YUKON UTILITIES BOARD
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May 31, 2007

Honourable Marian Horne
Minister of Justice
Government of Yukon
Box 2703
Whitehorse, Yukon Y1A 2C6

Dear Hon. Ms. Horne:

Re Report on Application by Yukon Energy Corporation for an Energy Project Certificate and an Energy Operation Certificate regarding the proposed Carmacks-Stewart Transmission Project

The Yukon Utilities Board herewith presents its recommendations regarding its recent hearing into the above-noted application. This proceeding was undertaken in response to direction from the Minister, dated April 2, 2007.

For your reference, the Board was comprised of the following members:
Wendy Shanks, Chair
Malcolm Florence, Vice Chair
Richard Hancock
Jody Woodland

The Board trusts that you will find its recommendations adequately detailed with respect to this review of the application.

Sincerely,

DMLemke

per: Wendy Shanks
Chair

Attach (1)

c. All Parties

Yukon Utilities Board

Report to Yukon Minister of Justice

Yukon Energy Corporation Application for an Energy Project Certificate and Energy Operation Certificate regarding the Proposed Carmacks-Stewart Transmission Project

May 31, 2007

Introduction

On April 2, 2007, the Yukon Energy Corporation (YEC) submitted an application to the Government of Yukon for an Energy Project Certificate and an Energy Operation Certificate for the Carmacks-Stewart Transmission Project (CSTP), which was designated as a “regulated project” pursuant to Order-in-Council 2007/51. The application is made pursuant to Part 3 of the *Public Utilities Act* (PUA).

The Minister of Justice for the Government of Yukon referred this application to the Yukon Utilities Board (YUB or Board) for a review and hearing pursuant to Part 3 of the PUA. The letter included the Terms of Reference for the review which, along with setting out the purpose and scope of the review, required the YUB to submit its report and recommendations to the Minister of Justice by no later than May 31, 2007.

The application describes the proposed CSTP as a new 138 kV transmission line, approximately 172 km between Carmacks and Stewart Crossing that will connect the 138 kV Whitehorse-Aishihik-Faro (WAF) grid and the 69 kV Mayo-Dawson (MD) grid. In addition, new transmission substations in Carmacks and Pelly Crossing, and an expansion of the Stewart Crossing substation are proposed.

The CSTP is proposed to take place in two stages. Stage One involves constructing a new 138 kV transmission line of approximately 98 km from Carmacks to Pelly Crossing, and includes construction of new substations at these locations. Stage One is proposed to be developed in conjunction with a 25 kV to 35 kV transmission line to connect Stage One in the Minto Landing area to the Minto Explorations Ltd. (Minto) copper-gold mine (Mine). YEC proposes an in-service date in the third quarter of 2008, with construction starting in fall 2007.

Stage Two involves constructing a 138 kV transmission line from Pelly Crossing to Stewart Crossing and expansion of the existing substation at Stewart Crossing. Stage Two is expected to be developed in conjunction with a 138 kV transmission to connect Stage Two in the McGregor Creek area to a copper mine proposed by Western Copper Corporation. For Stage Two, YEC assumed an in-service date of fall 2009 in its application.

Section 3 of the Terms of Reference stated:

> 3. It is recognized that the Board currently has a procedure in place for the review and adjudication of the PPA [Power Purchase Agreement between YEC and Minto]. The Board shall endeavour to integrate, where feasible and relevant, the review and hearing on the CSTP with the review and adjudication of YEC’s PPA application.

On April 3, 2007, the Board issued a letter in which it stated that it would continue processing YEC's PPA application and issue a decision as soon as practicable, to allow the Board's finding on the PPA to be considered in the Part 3 review and hearing in relation to their impact on the CSTP. On April 30, 2007, the YUB issued Board Order 2007-5, which denied the PPA as applied for. The Board stated that in order to approve the PPA, certain changes were required, and the Board set a deadline by which YEC was to file a revised PPA. On May 14, 2007, YEC filed a revised PPA with the Board. Board Order 2007-6 was issued on May 25, 2007, which approved the revised PPA on the basis that it met the intent of Board Order 2007-5.

