updates or changes so that  
6 people can see the things that have happened since  
7 that time, and to provide generally, with my  
8 colleagues, an overview of the Resource Plan and  
9 the key project that we gave in the workshop.

10 The outline of the presentation was broken  
11 into two parts; first was background, which dealt  
12 with Chapters 1, 2 and 3 of the report, a basic  
13 review, planning framework, the background on Yukon  
14 Energy systems and the new capacity planning  
15 criteria; and then Part 2 focused on Chapters 4 and  
16 5 or Parts A and B of the Minister's letter, the  
17 near-term projects that are 3 million or more, and  
18 why they are put forward in near-term requirements;  
19 and the longer-term industrial planning  
20 requirements that go to the planning beyond the  
21 near-term, but for projects that might be in place  
22 before 2016.

23 Going to the next slide, Mr. Morrison, in the  
24 workshop, reviewed our filings. I would just say a  
25 couple of things on this, without going through the  
26 slide in detail. Really at the time we had the

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1 workshop, we had three major filings at that time:  
2 Exhibit B-1, which is the January 2006, Resource  
3 Plan; Exhibit B-3, which was the supplement to that  
4 plan, dated May 2006, and provided to the Board at  
5 the same time when the report was filed in June of  
6 2006, and Exhibit B-2 which is the June 1 overview  
7 which effectively attempted to incorporate the  
8 changes and the supplement to what was in the  
9 January plan. In theory, the overview was supposed  
10 to be up to date.

11 I want to say, when we go through these, the  
12 January document was written, as Mr. Morrison says,  
13 with some considerable effort, in the year 2005.  
14 It has information and numbers which in some cases  
15 have changed significantly, for example the Minto  
16 mine. They changed at the time we did the  
17 supplement and they changed again at the time we  
18 did the update filed November the 9th. So we  
19 should keep that in mind when we are reviewing the  
20 documents.

21 As I just highlighted, we have had, if you  
22 like, two major filings since the workshop.  
23 Exhibit B-13 is the filing we gave to the Board  
24 which is the same filing we made with YESAB in  
25 October, the full environmental and socio-economic  
26 review filing for the Carmacks-Stewart project, and

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1 Exhibit B, I think it is 16, which is the update  
2 document filed last week, which updated various  
3 projects and gave most recent information that we  
4 had available on the key near-term projects.

5 In terms of the next slide in the  
6 presentation, it was a review of the Minister's  
7 letter which Mr. Morrison and the Chair have  
8 already covered today. At the bottom of that  
9 slide, it referred to the earlier date that the  
10 Chair has already announced is changed to January  
11 15th, given the Minister's letter received shortly  
12 before that Pre-Hearing Conference.

13 The next slide, slide 5, went over the public  
14 consultation process, which I won't go through  
15 today, the information is on the record, that Yukon  
16 Energy, after it released the report in June,  
17 carried out a consultation process in Yukon, in  
18 June and July, and we filed the information with  
19 the Board and the documents are available in  
20 various places throughout Yukon.

21 So basic review process was the first thing we  
22 dealt with in the workshop. Going on to the sixth  
23 slide and getting into more material for today, the  
24 Resource Planing framework which is addressed in  
25 Chapter 1 of Exhibit B-1. As Mr. Morrison has  
26 just said, we have capacity planning and we have

## Opening Remarks (YEC)

1 energy planning and it helps to make clear the  
2 difference between them.

3 Capacity focuses on meeting the highest or  
4 peak requirement required on each one of our  
5 individual systems, the WAF system, the Mayo-Dawson  
6 system or any isolated system. Yukon Energy is  
7 responsible, of course, for the WAF and the  
8 Mayo-Dawson systems. When we talk about a capacity  
9 capability, we include the reserve capability  
10 needed to meet unplanned outages. What happened  
11 last January was a capacity problem, the  
12 Whitehorse-Aishihik-Faro -- the line between  
13 Aishihik and Whitehorse, the capability of getting  
14 energy between Aishihik and Whitehorse was lost for  
15 a period of time. It happened to be the coldest  
16 time of the year, or near the coldest time of the  
17 year and it had an effect in terms of the system,  
18 there was an outage.

19 Despite the fact we have energy in surplus,  
20 hydro energy in surplus, we did not have the  
21 capability to deliver power when we needed it.  
22 That's what capacity planning is all about and it  
23 includes dealing with contingencies or unplanned  
24 outages which you should be able to anticipate a  
25 need to provide for and should not be terribly  
26 surprised when they occur, based on probabilities

1 and experience.

2 Energy planning and contrast is looking at  
3 your ability to supply energy, kilowatt hours over  
4 a period of time, over the year, over a season,  
5 over a month. In the case of Yukon, we do not have  
6 any dire threat to be unable to supply energy  
7 because we have lots of diesel capability in  
8 reserve to supply energy. In my home jurisdiction  
9 in Manitoba, energy, with their hydro systems, can  
10 be the planning constraint.

11 In Yukon, the main issue with energy is if we  
12 can displace diesel we can save money, therefore  
13 planning with respect to energy usually involves  
14 debates about options that would displace diesel in  
15 order to reduce the reliance on that particular  
16 source of energy, and what are the economics and  
17 what are the risks and everything else to do that.  
18 This entire document, as the document in 1992,  
19 requires a fundamental understanding of the  
20 appreciation of capacity versus energy in  
21 planning.

22 Slide 7, effectively the capability -- when we  
23 look at a Resource Plan, we go through certain  
24 steps. We look at the system capability, system by  
25 system, WAF as distinct from Mayo-Dawson, the  
26 forecast condition of those assets and their

## Opening Remarks (YEC)

1 capability to deal with unplanned outages; capacity  
2 adequacy.

3 Secondly, we look at system requirements,  
4 what's the forecast for peak and energy use over  
5 the next 20 to 40 years? Then we look at three new  
6 facility requirements, we compare, obviously, the  
7 forecast capability with the requirement forecast  
8 and see where we have a shortfall or a need in  
9 either capacity or energy, and we keep the two  
10 quite separate.

11 Fourthly, we look at resource options; what do  
12 we have available to us to meet those capacity or  
13 energy shortfalls, and if there is not a shortfall  
14 in energy, what options do we have to displace  
15 diesel and is it economic for Yukoners to do that?

16 And finally we look at assessment of options,  
17 both technical feasibility, including timing,  
18 obviously the overlap of timing, load areas, cost  
19 efficiency, reliability, risk, and other relevant  
20 considerations.

21 The near-term projects we are talking about in  
22 this document are different stages of pre-decision  
23 planning. Page 4 of the overview has a graph that  
24 describes the difference between the Plan and the  
25 projects. The Plan comes up with preferred project  
26 options. The decision-making on any one project

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1 goes through a whole set of stages before the Board  
2 of Directors of Yukon Energy makes a final decision  
3 to commit to build it. Each one of the projects we  
4 have in the near-term are at different stages in  
5 that pre-decision project and we will presumably  
6 answer questions on that.

7 But an individual project does not get a final  
8 commitment from Yukon Energy until the Board of  
9 Directors has gone through the steps in that  
10 particular diagram, and none of these projects have  
11 reached that stage; in that sense, none of those  
12 projects have any final decisions on them from  
13 Yukon Energy.

14 Slide 8, today is quite different than 1992,  
15 when Yukon Energy, along with the other utility,  
16 appeared here to present a plan for the next ten  
17 years at that time. In 1992, the focus was very  
18 much on when would the Faro mine close. We know  
19 the answer to that today, but we did not know it  
20 then. And we grappled with the contingencies of  
21 what we might do in different situations. In other  
22 words, we were very worried about a loss of load,  
23 but how to plan in that context. And we, in the  
24 end, had no proposed projects because there did not  
25 seem to be a good basis for proposing anything to  
26 do at that time.

## Opening Remarks (YEC)

1           The loss of the 25 megawatt load and the 180  
2 million kilowatt hours, gigawatt hours, from Faro,  
3 has made a profound difference. It has created a  
4 surplus year-round on the Whitehorse-Ashihik-Faro  
5 system of some 85 to 90 million kilowatt hours,  
6 today, of hydro.

7           It changes everything in terms of our planning  
8 and focus, and we will deal with that. The  
9 Mayo-Dawson transmission line has changed the  
10 situation dramatically since the time we appeared  
11 in 1992. Dawson is no longer served by relying on  
12 diesel, it is served by the surplus hydro from  
13 Mayo. We have renewed various water licences that  
14 were in issue at that time so that all the water  
15 licences of Yukon Energy are renewed.

16           The material surplus of hydro on the two  
17 systems, WAF and Mayo-Dawson, remains today and,  
18 without major new industrial loads, this Plan shows  
19 that it would continue to remain for most of the  
20 next 20-year planning period. It would probably  
21 continue until around the year 2020 on the WAF  
22 system.

23           So if we don't have new industrial load, we  
24 will not need to worry about energy on the WAF  
25 system, but we will still have problems with  
26 capacity.

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1           Slide 9, there are certain key factors driving  
2           the near-term in terms of our future requirements;  
3           not just the near-term but over the next period of  
4           time that we are covering in the Plan.

5           There is an immediate need for new WAF  
6           generating capacity, capability. This need  
7           reflects a combination of factors: load growth;  
8           retirements of units such as the Mirrlees at the  
9           Whitehorse diesel plant; and the new capacity  
10          criteria. The biggest single factor in all of  
11          those is probably the new capacity planning  
12          criteria, but retiring 14 megawatts of Mirrlees  
13          over the next few years, without changing, is also  
14          a very big factor. Load growth is by far the least  
15          of the three factors.

16          There are also potential new mines planned for  
17          the period to 2009. The Minto mine has now gone  
18          beyond planning. As the update documents, the  
19          Minto mine is now a mine that is over one-third  
20          built, it has got its financing and it is going to  
21          start producing in the second quarter of next  
22          year.

23          In the context of the other mine noted here,  
24          Carmacks Copper, it is still in its licensing phase  
25          and hasn't substantively changed status since the  
26          time we wrote the documents.

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1           These create opportunities that are time  
2 sensitive, and I would say the Minto mine, if it  
3 generates -- it will open generating power that it  
4 needs with diesel. The Minto mine will create more  
5 diesel generation than the entire utility system in  
6 Yukon currently generates, the YECL and YEC systems  
7 which was less than 25 million kilowatt hours a  
8 year versus the Minto mine at about 32, 32 1/2  
9 million kilowatt hours a year. So if you are  
10 interested in diesel emissions or things like that,  
11 the opportunity to serve this mine in the time that  
12 it is there is material.

13           A range of other longer-term industrial  
14 development scenarios between 2009 and 2016 ...  
15 here we are dealing with contingencies,  
16 uncertainties, but we are trying to understand what  
17 they might look like if they materialize and how we  
18 might react to them, and that is Chapter 5 in the  
19 document. But it is a totally different situation  
20 than 1992, it is a situation where, rather than  
21 worrying about when we are going to lose this load,  
22 we are discussing how we might deal with  
23 opportunities that would push us into the need to  
24 meet new loads and how we would deal with that.

25           Our overall conclusion in the document is that  
26 we need to balance a range of different factors

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1 when trying to deal with these long-term issues,  
2 and we are here to answer questions about how to do  
3 that balance and what is involved.