Section 5 of the Terms of Reference set out the specific aspects of the CSTP to be reviewed by the Board:

> 5. The YUB shall report on and make recommendations about the necessity for the CSTP and its timing and design, with particular regard to
>
> a. The public need for the project under various reasonable electric load forecasts, including requirements related to both the Minto Mine and to other potential major industrial customers;
>
> b. The capability of existing transmission and generation facilities to provide reliable electric power generation to meet the forecast load requirements, taking into account the new planning criteria as proposed by the YEC and recommended by the YUB. In particular, the YUB shall report on
>
> i. The implications of the relationship between Stage One of the CSTP and the need for and timing of the Aishihik 3rd turbine,
> ii. The implications of the relationship between Stage One of the CSTP and the need for and timing of Stage Two of the CSTP, and
> iii. The implications of the on-going use of diesel generation at Minto and other locations that could receive grid service from Stage One of the CSTP;
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> c. The risks facing the CSTP including, but not limited to, those arising from
>
> i. Changes to general economic, market, or financial conditions,
> ii. Potential modifications to design or schedule resulting from environmental and socio-economic review and regulatory approvals,
> iii. The timelines contained in Part 3 of the PPA, and
> iv. Bankruptcy or other failure of the Minto Mine;

d. What, if any, alternatives to the CSTP might be advisable given reasonable load assumptions and risk assessments. In particular, the YUB shall report on

i. Possible alternative configurations for the timing and structure of the two-stage approach proposed by YEC, and

ii. If it is prudent to extend the line from Minto to Pelly Crossing at this time.

Based on the Terms of Reference, the Board established a process for the Part 3 review and hearing. A hearing was scheduled to commence May 15, 2007, and a Notice of Hearing was published in the *Whitehorse Star* and *Yukon News* on April 11, 2007.

The oral hearing took place in Whitehorse on May 15 and 16, 2007. Oral argument and reply was presented on May 16, 2007. Registered Intervenors were Utilities Consumers' Group (UCG), Yukon Conservation Society, Peter Percival, Yukon Electrical Company Ltd. (YECL), and Yukon Sustainable Energy Association. Registered Observers were John Maissan, Gary McRobb, Val Mather (Yukon Department of Energy, Mines and Resources), Lawrie Crawford, Paul Kishchuk and Samson Hartland.

All Intervenors were provided the opportunity to make Information Requests, file evidence, cross-examine the YEC witnesses, and provide final argument and reply. Time was set aside on May 16, 2007, to allow Registered Observers and the public to make presentations to the Board.

Public Need for the CSTP

Section 5(a) of the Terms of Reference requested the YUB to consider the public need for the project. In Argument, counsel for YEC summarized the benefits of the CSTP:

> Now, in terms of the benefits…not only will Stage One materially utilize surplus hydro, it will not adversely affect the current WAF system's ability to service non-industrial loads. And as I have indicated a couple of times, and as you have heard in evidence, it will significantly reduce the amount of diesel generated in the Yukon by approximately 34 gigawatt hours, a very substantial amount. And as reviewed even as late as today by the YEC witnesses, benefits arising from the project also include tax and royalties for government, and employment and other business opportunities for local business.[1]

[1] Carmacks-Stewart Transmission Project Part 3 Review Transcript Volume 3, page 222, lines 3-17 inclusive.

The benefits of providing service to the Minto Mine in Stage One were set out in the application, the IR process and in the oral hearing. An example of the evidence to describe the benefits of the project is:

> The sooner that Stage 1 of this project (as well as the Mine Spur) is built, and delivery of grid power to the Minto Mine commences, the sooner (and longer) ratepayers can start to capture the benefits of these new firm sales of surplus WAF hydro generation over the limited life of this mine[2].

Schedule 1 (Application, page 7) shows a net benefit to Yukon ratepayers of $8.38 million under the high construction cost scenario. This benefit was derived from utilizing what was recognized as surplus hydro generation from the WAF system "over the next 12 years under expected non-industrial load growth"[3]. Through the use of the surplus hydro, an opportunity occurs that enables Stage One of the CSTP to move forward and connect the Minto Mine and Pelly Crossing to grid electricity[4].

YEC described further benefits as:

> If developed as currently planned, the Project [CSTP] will enable the Minto Mine to access current surplus grid power rather than rely on diesel generation. This will benefit all Yukon ratepayers, Minto Mine, governments and others. The line will allow Pelly Crossing, a community relying on diesel generation, to have access to grid power. Connecting the two existing power grids will provide long-term benefits, encourage economic development along the corridor, and enhance overall system reliability and flexibility[5].
>
> At a simple level, the project will bring $3 to $4 million in additional revenues with absolutely no capital costs and insignificant operating costs. From a regulatory perspective, in my experience, I have never seen such an opportunity. From a ratepayers' perspective, it is understated to say it is an incredible opportunity that should not be missed.[6]
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> ... not only will Stage One materially utilize surplus hydro, it will not adversely affect the current WAF system's ability to service non-industrial loads.[7]

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[2] Application, page 6.
[3] Application, page 12.
[4] Through grid connection diesel generation is displaced, reducing CO_2 emissions by about 24,100 tonnes/year, avoiding consumption of approximately 8-9 million litres of diesel.
[5] Application, Attachment A, page 1.
[6] Transcript Vol. 3, page 219, lines 18-26 inclusive.
[7] Transcript Vol. 3, page 222, lines 5-8 inclusive.

With respect to longer term benefits, YEC was not aware of other potential mine loads (other than Carmacks Copper) likely to connect in the short term but did recognize that there are known mining resources in the area that could be mined in the future.[8]

The above encapsulates the impact of the project in relation to the load forecasts reviewed in the 20-Year Resource Plan. This project fits within the load forecasts reviewed in the 20-Year Resource Plan. YEC stated that non-industrial load forecasts have a negligible effect on any of the projects or actions proposed in the plan[9]. This recognizes that industrial size loads, within the planning horizon, are the key component in determining the need for future infrastructure.

The Board is cognizant of the risks within this type of forecast and yet sees benefits to all ratepayers when infrastructure is constructed for industrial development[10]. The report went on to recommend that YEC "make a filing with the Board when new facilities are required to meet these increased loads. Within the filing, YEC should outline the risk of proceeding, the benefits to existing ratepayers, and sensitivities to existing ratepayers if the economic life is shorter than forecast."[11]

UCG, in its argument, was in conceptual agreement with the overall CSTP, but without further information, was not fully endorsing the CSTP.

Mr. Percival supported the need for Stage One of the CSTP. Mr. Percival's position was that assuming the mine is successful, there will be both short-term and long-term benefits to Yukon ratepayers.

Recommendations of the Board

The Board finds that YEC has followed the recommendation of the YUB in the YEC 20-Year Resource Plan Report with respect to the filing requirements for new facilities. Within its submissions YEC has outlined the risks of proceeding, benefits and potential costs to ratepayers, and economic life sensitivities. YEC has demonstrated public benefits under its baseload and baseload with mines load scenarios for this project. For this section of the report, the CSTP meets the requirements related to Minto[12], provides opportunity for other potential major industrial customers[13] and falls within reasonable electric load forecasts[14]. Therefore, the Board is satisfied that YEC has established the public need for the CSTP.

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[8] YUB-YEC-1-2.
[9] YUB Report to Commissioner in Executive Council re YEC 20-Year Resource Plan – Jan. 15/07, page 4.
[10] YUB Report to Commissioner in Executive Council re YEC 20-Year Resource Plan – Jan. 15/07, page 7.
[11] Ibid, pages 7-8.
[12] YUB-YEC-1-5 The response to this IR gives an order of magnitude of the benefit to Minto as calculated by YEC.
[13] Application, Attachment A, page 1.
[14] YUB Report to Commissioner in Executive Council re YEC 20-Year Resource Plan – Jan. 15/07, page 7. On page 7 the Board stated "The Board recognizes the efforts of YEC in investigating future potential industrial loads and the planning guidelines it follows when assessing these potential developments and agrees with the balanced approach that YEC utilizes.

Capability of Existing Transmission and Generation Facilities

Section 5(b) of the Terms of Reference requested the YUB to consider the capability of existing transmission and generation facilities to provide reliable electric power generation to meet forecast load requirements. In this section, the Board will consider the need for and timing of the Aishihik third turbine and Stage Two of the CSTP, along with use of diesel generation.

Without the CSTP, YEC cannot serve the Minto Mine load, could not serve a potential Carmacks Copper load, nor would the future ability to connect the two electricity grids (WAF-MD) and reap the operational benefits from that connection occur. Although there is surplus hydro on both the WAF and MD grid to contribute to the incremental mine loads, there is no current transmission infrastructure in place to serve potential loads along the corridor between the two grids. Conversely, to construct a 35 kV line from Carmacks to serve the Minto Mine does not enable the serving of further incremental mine loads, does not displace the diesel at Pelly Crossing and does not facilitate the operational benefits of connecting the two grids.

Aishihik Third Turbine

In the January 15, 2007, YUB YEC 20-Year Resource Plan, the Board made the following recommendation:

> The Board's analysis in Sections 4 and 5 above, which was conducted assuming the base-case load forecast, has shown that YEC's proposed expansion plan would be more economic than the alternative plan provided that the Aishihik third turbine is installed in 2013. It should be noted, however, that the addition of the third turbine under YEC's plan is not a capacity requirement determined by the planning criteria, but rather a requirement driven strictly by economic reasons, namely to offset future diesel generation that is expected to increase under the base-case load forecast. However, should the actual loads turn out higher or lower than the loads under the base-case forecast, the optimal timing of the third turbine would move earlier or later than 2013. Therefore, to minimize the uncertainty around timing of the third turbine, the final decision to proceed with this project should be made closer to the date when economic reasons indicate that the turbine is needed. Therefore, the Board recommends that this project not proceed until that time unless YEC can justify an earlier in-service date.[15]

[15] Ibid, page 30.