4 Finally, in terms of background, Slide 10,  
5 when we looked at the longer-term in particular,  
6 2009, 2016, we developed a way of thinking about it  
7 that was sort of represented in this graphic. To  
8 think of the different options that might  
9 materialize, we thought of a continuum from the  
10 very smaller loads to the much larger industrial  
11 loads that might materialize. And the graphic  
12 says, okay, if you have very small loads, and I  
13 think the document will say up to, say, 10  
14 megawatts, we really have a capacity-related issue  
15 because of the reason I just gave, but not a need  
16 to look at displacing diesel. But once you get  
17 more than just the Minto and the Carmacks Copper  
18 mines and you start getting mines getting back up  
19 into the scale of what Faro was, 20, 25 megawatts,  
20 there is more than just capacity to deal with. You  
21 should be looking at cost-efficient ways to  
22 displace diesel use through new hydro generation.

23 So both capacity and energy start to become a  
24 play with the larger mines that might be a  
25 possibility in this time period. And we took it  
26 all the way through, because the time period could

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1 include the completion of the pipeline through  
2 Yukon within the next 10 to 15 years. What if  
3 Yukon Energy or Yukoners in general were to try and  
4 supply some electricity to the major compressor  
5 stations for that line, which is a level of load  
6 way outside of anybody's experience here; and,  
7 secondly, what is that pipeline going to do in  
8 terms of making available natural gas that the  
9 utilities here might use to generate electricity  
10 under different costing frameworks than we have  
11 today? So that is what the graph is telling you  
12 and that is how Chapter 5 is organized.

13 I would just make one more point. The graph  
14 talks about megawatts. In reality, the analysis  
15 shows it isn't just the megawatts of a new mine's  
16 load, is the mine 20, 25 megawatts of extra load,  
17 is it close enough to the system connecting it, all  
18 those factors, but how long is the life of that  
19 mine? If the mine is only ten years, we are not  
20 going to build an asset, very often, that has a  
21 long life to it just to meet that short life. On  
22 the other hand, if the mine has a life of 20, 25  
23 years, it really does open opportunities for new  
24 hydro generation if they are cost-efficient  
25 options.

26 Now, Hector Campbell will briefly review what

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1 was effectively the background section of the main  
2 report on the Yukon Energy systems.

3 MR. CAMPBELL: Thank you, Cam.

4 Yukon Energy, at present we have a capacity of  
5 112.4 megawatts, Yukon Electrical have an  
6 additional 15 megawatts, that yield a total  
7 capacity in the Yukon of 127 megawatts. We note  
8 that Yukon Energy owns and operates the two major  
9 transmission grids in the Yukon, the  
10 Whitehorse-Aishihik-Faro grid which operates at a  
11 voltage of 138,000 volts, and the Mayo-Dawson is a  
12 69,000 volt grid.

13 Most of the Yukon's hydro and transmission  
14 facilities were built in response to the major  
15 mines that have operated in the past in the Yukon,  
16 and I think it is important that there is some  
17 recognition that in fact, without these mines  
18 operating and helping to pay for a lot of the major  
19 assets in the Yukon, the assets would not exist  
20 today.

21 That is certainly true of the Aishihik plant,  
22 the Whitehorse Rapids Unit 4, the Mayo hydro  
23 plant. These facilities were built solely to serve  
24 operating mines in the Yukon at the time. They are  
25 now extremely valuable assets to Yukoners today  
26 because, by and large, they are largely paid for,

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1 so they are assets that are quite highly  
2 depreciated and it affords Yukoners quite  
3 reasonable power rates today.

4 If we look at a comparison of Yukon power  
5 rates, and again in Exhibit B-2 in the overview,  
6 on page 8, there is an example of some comparable  
7 rates throughout the north, if we also look at the  
8 Interrogatory UCG-YEC-234, we have provided a  
9 number of additional comparative rates not only  
10 throughout the north but throughout southern Canada  
11 and some parts of the United States, really that  
12 shows the rates that a lot of Yukoners are able to  
13 enjoy today because of these legacy assets being  
14 available.

15 As Mr. Osler has briefly described, there are  
16 two main power systems in the Yukon, and that is  
17 basically what this graph shows; the  
18 Aishihik, Whitehorse and Faro grids in the south  
19 part of the Yukon, the Mayo-Dawson grid in the  
20 north part. Of interest, of course, one of the  
21 near-term projects that Yukon Energy is proposing  
22 to do is from Carmacks to Stewart, which would  
23 connect the two main hydro transmission grids in  
24 the Yukon and it would also provide a means to  
25 service the two most likely near-term mines.  
26 Again, I would note the Minto mine, you may also

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1 hear called Minto Exploration, you may hear it  
2 called Sherwood Copper. The current owners of the  
3 mine is Sherwood Copper but it will be referred by  
4 any one of those three, perhaps by ourselves or by  
5 some of the intervenors. As well as the Carmacks  
6 Copper mine you will hear called Western Silver,  
7 Western Copper, again the current owners of the  
8 mine are Western Copper, but they are in fact  
9 referring to one and the same mine.

10 If we look at the overall mix of generation  
11 capacity in the Yukon, we certainly find, from  
12 Yukon Energy's perspective, obviously the balance  
13 of our generation, the major part of it is hydro.  
14 We have 75.4 megawatts of hydro, we have .8  
15 megawatts of wind, and the balance of 36.4  
16 megawatts is diesel generation.

17 We have heard the last two speakers talk about  
18 capacity and energy, and I think it is extremely  
19 important to note that, in fact, of course in the  
20 Yukon, being a northern climate, our peaks occur in  
21 the wintertime. We don't have a huge air  
22 conditioning load in the Yukon, at least not yet.  
23 So it is important for us to recognize that in the  
24 wintertime, particularly at the Whitehorse Rapids  
25 facility, we don't have enough water to generate at  
26 the full capacity of the system. In fact, the

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1 system, on average during the four coldest winter  
2 months, is derated from 40 megawatts to 24  
3 megawatts.

4 We note as well that, by and large, excluding  
5 the industrial load component, the driving factor  
6 in capacity is the planned retirement of 11.4  
7 megawatts of 35-year-old diesels in the Whitehorse  
8 diesel plant. We are also seeing what we would  
9 term as modest growth of our non-industrial loads,  
10 averaging around a megawatt per year of growth and  
11 around 4 gigawatt hours a year of energy growth.  
12 So when we talk about being short capacity, our  
13 peaks are growing at around a megawatt per year,  
14 and our annual energy sales are growing around 4  
15 gigawatt hours a year.

16 The reason that energy is not a significant  
17 issue for us today is we have upwards of 90  
18 gigawatt hours a year of surplus hydro. So, when  
19 you are growing at 4 gigawatt hours a year, you  
20 have a pretty good cushion there in the short  
21 term. Now, that would be eaten up, of course,  
22 significantly with the one or if both of the two  
23 mines that we have mentioned do come on stream.

24 Today, over 90 percent of all of the  
25 generation in the Yukon comes from hydro, of which,  
26 if we look at just generation by Yukon Energy, it

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1 is about 99 percent. As I have just mentioned, on  
2 the Whitehorse-Aishihik-Faro grid, we have upwards  
3 of 90 gigawatt hours a year, on average, of surplus  
4 hydro energy, and around 17 gigawatt hours per year  
5 surplus hydro on the Mayo-Dawson grid. We are able  
6 to supply surplus hydro at a very low cost for new  
7 firm power sales, such as the Minto mine, in terms  
8 of the supply of energy. Obviously, there is still  
9 a cost to connect those mines to the existing  
10 grids. We do note that any new firm sales on  
11 either the WAF or the Mayo-Dawson grid will help  
12 keep rates down for all Yukoners.

13 If the sales on the WAF grid grow more than 90  
14 gigawatt hours then, as Cam has mentioned, we will  
15 be short hydro energy, and that is the point in  
16 time where we would be planning, of course, in  
17 advance of that, for ways to bring on new  
18 cost-effective sources of energy, preferably  
19 renewable energy.

20 Just a little background in terms of some of  
21 the work that the Corporation did sort of prior to  
22 preparing the application for the Resource Plan. A  
23 major point that Yukon Energy embarked on in the  
24 late 2003, completed in 2004, was the completion of  
25 some major assessments of the condition of the  
26 major assets of the major transmission, substation

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1 and generation assets. These have been filed  
2 certainly last year in the course of the 2005  
3 General Rate Application.

4 Basically, the reports note that, overall, the  
5 assets are in pretty good conditions, and will be  
6 there to service Yukoners for the duration of the  
7 Resource Plan. The primary exceptions to that  
8 would of course be these three aging Mirrlees units  
9 at the Whitehorse diesel plant. B.C. Hydro  
10 indicated that, without major reinvestment in these  
11 units, they were at their end of life. They have  
12 been planned for retirement several times between  
13 the 1992 Resource Plan and today, and the  
14 Corporation has looked each time at retiring them,  
15 and been able to life-extend them for a few more  
16 years.

17 The current retirement plan for these units is  
18 one unit every second year starting 2007 so the  
19 dates would be 2007, 2009 and 2011. Further delays  
20 of these retirements is simply not possible without  
21 major refurbishments of these units. That's all I  
22 have.

23 MR. BOWMAN: Good morning, Madam  
24 Chair, members of the panel. The next number of  
25 slides deal with Yukon Energy's capacity planning  
26 criteria that it has adopted and the background

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1 leading up to that criteria. This is a section of  
2 approximately five slides that I dealt with at the  
3 workshop and I will go through them here again in a  
4 similar way. Dr. Billinton will be available to  
5 answer questions on many of these topics as we move  
6 through the hearing.

7 The topic of capacity planning is dealt with  
8 in Section 3.3 in Exhibit B-1, and also in the  
9 overview, Exhibit B-2, and there are quite a few  
10 interrogatories on this topic. It is bit of a  
11 difficult topic to deal with because, at one level,  
12 it is very practical and easy to understand that  
13 the system must have back-up and it is easy to  
14 envision the need for the back-up to deal with  
15 contingencies but, on the other hand, it can also  
16 be a very technical and complicated topic, and so I  
17 will try to balance the two so that we can make the  
18 most of the time we have.

19 In general, though, capacity planning criteria  
20 relates to the reliability of the power system, but  
21 it is only one of the factors that goes into the  
22 reliability of the power system. It relates to the  
23 adequacy of the generation on the system, and a  
24 means to determine when the amount of generation  
25 and related transmission is adequate or is  
26 inadequate. The slide notes that there are other

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1 aspects of providing reliable power at the bulk  
2 power level and also at the distribution level that  
3 are not related to the sufficiency of the  
4 generation, the adequacy of the installed  
5 generation. We are just trying to focus on the  
6 adequacy of the installed generation in regards to  
7 this criteria, and the criteria will have to make  
8 sure that there is sufficient capacity installed to  
9 be able to meet peak firm loads, not including  
10 secondary sales. We do not plan for peak loads to  
11 meet secondary sales. They would be interrupted at  
12 any time where this criteria -- where the capacity  
13 is constrained in the way assumed in the  
14 determination of these criteria.

15 Any utility has to have a means to determine  
16 when it has sufficient capacity installed and to  
17 know how much to install. Yukon Energy, as a  
18 generation utility, has always had such a  
19 criteria. It started off using the criteria that  
20 existed for NCPC. It was a simple criteria that  
21 added up the number of megawatts, added in an  
22 assumption that a given number of units will be  
23 down at any given time, and a percentage reserve  
24 factor, and compared that to the peak loads. It is  
25 very similar to the criteria that is used on  
26 non-interconnected simple systems elsewhere in

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1 Canada, such as diesel communities in Manitoba or  
2 Newfoundland or Northwest Territories. And the  
3 math that was used in that, determining that, the  
4 number of megawatts that could be carried by the  
5 system under that criteria, is set out at Page 3-17  
6 of Exhibit B-1, the main Resource Plan.