In the application YEC stated:

> On March 30, 2007, Canada announced $5 million funding for the Yukon as part of a trust fund set up to help reduce greenhouse gas emissions and air pollutants, and the Yukon Government announced that the funds will be used for the Aishihik third turbine project. These new government funds will allow this project to proceed on an accelerated basis to provide net ratepayer benefits without waiting until new mine connection arrangements are confirmed.[16]

In argument, YEC summarized the testimony and position of YEC regarding timing for the Aishihik third turbine:

> The issues surrounding timing, that we had before the announcement of the government funding under the eco-trust for the Aishihik third turbine, have now basically been, to a certain extent, set aside. The funding will allow, in Yukon Energy's submission, and in the evidence that you had presented before you, allow the project to proceed basically as soon as reasonably possible. That's what the numbers are showing in the numbers that Mr. Osler reviewed earlier today.[17]

The YECL position on the Aishihik third turbine was that industrial loads were not to be included in the LOLE (loss of load expectation) calculations, no generation was to be planned for industrial loads, and any incremental costs to serve the industrial loads were to be charged to those industrial customers. Hence, fuel savings for industrial customers should not be included in the benefit calculations of diesel displacement and therefore fuel savings would be minimal.

Mr. Percival supported recommending that the Aishihik third turbine proceed on the basis that it would increase security of supply and displace diesel.

Recommendations of the Board

If Stage One of the CSTP were to go forward, then by implication, there is an accelerated need for the third turbine at Aishihik. The Board accepts the submissions that on an opportunity basis for diesel displacement, with connection of new mine loads, there is economic justification to accelerate the construction of the Aishihik third turbine. This view and recommendation is consistent with the view expressed by the Board in its YEC 20-Year Resource Plan Report. However, the Board recommends that any government funding for the Aishihik third turbine be applied directly to rate base before consideration of any cost overruns or potential disallowances from the Board.

[16] Application, page 15.
[17] Transcript Vol. 3, Page 227, lines 10-19 inclusive.

Stage Two of the CSTP

In the YEC 20-Year Resource Plan Report regarding Stage Two, the Board stated:

> ...[T]he Board concurs with YEC's strategy not to pursue this project unless there is a firm commitment to connect the Carmacks Copper Mine, if and when this mine is built, and under the same condition that ratepayers would not be adversely affected.[18]

Since that recommendation, YEC included this update in its application:

> Stage Two development of the CSTP is currently expected in conjunction with Yukon Government funding and added power loads and capital contributions from other new mine developments in the CSTP area. Schedule 1 cost estimates assume potential in-service of Stage Two by the fall of 2009. The Yukon Government has committed to provide new funding for Stage Two of the CSTP, and to work with industry to ensure that the funding will enable Stage Two to be committed without any cost to other ratepayers.[19]

YECL, in its argument quoted from YEC's March 13, 2007, letter to the Board with respect to the Part 3 designation of the Carmacks-Stewart Transmission Line:

> The Board's January 15th, 2007 report on the resource plan addressed the Carmacks-Stewart project by stage and recommended that Stage Two only proceed after YEC has a firm commitment to connect the Carmacks copper Mine, which implies a power purchase agreement as well, and then comes back to the Board for a review of specific proposals to develop Stage Two. YEC is currently not in a position to proceed with Stage Two as recommended by the YUB.[20]

Based on the above, YECL said it was premature for the Board to recommend either Energy Project or the Energy Operation Certificates for Stage Two of the CSTP.

Mr. Percival agreed with YECL in that certificates for Stage Two should not be granted at this time.

UCG, in its argument, was in conceptual agreement with the overall CSTP, but without further information, were not fully endorsing either stage of the CSTP.

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[18] YUB Report to Commissioner in Executive Council re YEC 20-Year Resource Plan – Jan. 15/07, page 32

[19] Application, page 6.

[20] Transcript Vol. 3, page 248, lines 5-14 inclusive.

Recommendations of the Board

The Board's view is the same as that expressed in the YEC 20-Year Resource Plan Report, that is, YEC should not pursue Stage Two of the CSTP unless there is a firm commitment to connect a new mine load, and under the condition that ratepayers would not be adversely affected.