7 By 1992, Yukon Energy, as part of the Resource  
8 Plan filing, did a review of its criteria and made  
9 some small changes. At that time, it brought  
10 forward to the Board a criteria that incorporated,  
11 for the first time, an assumption that not only  
12 must you be protected such that you can supply the  
13 load with the largest unit out, you also would want  
14 to look to the probability of diesel units being  
15 out. The system was having a large number of  
16 diesel units installed and, at any given time,  
17 there was a probability that some number of those  
18 would be out of service, and so it had, as a simple  
19 concept, a 10 percent additional reserve factor, 10  
20 percent of installed diesel, to deal with the start  
21 of using a probability concept rather than a  
22 simple, what we call, deterministic or adding up of  
23 megawatts on the supply side versus the demand  
24 side.

25 That criteria, out of the 1992 review, was  
26 used by Yukon Energy in the '93/'94 GRA and in the

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1 '96/'97 GRA, which was the last time that the  
2 system's capability was reviewed before this  
3 Board. And at that time, in the 1996/1997 GRA,  
4 with the Faro mine operating, it was right at the  
5 limits of what the system could provide but the  
6 criteria was not indicating any need to add new  
7 capacity.

8         Following the closure of the Faro mine, as  
9 everyone can appreciate, the loads dropped  
10 substantially and there was not a major concern of  
11 capacity for some time. There were some changes in  
12 the system, some of the diesel units needed to be  
13 retired, one in particular at Faro, some diesel  
14 units were relocated from Faro to make better use  
15 of them in Mayo or in Dawson, and we had an ongoing  
16 load growth after the initial impact of the Faro  
17 mine -- ongoing load growth in Whitehorse. When  
18 you combine that with the plan for the three large  
19 Mirrlees units that Mr. Campbell referred to in  
20 Whitehorse, the plan to retire those units, the  
21 system was getting back to the point where one  
22 wanted to start paying attention to the capacity  
23 installed and the adequacy of the generation.

24         In the 2005 application, Yukon Energy noted  
25 that it was starting to pay attention to this issue  
26 again, and that although the criteria that had been

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1 in place, the long-standing criteria in place since  
2 1992, was not indicating a concern with the amount  
3 of capacity, other factors were suggesting that  
4 that criteria may no longer be adequate for the  
5 system as it exists today, compared to the period  
6 when the Faro mine was here.

7 We discussed this in the 2005 proceeding, and  
8 at that time, the main concern was focused on  
9 Whitehorse, the issue being that the existing  
10 criteria suggested Whitehorse could be fully  
11 supplied -- or that the WAF system had sufficient  
12 generation despite the fact that, after you retired  
13 the three Mirrlees units, Whitehorse would only  
14 have about 36 megawatts of winter capacity  
15 installed even though the peak was getting into the  
16 high 40s, 46.7 at that time. And we also  
17 recognized, in that 2005 application, that the old  
18 criteria did not consider, in any way, the risks  
19 related to the issue of transmission line.

20 Finally, in that same period, Yukon Energy was  
21 made aware that the Northwest Territories had done  
22 a major review of its capacity planning criteria  
23 for the Snare-Yellowknife system, a very similar  
24 system to the WAF system, and had had new capacity  
25 criteria approved by the Northwest Territories'  
26 PUB. So given all that, it was timely to get on

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1 and review the criteria and its suitability for the  
2 system as it exists today, and that was put to the  
3 Board in 2005.

4 As a result of the decision to review the  
5 capacity planning criteria, Yukon Energy made a  
6 decision to retain Dr. Billinton. Mr. Morrison has  
7 already set out a bit of detail on that decision.  
8 Dr. Billinton was retained, and his associate, Dr.  
9 Karki, to consider the WAF system in particular,  
10 and the current capacity planning criteria in  
11 comparison to modern standards for generation  
12 adequacy and, in particular, to bring their skills  
13 in looking at probabilities of outages and  
14 probabilities of units being out of service, rather  
15 than the simple deterministic approach as we call  
16 it.

17 The studies prepared by Dr. Billinton and  
18 Karki are filed in the first round interrogatories  
19 YUB-1, and a comparison of some detail in the  
20 Northwest Territories criteria is filed in YUB-2,  
21 as relevant interrogatories on this topic. But  
22 overall, the analysis indicated that the old  
23 criteria, previous criteria, was providing a level  
24 of protection in '96/'97 that suited the system at  
25 that time, but is no longer suitable for the system  
26 as it exists today; and in particular, if the old

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1 criteria had been kept, Yukon could expect to see  
2 outages about three to six times higher than would  
3 be targeted by utilities elsewhere in Canada, due  
4 to the inadequacies of the generation and  
5 transmission system. And the study specifically  
6 focused on the risks related to the issue of  
7 transmission line, because there is 30 megawatts of  
8 generation at the other end of that line that is  
9 effectively needed to keep the power on and the  
10 lights on, on the remainder of the system, during  
11 very cold weather.

12 As a result, Yukon Energy worked with Dr.  
13 Billinton to review some options, to look at the  
14 criteria that was adopted in Northwest  
15 Territories. The detail on the Northwest  
16 Territories criteria, and the Board's decision in  
17 their review, is filed in YUB second round  
18 questions Number 7, but in the end YEC reviewed and  
19 considered a criteria very similar to what was  
20 adopted in Northwest Territories.

21 To go straight to the criteria that Yukon  
22 Energy has adopted, it is, as I noted, basically  
23 the same criteria as the Northwest Territories and  
24 it involves two parts. The first part of the  
25 criteria uses a measure that is called LOLE, or  
26 loss of load expectation. And what this measure

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1 does is it considers a long-term average that the  
2 system can expect, of being unable to supply the  
3 peak load, and how many hours per year they could  
4 expect as a long-term average, due to the  
5 inadequacy of the generation and transmission  
6 system. Other Canadian utilities typically are  
7 focusing in the range of one to two hours per year;  
8 Yukon Energy has adopted a target of two hours per  
9 year. That criteria looks at the overall balance  
10 of the system, it considers all of the loads on the  
11 system, a fairly complicated mathematical modelling  
12 dealing with the probability of each of the units  
13 on the system, and the issue of transmission line  
14 of failing at any given time, and it looks at these  
15 long-term averages that can be expected.

16 As a complement to that criteria, both in  
17 Northwest Territories and in the Yukon, there was a  
18 concern that long-term averages may mask the extent  
19 to which one might be exposed to a significant  
20 outage of a long duration; not very often, but when  
21 it happens it would be a major event. There are  
22 some ways to deal with this, and one of them was  
23 adopted by Yukon Energy, which was to adopt an N-1  
24 criteria. It is also titled the Emergency  
25 Criteria. And the basis of this is that there  
26 should be enough generation installed on the system

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1 in order to deal with the largest single  
2 contingency event and still meet peak loads. In  
3 this case, peak loads are focused on those loads  
4 that would not traditionally have their own  
5 back-up, so residential and commercial loads, not  
6 necessarily industrial loads, and it deals with, as  
7 the N-1 event, the worst single contingency. It  
8 deals with exposure to Aishihik transmission line  
9 outages of the type experienced on January 29th.

10 N-1, as a concept, is a typical standard used  
11 in many places in North America. It is typically  
12 used as a transmission line planning criteria and,  
13 in this case, we are applying it to a transmission  
14 line in regards to the Aishihik line being the  
15 largest single contingency, and it reflects the  
16 fairly unique characteristics of the Yukon system  
17 compared to most systems in Canada. Yukon and  
18 Northwest Territories in particular have a  
19 substantial amount of their core generation located  
20 some distance away, along a transmission line that  
21 has no redundant path. There is no alternative to  
22 get Aishihik power to Whitehorse, other than the  
23 Aishihik line.

24 And finally, as what is cited as a criterion  
25 but it is actually more of a guidance, in the cases  
26 where new diesel is being added in order to enhance

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1 the ability of communities to have their own  
2 back-up, Yukon Energy would look towards those  
3 communities that are large enough to justify about  
4 a one megawatt diesel unit as a preferred location  
5 for putting new diesels, to the extent new diesels  
6 are being added to the system. It is not a  
7 criteria to go out and install these, it is just a  
8 guidance to where is the best place to locate new  
9 units, to the extent one is adding units of that  
10 size. And currently every community of that size  
11 on the system, on the WAF system and on the  
12 Mayo-Dawson system, meets the criteria with the  
13 exception of the Carcross area. And we make some  
14 reference to that in the near-term section of the  
15 Resource Plan.

16 That is the end of what we had dealt with as  
17 the first part of the presentation in the  
18 workshop. Moving onto the second part which deals  
19 with Chapters 4 and 5 of Exhibit B-1, Chapter 4  
20 being the near-term requirements of the system, and  
21 Chapter 5 being the industrial development  
22 scenarios. This next section of the presentation  
23 will address those sections and in doing so, it  
24 makes a review of each of the projects that Yukon  
25 Energy is planning to pursue, and notes the comment  
26 made earlier by Mr. Osler that no final decisions

1 have been made in terms of the decisions made to  
2 proceed with the project.

3 In terms of the near-term, the Plan, in  
4 Chapter 4, reviews in some detail the load forecast  
5 for the system, focused on the next number of  
6 years, consistent with bullet (a) in the Minister's  
7 letter, so load forecasts that are driving  
8 requirements to invest in projects in the next  
9 number of years, and it deals with a base case as  
10 well as a number of sensitivity cases.

11 The chart on this page sets out the capacity  
12 shortfalls that arise in each of those scenarios,  
13 and as we noted there, capacity is the key driving  
14 factor of investments on the system in order to  
15 ensure adequate supply. The shortfalls in  
16 capacity, under the base case loads, by 2012, are  
17 18.7 megawatts. Over 75 percent of this shortfall  
18 is due entirely to the retirement of the Mirrlees  
19 units and the adoption of the new criteria. In  
20 other words, it is not dependent at all on any  
21 given assumption about where the load growth on the  
22 system is going. These are factors that are known  
23 today, we know the peak loads today, we know the  
24 retirement of the Mirrlees is needed, and that  
25 drives the criteria to invest. The specific number  
26 of megawatts depends somewhat on the load forecast

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1 but only to a small degree, only on the margins.

2 The need to invest in capacity is only  
3 slightly higher. If we look down, compared to the  
4 18.7, is only about 21.5, based on the mine loads,  
5 assuming that Minto and Carmacks Copper are  
6 connected as it was laid out in the original  
7 document.

8 In comparison to capacity on energy, the base  
9 case would show ongoing surplus hydro through most  
10 of the 20-year period. There would be some peaking  
11 diesel required but it is less than 10 gigawatt  
12 hours a year until 2020, which is a fairly small  
13 component of the system.

14 With the mine loads that diesel generation --  
15 as the mine loads existed at the time the Plan was  
16 written, the diesel generation required about 40  
17 gigawatt hours by 2016, after which the mines at  
18 that time were planned to close.

19 Now, I am going to try to go quickly through  
20 two graphs that show a template for images that are  
21 used routinely in the Resource Plan, and these only  
22 show the base case. All of the different  
23 variations on each of the load scenarios and each  
24 of the projects that arise and are proposed on the  
25 Plan, are shown in Chapter 4 and in Chapter 5.

26 The first graph is based on capacity. It

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1 shows the current capacity of the system in the  
2 darker area at the bottom, and it shows in the --  
3 in the dotted lines that are sloping upward through  
4 -- as one moves on in the graph upward to the  
5 right, the capacity criteria that must be met.  
6 Both the N-1 and the LOLE criteria are listed, and  
7 it is necessary for the system to address  
8 shortfalls from the higher of the N-1 or the LOLE  
9 criteria. So in this case, it is seeking to  
10 install enough capacity to meet the highest of the  
11 dotted lines.

12 The graph shows a period of 40 years. The  
13 vertical line down the middle is the 20-year  
14 period, so that is the 20-year Resource Plan  
15 horizon and the subsequent 20 years. And it  
16 emphasizes how much of the capacity issue that we  
17 are facing today revolves around the diesel  
18 retirements, which is the drop in the dark area in  
19 the first number of years, as opposed to the load  
20 growth, which is the line that only slopes up  
21 relatively modestly as one moves through that next  
22 six-year period.

23 In contrast, the second graph, which on this  
24 screen has two dark areas, shows the energy on the  
25 system compared to capacity. And as Mr. Osler set  
26 out, the energy on the system today is not a

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1 constraint. The lowest area on the system is the  
2 hydro that is being used, it is green on this  
3 graph, is the hydro that is being used to supply  
4 firm loads, and the gray area that starts about  
5 midway through the graph is the diesel that will be  
6 required under the base case scenarios. There is  
7 another lighter green area that shows hydro being  
8 used to supply secondary energy, and that tapers  
9 off once diesel starts to be required pursuant to  
10 the rules for secondary energy, and it emphasizes  
11 that in contrast to capacity, where investment is  
12 needed in the very near-term, there is no need for  
13 investment to displace diesel or to enhance the  
14 overall hydro base -- the base hydro output,  
15 long-term average hydro output, in the planning  
16 horizon, under base case loads.

17 There is some diesel beginning to show up in  
18 the 20-year period, it is quite a sliver on this  
19 graph, but it starts to represent a reasonable  
20 amount of costs for the diesel generation, and  
21 that's where the opportunities arise in relation to  
22 projects like the Aishihik Third Turbine, that can  
23 help with peaking and help to avoid that sliver of  
24 gray diesel more than enough to offset the costs of  
25 the project, but it is not a substantial new  
26 generation as one would be looking to in the second

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1 20 years of this period.

2 MR. OSLER: Madam Chair, that gets  
3 us sort of the framework to start dealing with the  
4 four projects. It is about a quarter to the hour,  
5 and I wonder what your pleasure is.

6 THE CHAIR: That gets us a little  
7 bit more on track. We did get started late this  
8 morning. Perhaps we will put the break off, and  
9 Mr. Landry, would you have any comments and proceed  
10 with swearing in the witnesses and we will proceed  
11 with the cross-examination after our break?

12 MR. OSLER: We were going to keep  
13 going through the rest of this presentation, but  
14 how do you --

15 THE CHAIR: Oh, I see. How much  
16 more time do you have?

17 MR. OSLER: I would think it is 15  
18 to 20 minutes to finish the presentation.

19 THE CHAIR: Then let's proceed with  
20 that.

21 MR. OSLER: I would just emphasize  
22 that all of the material we were just talking about  
23 was the WAF system which is the focal point of this  
24 type of detailed analysis. Mayo-Dawson system has  
25 surpluses on it that we are not focusing on at this  
26 level of detail, and each system is planned on its

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1 own because it has to be.

2 Looking at the near-term requirements, we have  
3 said that the capacity criteria, the planned  
4 retirements, the ongoing load growth and the  
5 potential to service new mining loads are what are  
6 driving this, and we put forward four major options  
7 which are on the next slide, 27.

8 This slide has been updated. I would just say  
9 it lists the four projects that we put into the  
10 original submission. It lists the firm WAF  
11 capacity that each one of them could contribute, it  
12 lists other benefits that they could provide in  
13 terms of energy and displacing diesel down the  
14 road, and in each case, lists their estimated  
15 capital costs in 2005 dollars. We have not updated  
16 anything to do with the Aishihik Third Turbine, so  
17 the information stands. Marsh Lake has been  
18 withdrawn so it doesn't exist anymore, and that  
19 means 1.6 megawatts of capacity, that we were  
20 expecting to try and get in the near-term, we will  
21 not be relying on.

22 The Carmacks-Stewart transmission project is  
23 very active. The cost range has been updated to  
24 the range of 30 to 40 million dollars in 2005  
25 dollars, with a midpoint of 35.4 million, updated  
26 in Exhibit B-16.

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1           The Mirrlees Life Extension has gone through  
2 various updates and confirmations. In the latest  
3 update filed November the 9th, B-16, we talked  
4 about 5 megawatts at Faro, additional Mirrlees that  
5 could be extended or refurbished that has been  
6 retired in the past, so we are talking now 19  
7 megawatts and not 14, under this category; and we  
8 are talking about a cost of \$8.7 million, in 2005  
9 dollars, rather than 6.4.

10           Looking at each one of these, the Aishihik  
11 Third Turbine -- the next slide -- the Aishihik  
12 Third Turbine is a \$7.2 million 2005 project. It  
13 already has licences in place from the water  
14 licence. We have done detailed economics we  
15 provided in Appendix C. Because of the Aishihik  
16 transmission line issue that we have been talking  
17 about, though, adding 7 megawatts at the end of  
18 that line does not increase our firm capacity to  
19 meet the needs of the rest of the system at  
20 Whitehorse. In fact, it adds zero to the solution  
21 of that problem. So why is it in the plan?  
22 Because, if we look over the next 20 years, we see  
23 peaking diesel use on the system growing, and  
24 particularly if the mines are connected. And what  
25 this unit will do at Aishihik is displace the use  
26 of that peaking diesel, enough to provide economic

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1 benefits in the near-term, and in the long run, we  
2 have always known that putting the third turbine in  
3 at Aishihik would lead to efficiencies in getting  
4 more energy out, per unit of water at Aishihik, for  
5 reasons that we can go into. So it has long-term  
6 benefits that have always been valuable, but what  
7 accelerates its use in the near-term is the extent  
8 to which we foresee peaking diesel operation on the  
9 WAF system.

10 Appendix C lays out tables that show, under  
11 different scenarios, how much diesel use we see  
12 each year on the WAF system, either peaking or base  
13 load diesel. And you can see, by looking at that  
14 appendix, how the usage jumps if you have the  
15 mines. And what we have said, in effect, is the  
16 timing of this plant, this extension, will depend  
17 on the load, and, if we connect the mines, there  
18 will have great value to it.

19 Appendix C also dealt with variations to do  
20 with Marsh Lake. Essentially, Marsh Lake did some  
21 of the same things for us. Taking the Marsh Lake  
22 project out enhances the value of Aishihik, and, if  
23 anything, accelerates its timing.

24 I would also say that the Appendix C material  
25 goes right back to the original January document.  
26 It assumes only 14 gigawatt hours a year from

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1 Minto, rather than the 32 1/2 we are now talking  
2 about. So, if anything, the combination of the two  
3 mines would put more energy load on the system than  
4 we were assuming throughout all that analysis done  
5 last January.

6 Next slide, Marsh Lake, the update that we  
7 filed, B-16, has removed this project because we  
8 cannot see any way that it could be done in the  
9 timely way that was assumed to be a benefit in the  
10 near-term. So in essence, it is taken off of the  
11 shelf -- put back on the shelf or taken away. We  
12 are not pursuing it.

13 The next slide deals with the Carmacks-Stewart  
14 transmission project, the cost of which is now 30  
15 to 40 million in 2005 dollars, or 35.4 million  
16 midpoint, due to the update. We have provided  
17 additional information, since this was done, in  
18 answers to the YUB Round 2 question Number 21 and a  
19 considerable amount of new information in the  
20 update highlighting the extent to which, since we  
21 filed in June, we have had considerable  
22 consultation with the Northern Tutchone First  
23 Nations. We have had a YESAB filing that has a  
24 selected route and all the details required for the  
25 environmental and socio-economic review and  
26 licensing. The Minto mine has now secured \$85

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1 million of debt financing, as required, to continue  
2 with its construction, and it is over one-third  
3 completed to start operations in the second quarter  
4 of next year. And with all of those things in  
5 mind, Stage 1 of this project to Pelly Crossing at  
6 138 kV is the firm proposal that Yukon Energy has  
7 set out in its update filed November 9th, and we  
8 have set out the updated economics there as to that  
9 project.

10 I would emphasize that when we go to Pelly  
11 Crossing, we don't get the benefits of extra  
12 capacity from the Mayo-Dawson system, or extra  
13 energy off the Mayo-Dawson system. Stage 2 has to  
14 be completed to get the extra 5.6 megawatts from  
15 Mayo-Dawson, or the 15 million kilowatt hours a  
16 year that we look at potentially being available.  
17 That assessment is subject to the loads on the  
18 Mayo-Dawson system, in particular whether United  
19 Keno Hill Mines comes back in the near-term as an  
20 active mining operation.

21 We are currently proceeding with a schedule  
22 that has been set out in the update, that would see  
23 a start of construction targeted for next summer or  
24 fall after receipt of all the licences and  
25 approvals from the YESAB process.

26 Next slide, Mirrlees Life Extension Project

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1 has gone through numerous updates, including the  
2 one I just noted, that in the update we just filed,  
3 B-16 -- the note -- we noted that the company has  
4 looked at the Faro-Mirrlees, now, as being another  
5 unit that could be brought back into the system.  
6 Effectively, that would add 5 megawatts of  
7 capability that we have not even assumed before, at  
8 a cost of about 2.3 million. We have noted that  
9 there are options that we are in due diligence  
10 pursuing for that particular site, namely any other  
11 used diesels that could offer the same benefits at  
12 the same costs, with some other advantages, such as  
13 potentially some used EMD units.

14 The key point about the diesel units, as we  
15 set out in response to YCS-2-E6, is that they are  
16 there for back up, they are not expected to be run  
17 a great deal. They are not going to have great  
18 environmental emission issues. They are  
19 cost-effective ways of providing the capacity  
20 capability that we see the system needing in order  
21 to meet peak loads. But in most situations, in  
22 most years, we would not expect them to be running,  
23 and certainly not running very often.

24 We have also noted, in our updates and  
25 material filed, various other long-term plans for  
26 the Whitehorse diesel plant which we can answer

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1 questions about. Essentially, we are following a  
2 staged approach to these diesel unit items. With  
3 the update, we would start with the Faro unit  
4 because it is not running any risks of affecting  
5 the system's capability while we are working on it,  
6 then we would do the Whitehorse units in the order  
7 talked about, but one year later than what was in  
8 the original plan.

9 Finally, the next slide, looking at Whitehorse  
10 diesel contingency, we always know that there are  
11 issues that some projects may not proceed and may  
12 not proceed on the time element and what were the  
13 contingencies. The plan laid out contingencies  
14 with respect to the Whitehorse diesel capability to  
15 expand. They are noted in the slide. We have  
16 actually found another way to expand capability  
17 beyond what we talked about earlier, namely, the 5  
18 megawatts at Faro, which effectively adds 5  
19 megawatts we did not have in the plan and more than  
20 offsets the removal of the Marsh Lake project.

21 I would say that Aishihik twinning has always  
22 been a concept that we took very seriously, given  
23 the problems laid out in the capacity criteria of  
24 the connection between Whitehorse and the Aishihik  
25 plant. The most logical project you would think of  
26 pursuing would be to twin that line in order to get

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1 the redundancy needed to get your full benefit from  
2 the 30 megawatts you have there and, furthermore,  
3 the additional seven you are planning to add and  
4 perhaps with re-runnering capabilities even more.

5 We looked at it; the problem is cost and  
6 timing. If we have capability on the system in the  
7 near-term, through the Faro units or other units we  
8 are looking at, the timing issue will at least be  
9 addressed in the sense that we are not worried  
10 about how long that project might take to develop  
11 and how we look after the system in the near-term.  
12 The cost issue remains, as to at what stage in the  
13 development does it make sense to do economically.  
14 But it is not something we are ignoring and I am  
15 sure we will talk about it during the hearing.