Although the project was identified in the 20-Year Resource Plan, insufficient information has been provided with respect to this stage. The conditions for the Board's recommendation from the January 15, 2007, report have not been met. Based on YEC's evidence[21] and the commitment from the Government of Yukon, the Board considers that an additional condition should be added — that being, Stage Two should only be committed without any adverse impacts to other ratepayers.

The Board recommends that Energy Project and Energy Operation Certificates not be issued for Stage Two until such time as the above two conditions are met (there is a firm commitment to connect a major industrial load such as the Carmacks Copper Mine and there will be no adverse impacts to other ratepayers). When the conditions are met, the Board recommends that a joint Part 3 and PPA process take place. As there is some overlap of issues between a Part 3 and a PPA proceeding, the Board considers that a joint process would be more efficient. Further, the Board recommends that in the future, more time be provided for this process. This could also allow for the possibility of a written proceeding, which should be less costly.

Diesel Generation

YEC stated that by proceeding with the CSTP there would be reductions in diesel generation (Minto Mine and Pelly Crossing) of 34 gigawatt hours.[22]

YEC pointed out further saving by having diesels located at the mine, which would result in less energy lost through line losses. YEC noted in response to YUB-YEC-1-1 that through Stage One of the CSTP project, CO_2 emissions would be reduced by approximately 24,100 tonnes/year by reducing diesel consumption by up to 9 million litres/year. The reductions noted are greater than the currently generated CO_2 emission totals by both YECL and YEC.

The submissions by YEC on diesel generation and CO_2 emissions were neither refuted nor contended by any party to the proceeding.

[21] Application, page 6

[22] Application, page 11, footnotes 15 and 16.

Recommendations of the Board

The Board accepts the evidence presented by YEC with respect to reductions in CO_2 emissions as a result of proceeding with Stage One of the CSTP. Based on this evidence, the Board concurs that from a diesel displacement and CO_2 emission reduction perspective, Stage One of the CSTP is beneficial.

Risks Facing the CSTP

Section 5(c) of the Terms of Reference requested the Board consider the risks facing the CSTP.

In its application, YEC specifically addressed risks in section 4.2. The revised PPA, approved by the YUB in Board Order 2007-6, dated May 25, 2007, has subsequently reduced some of these risks.

YEC identified the key risks in its application, which the Board has summarized below. Risks were also addressed in certain Information Requests and were discussed at the hearing.

YEC stated that there were schedule risks related to YUB and Yukon Environmental and Socio-economic Assessment Board (YESAB) approvals and obtaining an agreement with the Northern Tutchone First Nations and indicated that it had taken comprehensive measures to manage and mitigate these risks and to protect ratepayers. There were also uncertain ratepayer benefits from Stage Two[23].

YEC indicated that there were capital cost escalation risks and that it had provided a range of estimates and had addressed the uncertainty to the extent feasible prior to completion of final design and costing, and potentially prior to completion of actual tendering[24].

YEC indicated that it did not anticipate material risks of major design modifications resulting from regulatory processes, including the YESAB review, and that the major risk was schedule delays that could adversely impact project costs and benefits[25]. YEC indicated that the preliminary YESAB report was expected shortly[26] and that the final YESAB report was expected two to four weeks after the July 31, 2007, date for the YESAB final report recommendations that had been indicated in section 3.2 of the application.[27]

YEC indicated that under the PPA, some degree of risk remains under certain extreme scenarios where the mine permanently closes prematurely in its initial years of operation and Minto defaults on the YEC security. YEC indicated that net revenue

[23] Application, pages 15 and 16.
[24] Application, page 16
[25] Application, page 16
[26] Transcript, page 78
[27] UCG-YEC 1-19

collected prior to any such closure acts to protect ratepayers. YEC also indicated that the Government of Yukon's funding commitment to Stage One of the CSTP acts to further reduce ratepayer risk. However, a risk remained relating to YEC's financing of the Minto capital cost contribution for the mine spur and for the contribution to the line itself.[28] (As discussed below, this risk has been eliminated by subsequent government guarantees.)

In regard to the risk associated with financing the contribution to the mine spur, YEC indicated that this was offset by its purchase of the Mine diesel units on similar payment terms to that for the mine spur contribution[29].

YEC indicated that the Firm Mine rate set out in the PPA met the test of the requirement to at least cover the cost of service. In the extreme event of a default by Minto, YEC's claims for power supplied and for capital contributions will, under *Miners Lien Act* rights, have priority to the current bank financing[30].

YEC indicated that risks relating to Stage Two are assumed to be addressed by government funding for Stage Two[31].