16 The only other option that we have noted in  
17 the contingencies is in dealing with the Minto  
18 mine. They will have 6.4 megawatts of diesel that  
19 they will have installed, because they are going to  
20 be running on diesel when they start up, and that  
21 6.4 megawatts of all the diesel units that they  
22 have on site will be surplus once we start to  
23 connect to them. And they have put to us the  
24 question, would we see any use in having them  
25 around for a few years or not; otherwise they we  
26 get rid of them. So that becomes an extra

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1 contingency possibility that we are looking at.

2           Finally, looking at the longer-term, next  
3 slide, or next couple of slides, Chapter 5 or Part  
4 (b) of the Minister's letter, dealing with the  
5 longer period to 2016. Very quickly, there are a  
6 very wide range of mine options. Mines vary from  
7 five to 20 years in terms of their life, their peak  
8 demands vary from two to 20 megawatts, and the  
9 distance from the Yukon grid is anywhere up from  
10 zero to 273 kilometres. They present opportunities  
11 but it is very difficult to plan for them.

12           We went through, on the next slide, the  
13 various things that can change from an industrial  
14 customer point of view. In many cases, the mine is  
15 not really dependent on getting access to our  
16 power. The Minto mine is a classic example. It  
17 can start up without us. It can save money by  
18 having connections to us. Some mines are very  
19 short-lived. Minto and Carmacks Copper are not, at  
20 the moment, more than seven or eight years, for  
21 sure, if they were developed. But likely Minto's  
22 case could be ten years plus, what they are talking  
23 about, but they are not 20 years.

24           Customers may get value from the heat on the  
25 site. If they are running a diesel unit, they may  
26 see some value to the heat. From our point of

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1 view, Yukon Energy, the problem of long lead times  
2 to do things, if we are developing new resources,  
3 and how to mesh that with what the mine is doing,  
4 if there isn't a grid connection, how do we proceed  
5 on that basis? And the whole risk issue which is  
6 laid out at page 36 of the overview with respect to  
7 the history of Whitehorse 4 and how it could have  
8 been very different if the Faro mine -- that unit's  
9 economics might have been disastrous if the Faro  
10 mine had not come back in the late '80s.

11 And, finally, this document shows that some of  
12 these project options get into scale range of size  
13 that would challenge Yukon Energy's capability to  
14 finance and deal with them, and would have to look  
15 at partnering or other options to deal with the  
16 scales.

17 The longer-term -- next slide, the longer-term  
18 framework, when we are dealing with new industry,  
19 obviously we are talking about paying the full cost  
20 of service in accordance with the  
21 Order-In-Council. We are looking at the  
22 opportunity to sell surplus hydro when it exists,  
23 and the benefit that would come to the Yukon  
24 ratepayers or the Yukon Government, for that  
25 matter, if it still got the Rate Stabilization  
26 Fund. We have to consider the normal obligation of

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1 the utility to serve these customers, and when that  
2 applies and doesn't apply. And we look at these  
3 opportunities, as has happened historically with  
4 NCPC, to develop new capital infrastructure that,  
5 20 or 30 years from now, people in Yukon can look  
6 back, as we are looking back, and say those assets  
7 developed with those mines are now giving you  
8 cheaper power than anybody else north of 60. So  
9 that is the industrial framework.

10 The next slide, we are matching opportunities,  
11 what does this mean? We have lots of graphs in the  
12 document that try and show this. We are looking at  
13 matching in terms of technology, obviously, we are  
14 looking at loads, obviously, we are looking at load  
15 length, time period. And what we have come to the  
16 conclusion is that, up to 10 megawatts, we don't  
17 need new energy, there is no real opportunity for  
18 new hydro. When we get up to 25 megawatt loads, or  
19 the range that the Faro mine was at, given the load  
20 growth that has happened since then, there are  
21 probably opportunities for seven to 10 megawatts of  
22 new capability of hydro generation of up to 50  
23 million kilowatt hours a year. If you got some of  
24 the bigger mine loads coming on that have got some  
25 good life to them, 40 megawatts, there could be  
26 capability for 100 - 150 million kilowatt hours a

## Opening Remarks (YEC)

1 year of hydro. And the pipeline examples are so  
2 large that they are into another sphere, entirely,  
3 of discussion.

4 Of the action plan laid out in the next slide,  
5 up to 10 megawatts we had focussed on existing  
6 hydro system enhancements. If sustained, if we can  
7 seen a sustained level of load, rather than falling  
8 off as we thought it would, we would consider one  
9 to four megawatts of new hydro and DSM. Once we  
10 get up to the point we are not having the hydro  
11 surplus, we can look at DSM seriously again, we can  
12 look at system enhancements, plus other new  
13 generation of seven to 10 megawatts, and  
14 potentially wind. At the 40 megawatt level, as  
15 I said, we can start planning new generation of up  
16 to 20 to 30 megawatts, but there is not sufficient  
17 likelihood today, in our view, to actually get on  
18 with that. The pipeline would consider capability  
19 to serve loads, joint venturing, federal government  
20 participation and, of course, the issue of a new  
21 source of energy, gas, to meet Yukon needs.

22 The final slide, on the pre-commitment  
23 activities, prior to the certainty of development  
24 on loads, Yukon Energy will carry out certain  
25 things: it will keep close monitoring of the  
26 loads; it will look at the Southern Lakes

## Opening Remarks (YEC)

1 hydrology; it will assess other hydro facility  
2 improvements; it will look at ongoing monitoring of  
3 the hydrology for credible sites of less than 30  
4 megawatts; and look at Level 1 and Level 2  
5 assessments, which are sort of up to the  
6 pre-feasibility stage of potential five to 30  
7 megawatt hydro sites.

8 The costs involved, of major developments, can  
9 be several millions of dollars, 10 percent of the  
10 ultimate cost, just for planning, before it is  
11 actually approved. And we talk about balance and  
12 risk management ... that is what is involved in  
13 trying to figure out how far you should go with  
14 those projects.

15 That, Madam Chairman, is within the hour to  
16 the dot.

17 THE CHAIR: Pretty good actually,  
18 pretty good. Mr. Landry, do you have some comments  
19 you would like to make before we take a 15-minute  
20 recess?

21 MR. LANDRY: Madam Chair, I just  
22 have some technical things for the record, which  
23 would come after the witnesses are sworn, and also  
24 I have two or three questions of Dr. Billinton, so  
25 I am at your pleasure. We can do that now or we  
26 can do that right after the break.

## Opening Remarks (YEC)

1 THE CHAIR: I think we will have a  
2 15-minute break so that means we will come back  
3 just around 12 or 13 minutes after 11:00.

4 (Proceedings adjourned 10:50 a.m.)

5 (Proceedings resumed 11:22 a.m.)

6 THE CHAIR: Mr. Landry, would you  
7 like to proceed?

8 MR. LANDRY: Yes, Madam Chair.

9 I wonder if we could have the witnesses sworn and  
10 then we will go from there.

11 YEC PANEL SWORN:

12 DAVID MORRISON, SWORN

13 CAMERON OSLER, SWORN

14 HECTOR CAMPBELL, SWORN

15 PATRICK BOWMAN, SWORN

16 ROY BILLINTON, SWORN

17 YEC PANEL EXAMINED BY MR. LANDRY:

18 MR. LANDRY: Madam Chair, my  
19 apologies, it probably should have been me who  
20 suggested the witnesses be sworn before this  
21 morning, and I just have a few questions I want to  
22 put on the record for that purpose.

23 Q MR. LANDRY: Starting with you,  
24 Mr. Morrison, I assume you are familiar with the  
25 Resource Plan, including the updates and the  
26 various answers to Information Requests that have

1       been made?

2   A   MR. MORRISON:                    I certainly am.

3   Q   And to your knowledge, is the information that has  
4       been provided in those materials true and accurate?

5   A   Yes, it is.

6   Q   And do you adopt that information as your evidence  
7       in this proceeding?

8   A   I do.

9   Q   And, sir, the information that you provided in your  
10      opening remarks, was that information true and  
11      accurate?

12  A   Yes, it was.

13  Q   And do you also adopt that as your evidence in this  
14      proceeding?

15  A   I do.

16  Q   Mr. Osler, you are familiar with the Resource Plan  
17      and the various updates and the information  
18      responses to the IRs that were provided by the  
19      Board and the intervenors?

20  A   MR. OSLER:                    Yes.

21  Q   And to your knowledge, is the information provided  
22      in that material true and accurate?

23  A   Yes.

24  Q   And do you adopt it as your evidence in this  
25      proceeding?

26  A   Yes.

YEC Panel  
Landry (In Chief)

1 Q And, sir, the information that you provided in your  
2 presentation this morning, was that information  
3 true and accurate?

4 A Yes.

5 Q And do you adopt that as your evidence?

6 A Yes.

7 Q Mr. Campbell, you are familiar with the Resource  
8 Plan, the various updates and the responses to the  
9 Information Requests that were provided in this  
10 proceeding?

11 A MR. CAMPBELL: Yes, I am.

12 Q And to your knowledge is the information that was  
13 provided in that material true and accurate?

14 A Yes.

15 Q And do you adopt that as your evidence in this  
16 proceeding?

17 A Yes, I do.

18 Q And, sir, the information that you provided in the  
19 presentation this morning, was that information  
20 true and accurate?

21 A Yes, it was.

22 Q And do you adopt that as your evidence in this  
23 proceeding?

24 A Yes.

25 Q Mr. Bowman, you are familiar with the Resource  
26 Plan, the updates and the Information Responses to

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Landry (In Chief)

1 the IRs that were provided in this proceeding?

2 A MR. BOWMAN: Yes.

3 Q And to your knowledge, is the information that was  
4 provided in that material true and accurate?

5 A Yes.

6 Q And do you adopt it as your evidence?

7 A Yes.

8 Q And the information that you provided this morning  
9 in your presentation, was that information true and  
10 accurate?

11 A Yes.

12 Q And do you adopt that as your evidence?

13 A Yes.

14 Q Now, Dr. Billinton, I know that you were only  
15 involved in the information relating to the  
16 capacity planning criteria and the Resource Plan  
17 and the updates and the various Information  
18 Requests; is that correct?

19 A MR. BILLINTON: Yes.

20 Q And the information in relation to that, to your  
21 knowledge, is it true and accurate?

22 A Yes.

23 Q And do you adopt that as your evidence in this  
24 proceeding?

25 A I do.

26 MR. LANDRY: Madam Chair, I do have

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1 a couple of quick questions for Dr. Billinton,  
2 specifically on the capacity planning criteria, if  
3 I may be allowed to go ahead with that.

4 THE CHAIR: Please proceed.

5 Q MR. LANDRY: Dr. Billinton, you were  
6 engaged by Yukon Energy as indicated by, or  
7 testified to, by Mr. Morrison. In general, what  
8 were you asked to do on behalf of Yukon Energy?

9 A DR. BILLINTON: My colleague, Professor  
10 Karki and I , were engaged by Yukon Energy in late  
11 2004 through a contract with the University of  
12 Saskatchewan. Our scope of work included reviewing  
13 the existing YEC generating capacity adequacy  
14 planning criterion, identifying and developing  
15 suitable reliability models for the WAF grid, and  
16 for conducting a probabilistic analysis of the WAF  
17 grid generating capacity, and that basically was  
18 the constituent elements in our scope of work.

19 Q And, sir, you have obviously reviewed the capacity  
20 planning criteria that has been adopted by Yukon  
21 Energy?

22 A Yes, we have.

23 Q Now, sir, in your view, given your experience, is  
24 that criteria reasonable for the Yukon systems,  
25 particularly in light of similar planning criteria  
26 used elsewhere in Canada?

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- 1 A Yes, I think it is quite reasonable. It is  
2 understandable and straightforward. It lies, I  
3 think, in the range of planning criteria that are  
4 used elsewhere in Canada. And it, of course,  
5 relates directly to the criteria that are being  
6 adopted in the Northwest Territories for a very  
7 similar system. So, therefore, I think it provides  
8 a very practical and reasonable framework upon  
9 which to conduct adequacy evaluation.
- 10 Q And were you involved in the Northwest Territories'  
11 situation?
- 12 A Yes, I was involved in the Northwest Territories  
13 latest hearing. Prior to that time, I was involved  
14 working with the Northwest Territories to establish  
15 their criterion, so I had full involvement, perhaps  
16 over the last decade, in that particular activity.
- 17 Q Now, I wonder if you could just comment on the need  
18 for two criterion. What I mean by that, for the  
19 purposes of the record, is the N-1 criteria and the  
20 LOLE criteria, as opposed to just having one  
21 criteria?
- 22 A First, the LOLE approach provides an overall  
23 assessment of the capacity adequacy. It is a  
24 well-known approach. It is used by many  
25 utilities. And it does respond to the fact that it  
26 influences the reliability of the system. That is

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1 what you are looking for is a technique that will  
2 then take into account the salient features of the  
3 evaluation and then proceed to respond in terms of  
4 the risk index that is produced. So the LOLE, I  
5 think, is a standard and is fully observable.

6 The vulnerability of the Whitehorse area load  
7 to the loss of the Aishihik generating capacity is  
8 clearly illustrated, I think, in our February 2005  
9 report. And I think all of you are probably even  
10 more aware than I am of the incident that occurred  
11 on January the 29th, which rather dramatically  
12 illustrated the vulnerability of the Whitehorse  
13 load to the loss of the Aishihik line. So  
14 therefore the dual criterion, the N-1 criterion,  
15 provides a measure of response to that particular  
16 possibility, and therefore I believe that the two  
17 criteria provide a balanced approach which is  
18 necessary in this particular case.

19 The configuration of the WAF system is very  
20 similar to the Snare-Yellowknife system. It is  
21 quite different than many systems that you see in  
22 the southern part of Canada, where there is  
23 considerably more redundancy associated with  
24 generating capacity facilities, and therefore  
25 I think the dual criteria is a very practical  
26 approach. There is a need for both segments, that

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1 is the LOLE approach and the N-1 criterion, and I  
2 think it provides the opportunity then for planning  
3 in a careful and measured way.

4 Q Now, sir, in the interrogatories that were sent out  
5 by the Board Staff, they had asked about a  
6 different form of criteria based on -- and for the  
7 record, LOEE, or unserved energy, as I understand  
8 it, sir. What is the difference between the two  
9 types of criteria, the LOLE and the LOEE?

10 A One of the difficulties with acronyms, of course,  
11 is that everybody uses them and everybody is happy  
12 with the ones they use, and you start to use them  
13 like words as opposed to acronyms.

14 The loss of load expectation, the LOLE, is a  
15 very common criterion. But first I would just like  
16 to comment on the word "expectation" for the  
17 purposes of an explanation to the Board.

18 "Expectation" does not mean to "expect".  
19 "Expectation", and I think Mr. Bowman referred to  
20 this, means the long run average value, and  
21 therefore you are talking about-- it's mathematical  
22 expectation actually, and therefore you are talking  
23 about an average on a long run value. So LOLE is  
24 the expected -- and I am using it in the  
25 mathematical sense -- number of hours in a year  
26 that the load will exceed the generating capacity.

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1           Now, there has been a lot of attention paid to  
2 peak load, but in actual fact, it is every hour.  
3 It is the load at every hour of the year that is  
4 taken into account when you are looking at, then,  
5 the expected number of hours that the load would  
6 exceed the available capacity.

7           Now, LOEE is loss of energy expectation. So  
8 that "E" on the end is "expectation" again, and  
9 that is the long run average number of kilowatt  
10 hours, or units of energy, that would not be  
11 satisfied during the course of a year. So one  
12 deals then with hours, and the other deals with  
13 energy.

14           Now, the bulk of the applications that you see  
15 around the world, the loss of load expectation is  
16 by far the more common. The loss of energy  
17 expectation is a good index, it has been used in  
18 numerous situations, but the loss of load  
19 expectation is by far the most common index. I  
20 think it is understandable. It is relatively easy  
21 to calculate, and as a result, I think it serves  
22 the purposes that you are looking for.

23           So they are both good indices, but the loss of  
24 load expectation is by far the more common. It is  
25 used in our report with this little table that  
26 shows what Canadian utilities use, and the LOLE

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1 index is used and useful, and I think it would  
2 serve the purpose in this particular case.

3 MR. LANDRY: Thank you,  
4 Dr. Billinton.

5 Madam Chair, those are the questions I have  
6 for Dr. Billinton, so that is the end of our  
7 presentation and direct.

8 THE CHAIR: Okay, great, that was  
9 fast.

10 Ms. Marx, are you aware of any matters that  
11 are presently before the Board?

12 MS. MARX: No. I think we can  
13 begin with questioning by the intervenors,  
14 Madam Chair.

15 THE CHAIR: Mr. Pinard, are you  
16 prepared to proceed with your cross-examination?

17 MR. PINARD: Yes.

18 THE CHAIR: Then please proceed.

19 YEC PANEL CROSS-EXAMINED BY MR. PINARD:

20 Q MR. PINARD: Hello. This is the  
21 introduction to YCS's concern with Yukon Energy and  
22 their 20-year plan. As you are aware, many  
23 utilities, states and provinces across North  
24 America have taken the initiative to reduce carbon  
25 emissions within their jurisdictions. In the  
26 Yukon, we have done only small measures that do not

1 significantly reduce emissions. In a way, we are  
2 blessed with two utilities that provide mainly  
3 renewable source of energy, but as a whole, Yukon  
4 still burns fossil fuel for their home heating,  
5 electricity in remote communities and for  
6 transportation.

7 Yukon Energy could be taking advantage of its  
8 excess hydro power to reduce emissions in those  
9 sectors. In YCS's opinion, we don't see a 20-year  
10 plan. We don't see the demand side management, a  
11 policy thereof, we don't see Kyoto provisions, we  
12 see no alternatives to diesel, no opportunities for  
13 independent power producers, which include First  
14 Nations, and no innovation.

15 Now, the next sections, there will be some  
16 points we make and we will be asking some  
17 questions.

18 For Marsh Lake, in YCS-YEC-2-D1, this is YEC's  
19 response to our questions, in regards to wetlands  
20 and shoreline erosion studies, could you tell me  
21 where the preliminary work that was done by YEC's  
22 consultants during September of 2006? Can somebody  
23 answer that for me?

24 A MR. MORRISON: Just on a point, you do  
25 understand we are not going ahead with Marsh Lake?

26 Q Yes, I do. But you had stated that there was some

1 consulting --

2 A And we had some consultants do some work, and we --  
3 that was part of the decision not to go forward,  
4 though. I am not sure what the question is. Do  
5 you want a copy -- is this -- are you asking for a  
6 copy of this information?

7 Q Yes.

8 A Or what did it tell us?

9 Q Yes. Apparently you had done some consultation  
10 work in regards to a Marsh Lake study, to find out  
11 what the impact would be on Marsh Lake, and this is  
12 what we would like to see.

13 Has anything of that nature been done in terms  
14 of wetlands impact and property impact? Was there  
15 any study done, at all, on that?

16 A We did some very preliminary work which I am not  
17 sure, on its own, is informative in the sense --  
18 just coming from the perspective of, (a), we have  
19 decided not to go forward. It is very  
20 preliminary. We did not complete any wetlands  
21 studies if that is what you are talking about. We  
22 certainly did some quick initial investigations.

23 Q Okay.

24 A We had some -- as you know, we had some  
25 consultations with residents, and, again, we did  
26 not go any farther than that.

1 Q Okay, thank you.

2           It is our opinion that, although you have  
3 dropped the Marsh Lake plan from your immediate  
4 plans, we feel that you should include it as part  
5 of your 20-year plan, and it should be -- well,  
6 basically, that is what I am saying. Yes, it  
7 should be part of your 20-year plan. So in terms  
8 of immediate, that is fine, but, long-term, it  
9 should still be there.

10           Now, questions regarding industrial customers,  
11 in our YCS-YEC-2-A6, could you define what is an  
12 industrial customer?

13 A MR. OSLER:                           In our submission, we  
14 have used the definition in Order-in-Council  
15 1995/90, I believe, which is -- I forget the exact  
16 words, but -- well, okay:

17           "A major industrial customer means a  
18 customer engaged in manufacturing,  
19 processing, or mining, whose peak demand  
20 for electricity exceeds 1 megawatt, but  
21 it does not include an isolated  
22 industrial customer."

23 An "isolated industrial" customer is one that would  
24 not be on any one of the grids. Right now Minto,  
25 if it started operations in the spring of next  
26 year, would be an isolated diesel operation but not

1 a customer of any utility. If, for some reason,  
2 the utilities had a contract to supply the diesel  
3 to that mine, it would be an isolated industrial  
4 customer, in the definition as used here, and would  
5 not be taken into account in planning costs for  
6 ratepayers in Yukon. An isolated diesel customer  
7 is treated totally separately. But a major  
8 industrial customer is one who is on one of the  
9 grids and therefore gets incorporated into the  
10 Order-in-Council's requirements as to how you  
11 should set a rate for them.

12 Q So, does YEC have any contracts or are in  
13 negotiations for a future industrial customer?

14 A MR. MORRISON: Well, at the moment, we  
15 have no contracts with industrial customers, but I  
16 think it is clear, and we have outlined in the  
17 Plan, that we are in the process of negotiating  
18 with the Minto mine to provide service to them, and  
19 we are in discussions with them regarding a power  
20 purchase agreement.

21 Q So my next question here is, have you negotiated a  
22 rate or are you intending to?

23 A Well, I will let my friend, Mr. Osler, jump in on  
24 this, but essentially, from our perspective, rates  
25 are the purview of Yukon Utilities Board, and that  
26 is not something that we would agree to on our

1 own. If we had discussions with Minto, or any  
2 other industrial customer about a rate, it would  
3 always be subject to the Yukon Utility Board.

4 Cam, is there anything you want to add?

5 A MR. OSLER: In essence, I think the  
6 documents we have filed have said that any rate  
7 would have to be approved by the Utilities Board,  
8 number one, which is just the law, if they are  
9 going to be on the integrated grids. And it would  
10 have to comply with the Order-in-Council I just  
11 listed. It would have to make sure that the rate  
12 at least equaled the cost of service for that  
13 customer class, that major industrial customer  
14 class, calculated on a Yukon-wide basis, the way it  
15 was done for the Faro mine.

16 Beyond that, I would say that, in negotiation,  
17 we are focused mostly on terms and conditions for  
18 their being connected, and the responsibilities and  
19 costs that they would secure for us in developing  
20 transmission. The issue of rates does come up, but  
21 what I have just said is the condition that  
22 exists. Any rate, if somebody wants to discuss a  
23 given rate, it would have to come to this Board for  
24 approval.

25 Q Has YEC considered demand side management for this  
26 particular potential customer?

1 A MR. MORRISON: Well, I think, Madam  
2 Chair, consistent with what we have been talking  
3 about through our revenue requirement hearing rate  
4 last year, and I think which is quite evident in  
5 this plan, it is difficult for YEC to consider  
6 demand side management when we have a significant  
7 hydro surplus on the system. I am not sure that we  
8 could make the case before this Board to carry out  
9 expenditures on demand side management initiatives  
10 when we have a hydro surplus. And, Cam, you can  
11 add if you like.