Generally, regarding risks, in UCG-YEC-1-19, YEC stated: "YEC's work plan also has a number of decision points (milestones) in the CSTP work plan where it evaluates whether it is prudent to proceed with the next step(s) of the CSTP project. These timely decision points facilitate YEC's management of project risk."

In UCG-YEC-1-25, YEC submitted that "Based on the Resource Plan Hearing, the YUB's resulting recommendations isolated one outstanding issue before the Board could make 'a firm recommendation' to proceed with Stage One of the CSTP (i.e. negotiation and approval of PPA with Minto).... The PPA application and hearing has addressed the one outstanding issue identified by the Board with regard to Stage One of the CSTP. The new funding commitment by YTG of up to $10 million to Stage One has provided further support for the economic and financial feasibility of the Stage One CSTP".

In YUB-YEC-1-7, YEC submitted that "If the mine closes permanently in year one, this net (net of net revenues received during operation) amount at risk ranges from $8.1 million to $12.2 million; if it permanently closes in year two, this net amount at risk is reduced to between $5.2 million and $9.5 million." It is not possible to quantify this risk, but the Board understands that this is a low risk and that this is not a scenario that is expected to occur.

In its opening statement, YEC submitted that all of the projected capital costs of $22.6 million (mid-case estimate) were now projected to be paid by parties other than residential and commercial ratepayers. YEC submitted that ratepayers would then

[28] Application, pages 16 and 17
[29] Application, page 18
[30] Application, page 18
[31] Application, page 18

benefit through the [$12] million minimum take-or-pay payments by Minto as well as from $2.46 million present value cost savings from displacing diesel generation at Pelly Crossing[32].

YEC submitted that given the revised PPA, Stage One will result in significant near-term benefits without the threat or risk of any material new long-term asset cost burdens. YEC submitted that in effect, all material risks are now borne by either Minto or the Yukon Development Corporation (YDC)[33]. In the hearing, YEC stated that risks were balanced against benefits[34], and that the new PPA also addressed fuel price risk[35].

Key points of YEC's testimony at the hearing related to risks are as follows:

- The fixed rate formula for the first four years alleviated the risk to ratepayers since the rate paid by Minto could otherwise have been reduced based on costs (Transcript, page 136)
- Any risk of costs to ratepayers associated with higher-than-expected capital costs were miniscule in relation the net revenue benefits to be received (Transcript, page 200)
- Costs in excess of $22.6 million might be borne by ratepayers (Transcript, page 202)
- Having Minto as a customer creates an opportunity to have needed infrastructure paid for by industrial customers to the long-term benefit of all ratepayers (Transcript, page 211)
- At a simple level, the project will bring $3- to $4 million in additional revenues with absolutely no capital costs and insignificant operating costs (Transcript, page 219)

YEC also emphasized that in the YEC 20-Year Resource Plan Report, the Board indicated that it was convinced that Stage One of the CSTP would result in net benefits to ratepayers. With regard to Stage Two, YEC stated that Stage Two would not be developed unless YEC can establish that no adverse impacts to ratepayers are expected.

In argument, Mr. Percival submitted that the capital funding and guarantees provided by the government came at a risk to Yukon taxpayers. Mr. Percival submitted: "Nevertheless, if the mine is successful, and as by all appearances it should be, there will be both short and long-term benefits to all ratepayers and taxpayers; therefore, providing a subsidy to a winner is far superior to providing a subsidy to a loser".[36]

UCG argued that there was not enough information regarding costs and risks to recommend that the project should stop or proceed, although UCG did indicate it supports the concept behind the CSTP. UCG submitted that the Board should consider

[32] YEC Opening Statement, Exhibit B-6, page 4. The Board assumes that reference to $24 million should have read $12 million.
[33] YEC Opening Statement, Exhibit B-6, page 8
[34] Transcript, page 37
[35] Transcript, page 48
[36] Transcript, pages 251-252.

that Government of Yukon contributions reduce ratepayer risk but come at a cost to taxpayers. UCG also indicated that the Board should consider that YDC's use of funds on this project could deplete funds available to ratepayers under other programs, which could be discontinued.[37]

Recommendations of the Board

In the Board's January 15, 2007, YEC 20-Year Resource Plan Report, the Board stated at page 46 that it was convinced that the line would result in net benefits to ratepayers. The Board understands that if the Mine closes prematurely in year one or two, then net benefits to customers might not occur. However, the evidence clearly establishes an expectation that there will be net benefits to ratepayers.