12 A MR. OSLER: I think you asked for  
13 this particular customer, if I heard you. Were you  
14 meaning a Minto customer?

15 Q Yes. It applies to them immediately because they  
16 are the first ones to come on line, most likely,  
17 but there will be future customers.

18 A But looking at Minto as a mine, for example, they  
19 are going to be paying through the nose for diesel  
20 fuel. They have every incentive in the world to be  
21 efficient in their use of energy. And they,  
22 secondly, are very, very busy trying to get on with  
23 the job of doing mining. So we have not discussed  
24 with them, for example, I do not think we would be  
25 able to discuss with future mines, the type of  
26 question you are raising. Where you can get into

1 demand side management with industrial customers is  
2 with somebody like Inco in Manitoba, who has been  
3 there for a long time and is going to be there for  
4 a long time, and have people who will pay attention  
5 to that, rather than worrying about getting a mine  
6 established, for five years, seven years or ten  
7 years. It is not an easy thing to do. But I would  
8 assume, in principle, that if anybody has got an  
9 incentive to save costs on use of energy, it is a  
10 mine that is going to be running on diesel at  
11 today's diesel prices.

12 Q I guess related to that is if we are -- when the  
13 mine does come up, and we are assuming we are  
14 connected to the mine, and we are running into the  
15 winter peaks, then who is going to be starting  
16 their diesel generators in the winter; will it be  
17 us or will it be the mine?

18 A MR. MORRISON: Madam Chair, I think  
19 this is a good opportunity to be very clear about  
20 capacity and capacity-planning criteria, and the  
21 ability of us to serve industrial customers under  
22 that capacity criteria. I think it was mentioned  
23 earlier, and this is just an opportunity, I think,  
24 for us to be very clear. If the mine is connected  
25 to the grid, and we have a requirement to -- a  
26 power outage, as you might say, similar to what we

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1 had last year, and there is a necessity then on our  
2 part to look at starting our back-up systems, we  
3 would look at the industrial customer the same way  
4 we do the secondary sales customers, and the  
5 industrial customers would be disconnected from the  
6 grid, in a back-up situation. So we are in  
7 discussions with the Minto mine, have made that  
8 clear to them, and they will have their own back-up  
9 source of supply. I think as Mr. Osler mentioned  
10 earlier, initially the Minto mine is going to have  
11 their own diesel, so they are going to have a  
12 system sufficient enough to not only generate by  
13 diesel but also to back up that generation, so they  
14 will have, at least at the outset, a fairly  
15 substantial diesel supply. It is our clear policy  
16 that large industrials are the same as secondary  
17 sales customers, if we have an emergency, they will  
18 be disconnected from the grid and responsible for  
19 their own power.

20 Q Okay, thank you.

21 Now, moving on to the next topic, customer use  
22 patterns. In YCS-YEC-2-B1, this is related to  
23 that, there is -- there has to be better  
24 cooperation with YEC and YECL. YECL should provide  
25 customer use patterns, this data could be critical  
26 for DSM. It is almost unbelievable that the

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1 20-year plan does not address customer use  
2 patterns. For industrial customers or those  
3 customers who use a lot of power, such as hotels,  
4 why not charge less in the summer, since you have  
5 surplus hydro, and why not make the most use of  
6 it? In converse, it is to charge more in the  
7 winter when the possibility of using diesel is more  
8 likely. As you know, electric baseboard are  
9 starting to creep, I don't know if you are aware of  
10 this, but they are starting to creep back into new  
11 developments, and so there is no real control or  
12 incentives or disincentives to make people change  
13 that kind of a behaviour. So a possible future  
14 customer is also the lower bench of Porter Creek,  
15 and we just had a charette last year -- last week,  
16 and talking potential of having 5,000 to 10,000 new  
17 residents in that area. So, having any design  
18 scenarios -- have any design scenarios been done  
19 for this kind of development, which could involve  
20 district heating? Because this could be a major  
21 secondary power revenue source. So have you done  
22 that kind of study for a subdivision like that?

23 MR. LANDRY: Madam Chair, if I could  
24 just before they answer, and I am not trying to be  
25 critical of Mr. Pinard, but there was an awful long  
26 preamble there and a number of questions within the

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1 preamble so it is not that I am -- I just want to  
2 make it clear that I guess what Mr. Pinard is  
3 asking for is an answer to the question at the end  
4 as opposed to various things in the middle, just so  
5 that the record is clear.

6 THE CHAIR: Mr. Pinard, would you  
7 like to clarify your question?

8 Q MR. PINARD: I will clarify the  
9 first question, then. So why not charge less in  
10 the summer, when you have surplus hydro, to  
11 customers like hotels?

12 A MR. OSLER: That is a broad question of  
13 rate design. Generally speaking, the answer at the  
14 moment is, if we charge less in the summer, we have  
15 got to charge more in the winter, and, when the  
16 system is in its current configuration, it hasn't  
17 seemed to make sense to do it, it did not seem to  
18 provide much basis for any efficiencies to be  
19 gained. If the system was running on diesel all  
20 the year around, as it was at the time of the Faro  
21 mine, there wasn't a great deal of efficiency to be  
22 gained there either. And when you are caught in  
23 between those two situations, you are in  
24 transition, either going one way or the other.

25 Now, this is a topic that, in rate design  
26 hearings, I am sure will continue to be raised, and

1 we just have not addressed it in the context of  
2 this Resource Plan because we are not getting into  
3 rates as an official issue. I guess when we did  
4 the 1992 plan, when we had diesel on the margin all  
5 year around because the Faro mine was operating, we  
6 certainly spent a lot of time and effort on DSM,  
7 and on how the load forecast might be adjusted for  
8 DSM measures. We do have DSM measures right now,  
9 given the situation, they are called secondary  
10 sales, to try and promote the use of electricity to  
11 displace fossil fuels in heating situations, in  
12 commercial situations. So that is a form of  
13 recognized DSM in a situation of surplus hydro in  
14 the context of Yukon and, frankly, many other  
15 hydro-based utilities such as Manitoba, I think  
16 B.C., so many people talk about but have not yet  
17 implemented for some of the reasons I just gave  
18 you.

19 Q Sorry, your microphone is losing out.

20 THE CHAIR: I'm sorry, I can't hear  
21 you very well.

22 Q MR. PINARD: I cannot hear you very  
23 well anymore.

24 A MR. OSLER: Oh, what happened?

25 THE CHAIR: Can you hear better  
26 now?

- 1 MR. PINARD: Yes.
- 2 A MR. OSLER: Now, are you going to  
3 go down the list of questions.
- 4 Q Yes, just the Porter Creek as an example, the lower  
5 bench of Porter Creek as an example of a new, sort  
6 of large-scale development, and how you would deal  
7 with that new energy scenario.
- 8 A MR. MORRISON: Let me be clear that  
9 the Porter Creek development is not one where Yukon  
10 Energy would be directly involved. Porter Creek is  
11 a customer or a customer area served by Yukon  
12 Electrical. I don't know what went on at the  
13 charette last week, so you are asking me a question  
14 about which I don't have any background. We do  
15 look, and we have looked extensively, at load  
16 forecasts. I do not know what time period you are  
17 talking about these five or 10,000 homes in, but  
18 that size of a development doesn't show up in our  
19 load forecast in the near future.
- 20 Q Moving on to independent power producers, will YEC  
21 have an IPP policy in the 20-year plan?
- 22 A I think it is fair to say that we will move towards  
23 the development of an IPP policy within the next  
24 few years. Again, we have not had any need in the  
25 past to address the issue of IPP. I would say to  
26 you that, without a policy in place, we don't have

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1 a policy that has any indication or indicates in  
2 any way that we would not cooperate or deal with an  
3 independent power producer if one came forward. At  
4 the moment -- and we have had instances in the past  
5 few years where people have approached us and said,  
6 you know, I have this idea, and you know, what do  
7 you think about it in terms of power, and our  
8 response has been very consistent and very  
9 straightforward, we have no -- we have no need at  
10 the moment to buy additional generation capacity or  
11 energy in that sense. So, you know, we have a  
12 surplus of energy on the system, and if somebody  
13 wants to build a new project to sell us some  
14 energy, we have a surplus, so there is no  
15 requirement at the moment to deal with the issue.  
16 Now, I think, as you see in the Plan, the system is  
17 -- the system use is growing, and we have  
18 mentioned, I think it was mentioned earlier, you  
19 know, the peak is growing about a gigawatt hour a  
20 year, but we are not -- we are by no means in a  
21 position where we need additional energy at this  
22 time, and if someone brought us a proposal, we  
23 would certainly look at it.

24 Q Is YECL considered an IPP?

25 A I do not know. I have never had them bring us a  
26 project.

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1 Q Utilities Commission Act, that is based out of  
2 B.C., Utilities Commission Act was amended in 2003,  
3 the provincial government's November 2002 energy  
4 policy called its title "Energy For Our Future, A  
5 Plan For B.C.", made amendments to Section 45 of  
6 the UCA, which is the Utilities Commission Act, and  
7 in Section 45 it states here that a public utility  
8 must file the following plan with the commission in  
9 the form and at the times required by the  
10 commission, and there are three points, but two  
11 that are more important here; 45(b), a plan of how  
12 the public utility intends to meet the demand for  
13 energy by acquiring energy from other persons and  
14 the expenditures required for that purpose; and  
15 45(c), a plan for how the public utility intends to  
16 reduce the demand for utility, and the expenditures  
17 required for that purpose. This is just for your  
18 information.

19 Now, please refer to YEC's response to the YCS  
20 intervenor, that's YCS-YEC-2-C2, that was the one  
21 dated October 13th. Now, in reference to page  
22 2-12, line 8 onwards, regarding independent power  
23 producers. The question was, does YEC have a  
24 policy on the price that it will pay for power  
25 generated by independent producers, and what the  
26 price calculation is based on? And the answer is

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1 no, YEC does not have any standard price it will  
2 pay for power generated by IPPs given hydro  
3 surpluses on each of YEC's major system. YEC has  
4 no practical opportunities to purchase IPP power.  
5 In the event that diesel generation was on the  
6 margin or one or more of the major systems, YEC  
7 would need to consider various matters related to  
8 pricing as set out at Section 5.3.1.4 of the  
9 Resource Plan.

10 Yet, on page 9 of the Resource Update of  
11 November 2006, there is the following: Yukon Energy  
12 and Sherwood Copper continue to negotiate the PPA  
13 pursuant to the LOI, focussing on assumed  
14 development of Stage 1 CSMS project to Pelly  
15 Crossing at 138 kilovolt from Carmacks to Pelly  
16 Crossing, and including consideration of YEC's  
17 potential use, after the project is in service, of  
18 the 6.4 megawatt surplus on-site diesel  
19 generation.

20 Could you clarify what that last statement  
21 means, the potential use of the 6.4 megawatt diesel  
22 at the mine site.

23 MR. LANDRY: Madam Chair, just once  
24 again for the record, there was an awful lot of  
25 preamble to that, and again, I am not trying to be  
26 critical of Mr. Pinard, but I am not sure I am in a

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1 position I can tell you right now, to even agree or  
2 disagree with what he said about what has happened  
3 in British Columbia. So I just want to make a note  
4 for the record, that we are not-- that Yukon -- if  
5 what Mr. Pinard would like to do is to confirm  
6 that, I can tell you we are not in a position to  
7 confirm that at this point in time. But if he  
8 would like to ask a specific question like the end,  
9 I have no difficulty with that, it's just the  
10 preamble had an awful lot of information in there  
11 that I can tell you, at this point in time, if he  
12 wants confirmation of that, then I'll have a  
13 position on that.