The increased level of Government of Yukon funding that was detailed in the April 2, 2007, application as well as the government guarantees described in YEC's May 14, 2007, letter regarding the revised PPA have substantially reduced, although not completely eliminated, risks to ratepayers. It is not possible to quantify this remaining risk, but the Board understands that this is a low risk and that this is not a scenario that is expected to occur.

In the Board's view, the evidence indicates that with the increased funding and guarantees, there is no reasonable expectation of risk to ratepayers, assuming that capital costs are not substantially more than the high end of existing estimates — in which case YEC may decide not to proceed.

The Board considers that in the extreme scenario of a closure of the mine prior to two years of being connected to the grid, there is a risk that ratepayers could face increased rates. However, the possibility of this risk does not amount to an expectation. In the Board's view there are long-term benefits to ratepayers associated with the probable eventual connection of the two grid areas and the displacement of diesel. The probable short- and long-term benefits clearly outweigh the small probability for adverse rate impacts. In the Board's view, it is reasonable for customers to bear this risk in return for the benefits that the project is expected to provide.

The Board notes that final agreement does not appear to have been reached with the Northern Tutchone First Nations and that only a memorandum of understanding is in place. The Board expects that YEC will ensure that this agreement is in place before it would proceed with the line, as this could impact the overall costs for the project.

The Board recommends that the Minister direct YEC to consult with the Minister before making any decision to proceed if the tendering process results in a capital cost that is materially above the high end of YEC's estimate of $25.9 million or if schedule delays result in the in-service date slipping beyond the end of 2008.

[37] Transcript, pages 253-254

The Board recommends that the Minister direct YEC to advise the Minister as to the status of the agreement with the Northern Tutchone First Nations before making any decision to proceed.

The Board recommends that the Minister direct YEC to consult with the Minister as to the status of the project and the impact on timing and financial viability of the project if the YESAB review is not completed by August 15, 2007.

Alternatives to the CSTP

In this section, the Board addresses item 5(d) of the Terms of Reference regarding alternative configurations to the CSTP.

The only alternative discussed for providing service to the Minto Mine was to use a 35 kV dedicated mine spur from Carmacks to the mine.

In UCG-YEC-1-41, YEC indicated that if a dedicated mine spur from Carmacks were considered, then a PPA would have to be negotiated on that basis (with potentially a higher contribution due to the more dedicated nature of the line) and Minto could not then be connected on a timely basis. YEC indicated that if a 35 kV line were built it would still be preferable to connect Pelly Crossing rather than build it as a dedicated mine spur.

In YECL-YEC-1-4, YEC addressed the costs of connecting Minto to Pelly Crossing and the alternative of using 35 kV, rather than 138 kV. Using 35 kV, the cost was estimated at $3 million with the NPV of diesel fuel savings of $2.3 million. The cost of a 138 kV connection was estimated to be $5.7 million. But it was noted that connecting Pelly Crossing was requited as part of the agreement with the Northern Tutchone First Nations. The 138 kV solution was recommended because it was necessary in order to contribute to the eventual connection of the two grid areas. YEC noted that, given the contributions from the government, there was no cost to ratepayers associated with the connection to Pelly Crossing and that ratepayers would benefit from the diesel savings.

At page 233 of Transcript, YEC indicated that the 35 kV option had been considered in the YEC 20-Year Resource Plan but given the existence of a PPA associated with the 138 kV option, the government funding, and the timelines, a 35 kV option was no longer a real alternative. UCG submitted that the Board should still consider this option.

Recommendations of the Board

The Board notes that there was little support for the 35 kV alternative. In the Board's view the 35 kV option is not attractive because of its inability to contribute to a future connection of the two grids. In addition, switching to this alternative at this time would require a new PPA and would delay the schedule and result in lost revenue as the Mine would remain on diesel for a longer time period. The Board also notes that the PPA, as well as the agreement with Northern Tutchone First Nations, was negotiated based on the proposed 138 kV option. The Board recommends that no further consideration be given to the 35 kV alternative.

The Board recommends that, in light of the government funding, the YDC guarantees and the contributions to the CSTP by Minto, it is prudent to extend the line to Pelly Crossing at this time.

Other Matters

LOLE Planning Criteria

During argument, YECL brought forward the issue of the planning criteria (LOLE and N-1). YECL questioned whether industrial load is to be included in LOLE calculations. This matter had previously been raised and discussed in the PPA proceeding as well; however, YECL and YEC appear to have outstanding concerns in this regard. Therefore, the Board will comment on this matter again.

In reply, YEC stated that "LOLE is only for capacity planning, not energy planning".[38]

The LOLE criterion was considered in the January 15, 2007, report:

> YEC indicated that new generating capacity will not be planned or added to the system for the purpose of ensuring reliable supply to major industrial loads. This has been properly captured in the definition of the N-1 criterion, which is addressed in more detail below, as the definition explicitly indicates "excluding major industrial loads." However, the definition of the LOLE criterion does not mention exclusion of major industrial loads explicitly and it appears that YEC included the major industrial loads in the calculations of LOLE under certain load forecast scenarios. If this is the case, the Board considers it to be an inconsistent approach, as inclusion of major industrial loads in the LOLE calculation will produce higher LOLE values, possibly above 2 hours per year, that would signal a need for new capacity. Therefore, the Board recommends that, in order to ensure that no new generating capacity is added for the purpose of ensuring reliable supply to major industrial customers and to ensure consistency with the N-1 criterion, major industrial loads should not be included in the LOLE calculation.[39]

In response to a request for clarification on this matter in the PPA proceeding, the Board, citing the above quote, stated on page 23 of Appendix A to YUB Board Order 2007-5 Reasons for Decision:

> The Board considers that the recommendation made in that Report speaks for itself and no further clarification is required.

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[38] Transcript Vol. 3, page 277, lines 9 & 10.
[39] YUB Report to Commissioner in Executive Council re YEC 20-Year Resource Plan – Jan. 15/07, page 10.

The Board has reviewed the YEC 20-Year Resource Plan Report and remains of the view that the Board's recommendation in that report is clear. The Board recognizes that its recommendations in the report are not binding on YEC, as the report was in response to direction from the Government of Yukon to provide recommendations. If YEC and YECL disagree as to what should be included in capacity adequacy indices, that issue could be brought forward to the Board in their next joint rate application.

Cost Overruns

YECL and UCG commented in argument that the report from Wardrop Engineering[40] which will provide preliminary cost estimates was not available at the time of the hearing, and therefore insufficient information was available to render an appropriate decision on the CSTP.

YEC countered in its reply that it is through the testing of the revenue requirement that the prudency of management decisions are determined. Thus, final costs, which would not be known until the project is completed, would be tested when the application to include the costs into rate base is made.

The Board agrees with the submissions of YEC. Based on the evidence available thus far, there is economic merit in proceeding with the project. However, if costs escalate substantially, YEC management will have to determine whether the project proceeds and at what point the project is no longer financially viable. Further, if YEC proceeds, it will have to demonstrate the prudence of the project and justify the costs it seeks to include in rate base. The recommendation that Energy Project and Energy Operation Certificates be granted does not guarantee that all costs will be allowed into rate base. YEC will have to justify its final business case on the project.

Project Reporting and Auditing

UCG referenced the Auditor General of Canada's report on the MD transmission project and recommended that a committee be formed to review the ongoing process for the CSTP and that audits be provided on the project. YEC opposed such proposals.

In the YEC 20-Year Resource Plan Report, the Board recommended that YEC adhere to all outstanding recommendations in the Auditor General's report and that for any future major project, YEC detail how it has adhered to the recommendations in that report. In light of that recommendation, the Board does not recommend that a special audit of the CSTP be undertaken. Nor does the Board agree that a committee should be formed to monitor the project, as a final justification of the project will occur when an application is received from YEC to include the project in rate base.

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[40] Transcript Vol. 3, pages 246-247.

Power Quality

YECL raised concerns about the effect of the mine load on the quality of power to other customers. The Board is of the view that YEC will ensure that YEC's final design specifications will meet industry standards for power quality.

Recommendations regarding Energy Project Certificate and Energy Operation Certificate

Based on the Board's findings and recommendations on the specific aspects of the project the YUB was directed to review under the Terms of Reference, the Board recommends that an Energy Project Certificate and Energy Operation Certificate be granted to YEC for Stage One of the CSTP.

In addition, the Board makes the following recommendations related to the certificates:

- That all contributions from Minto, or funding from YEC's parent (YDC) or any other government funding be applied directly to rate base before consideration of any cost overruns or potential disallowances from the Board.
- That the Minister direct YEC to advise the Minister as to the status of the agreement with the Northern Tutchone First Nations before making any decision to proceed, as this could impact the overall costs of the project.
- That YEC consult with the Minister before making any decision to proceed if the tendering process results in a capital cost for Stage One that is materially above the high end of YEC's estimate of $25.9 million, or if schedule delays result in the in-service date slipping beyond the end of 2008.

With regard to Stage Two of the CSTP, the Board recommends that certificates not be granted at this time. At such time as there is a firm commitment to connect a new mine load evidenced by a PPA and the condition that there be no adverse impact to ratepayers is satisfied, the Board recommends that a joint Part 3 and PPA process take place.