14 THE CHAIR: Mr. Pinard, it is my  
15 understanding that you are asking for clarification  
16 on your last question?

17 MR. PINARD: Yes.

18 THE CHAIR: Could you please  
19 proceed with that question.

20 MR. PINARD: With the last  
21 question? Yes.

22 Q MR. PINARD: So the opportunity that  
23 seems to have arise in here is that there is an  
24 opportunity for a potential use of a 6.4 megawatt  
25 surplus on-site diesel generation at the mine site,  
26 and we are asking what does that entail?

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1 A MR. OSLER:                   It is -- I put it this  
2 way, it is different than an IPP situation, and  
3 I will explain what I mean.

4           Minto is going to have what it calls surplus  
5 diesel at the site. Absent an arrangement with us,  
6 it will get rid of it. It will sell it on the open  
7 market, is its view; it is not going to keep it.

8           YEC, therefore, looks at it from the point of  
9 view of, is there a basis upon which it could  
10 acquire it or lease it or make any other  
11 arrangement so it would have availability to use  
12 it, and whether there -- and what value would YEC  
13 be interested in doing that, and is that value  
14 equal to what these people could get for getting  
15 rid of it otherwise?

16           I would just -- so that isn't really an IPP  
17 situation in the classic sense of the word, where  
18 somebody develops something to be sold to the  
19 utility on a long-term firm contract, effectively  
20 for the dedicated use of the utility but still  
21 owned and operated by the IPP. Probably, in this  
22 situation, to protect YEC's interest, we would look  
23 at ways where we would effectively control the unit  
24 and not leave it to the Minto mine to do, if we  
25 were going to use it. And it is purely, at the  
26 moment, an option to be considered, it has not

1 proceeded beyond that point.

2 I would add that Minto mine would have an  
3 additional capacity that would not be surplus, but  
4 would be retained at the mine site, to meet its  
5 emergency requirements in the event of lack of  
6 power from the grid. It would probably be in the  
7 order of magnitude of 500 kilowatts. It would not  
8 be a large amount of power. It would be enough to  
9 make sure that they do not suffer a catastrophe in  
10 the event of lack of electricity in their systems,  
11 but it would not allow them to run mining or  
12 milling operations in a normal manner.

13 A MR. MORRISON: Just to further  
14 clarify, I just want to make sure that we  
15 understand that all of Mr. Osler's remarks should  
16 be prefaced by the fact that after connection to  
17 the grid.

18 A MR. OSLER: Yes.

19 A MR. MORRISON: You know, we are  
20 talking about a situation that, if the grid is  
21 extended and they are connected, then the comments  
22 that Mr. Osler just gave us apply.

23 Q MR. PINARD: Well, so, in your  
24 response, so essentially this would be a net  
25 metering scenario, then. The customer can -- on  
26 average, a total -- the customer will use a total

1 amount of energy from you, but in some scenarios  
2 they will actually be selling back power to you, so  
3 this is actually called net metering?

4 A MR. MORRISON: No, I am going to let  
5 Mr. Osler add, if he wishes to here, but I think  
6 just to be, again, very clear what we are talking  
7 about is, initially, the mine intends to provide  
8 all of its energy requirements by diesel, and so  
9 they will have enough installed capacity there to  
10 be able to service their needs. Once they are  
11 connected to the grid, they will have a surplus of  
12 capacity out there, in addition to their emergency  
13 back-up requirements. What we are referring to  
14 here is, there is a need for YEC to examine that  
15 scenario and determine whether or not it might be  
16 in the system's interest, and our best interest,  
17 overall, to acquire that original capacity that  
18 they require to meet their own energy needs in some  
19 manner, whether that means buying those engines  
20 from them, or you know -- and actually that is  
21 probably the primary situation we are talking about  
22 here. So rather than them get rid of those engines  
23 by selling them to somebody, that we may buy them  
24 if there is, (a), an economic value there, and it  
25 is the best alternative that we have available to  
26 us. But we are not talking about net metering and

1       them selling us power, just to be very clear.

2   Q   Okay, I guess what you are trying to do is setting  
3       some guidelines for this negotiation.  Who will be  
4       providing the fiscal oversight for this?

5   A   Of our negotiations for a power purchase agreement,  
6       just to be clear?

7   Q   Yes.

8   A   Is that correct?

9   Q   Yes.

10  A   The Yukon Utilities Board.

11  Q   If Yukon Energy is going to take power from others,  
12       there must be a policy to ensure fair treatment of  
13       all potential providers, and a green power  
14       preference and an open call for proposals to  
15       provide power.  This is sort of seen as a private  
16       deal in some ways, and I guess in light of this  
17       answer, it is good that it is going before the YUB  
18       and I would expect that it is, that it will be.

19       You talk about the need to provide cheaper  
20       power to make mines competitive, but if they have  
21       to buy more expensive diesel power to sell cheaper  
22       power and justify the line, then it becomes a false  
23       economy.

24       Now, are First Nations development  
25       corporations to be excluded because of a lack of an  
26       IPP policy?

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1 A I am not sure what we are talking about here, to be  
2 very frank with you, because the question again has  
3 several aspects to it. But let me try to be clear  
4 about what I think we are talking about. We don't  
5 have an IPP policy, and that is clear for the  
6 record.

7       Again, as I said earlier, that doesn't  
8 preclude and doesn't mean that we would not look at  
9 IPP opportunities, that we have some particular  
10 bias to not having IPP projects go forward; we have  
11 none. If someone brought forward a project that --  
12 and we required the energy, and it made sense from  
13 a ratepayers perspective, even without a policy, we  
14 would do what the right thing to do is, and the  
15 responsible thing to do is, and we would look very  
16 extensively at that opportunity. Hopefully we can  
17 get ourselves to a point where we develop an IPP  
18 policy that, again, as you, I think, were alluding  
19 to, provides a consistent framework for opportunity  
20 for everyone. We have no interest in trying to  
21 bias anything that we do. You know, I think our  
22 bias tends to be open and transparent as best that  
23 we can. These are decisions that our Board, the  
24 Board of the Corporation and the YUB, I am sure  
25 will have a great deal of involvement in. We  
26 routinely discuss issues with First Nation

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1 development corporations of a wide ranging variety,  
2 based on our ongoing day-to-day business in the  
3 communities that we serve, certainly in the  
4 projects outlined in our Resource Plan. So I do  
5 not think there is any bias. I think clearly there  
6 is a misunderstanding that we are actually buying  
7 IPP type power from Minto, and, clearly, we are  
8 not, and I think that we need to look at exactly  
9 what we are doing, and then make decisions from  
10 there. But I hope -- I have tried to answer your  
11 question, I hope that is --

12 Q So YCS is urging Yukon Energy to create an IPP  
13 policy as part of their 20-year plan, and we would  
14 urge that IPPs are renewable.

15 Now, next section here is related to  
16 greenhouse gas emissions.

17 THE CHAIR: Mr. Pinard, I note that  
18 we are at a time that we had mentioned that we  
19 would break for lunch.

20 MR. PINARD: I don't have much left.

21 THE CHAIR: Can you give me an  
22 estimate of actually how much time you do have  
23 left?

24 MR. PINARD: Ten minutes at the  
25 most.

26 THE CHAIR: Then please proceed.



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1       there was no longer the need for an incentive  
2       program. The rate does it on its own.

3   Q   Apparently the Chicago Mercantile Exchange trades  
4       CO2 emissions credit. Is it imprudent not to even  
5       explore the possibility of selling credits that  
6       might accrue, for example, taking Pelly off of  
7       diesel, or that is presently accruing from the  
8       Dawson City generators?

9   A   MR. MORRISON:                   Well, I am not  
10       particularly aware that the Chicago Mercantile  
11       Exchange trades emissions credits. I am aware that  
12       there may be some discussion of emission trading  
13       out there, and my knowledge of the system, I am no  
14       expert, but I would say to you that if we thought  
15       there was an opportunity to trade some emissions  
16       credits, that we would look at it. I am not  
17       suggesting to you that we are doing that, but I am  
18       suggesting that if we thought there was a viable  
19       market out there, that we would certainly look at  
20       it.

21   Q   So should not the 20-year plan look at using hydro  
22       to reduce fossil fuel demand in other sectors like  
23       home heating?

24   A   I am not sure quite how to answer that, in the  
25       sense -- and the reason I say this is,  
26       particularly, if you look at the amount of surplus

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1 available, and what we have done, I think, to  
2 attempt to market that surplus, home heating is a  
3 very costly, very expensive alternative, if you  
4 operate on the premise that you would have to make  
5 -- if we come back to your premise of consistency  
6 and fairness that you have talked -- that you  
7 talked about earlier, how do we address the  
8 availability of hydro to provide electrical heat  
9 services within every house, within every business,  
10 in the Territory. I am not sure that that is why  
11 we created the hydro projects. I would say to you,  
12 as well, that the development of new hydro is  
13 expensive. And I have not done the economics, but  
14 I can tell you, on the back of the envelope  
15 question, building new capacity to provide home  
16 heat sounds to me like a very expensive  
17 proposition, but maybe Cam would like to address it  
18 as well.

19 A MR. OSLER: Basically, when we did  
20 it in 1992, the issue was how to make sure people  
21 did not use electricity in Whitehorse and Yukon for  
22 home heating, because we had diesel on the margin,  
23 and it simply did not make sense to take a fossil  
24 fuel, put it through an electric generator and send  
25 it to a home in order to displace fossil there.  
26 The surplus, secondly, would not last all that long

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1 from the point of view of trying to gear up a  
2 retail program with home heating. Secondary sales  
3 is as far as we have gone and that is only for  
4 commercial, because we know that the time period  
5 for the surplus has got limits to it and a great  
6 deal of uncertainty. It will vanish at some point  
7 within the next 20 years, probably within 15, but  
8 it may vanish a lot sooner. And if you are going  
9 to go to new resources, be they hydro or diesel, it  
10 probably doesn't make sense to try to develop what  
11 you are talking about. That should not be your  
12 primary approach to displacing use of fossil fuel  
13 in the home heating market, without commenting on  
14 what other approaches may exist to do that.

15 Similarly with the transportation sector,  
16 despite electric cars or hydrogen issues, if you  
17 want to go there, it is a much bigger problem than  
18 Yukon could address in a 20-year plan here.

19 Q This is just my closing statement.

20 What YCS is suggesting is that Yukon Energy  
21 should be cooperating with partners to look at new  
22 options, and we are talking partners like YECL, The  
23 City of Whitehorse, the Energy Solution Centre and  
24 EMR, and YCS and other interest groups. And in  
25 this cooperation, I am sure there would be  
26 solutions that would come out of such a

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1 cooperation, solutions that you have not thought of  
2 here, and this would help in developing your  
3 20-year plan.

4 I do not think we can have this 20-year plan  
5 all laid out right here before the Board, in this  
6 next month or so, but I think it should be done  
7 over the next couple of years as a part of a  
8 20-year plan, to meet the growing energy demand.  
9 Because, as are you aware, eventually you will be  
10 using diesel in the end and you will have to look  
11 at options to increase your hydro capacity, but if  
12 you can avoid that by doing things like demand side  
13 management or taking advantage of any new hydro  
14 development to meet greenhouse gas emissions, to  
15 avoid things like the home heating, is one sector.  
16 But, please consider taking advantage of  
17 cooperation with other groups that I have  
18 mentioned. Thank you.

19 THE CHAIR: Mr. Landry, do you have  
20 any comments?

21 MR. LANDRY: No comments.

22 THE CHAIR: We will take a break  
23 now and we will meet back after lunch around 1:45.

24 (Proceedings adjourned at 12:15 p.m)

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