



**Alberta Electric System Operator
Needs Identification Document Application
Southwest Alberta 240-kV Transmission System
Development
Pincher Creek – Lethbridge Area**

September 7, 2004

ALBERTA ENERGY AND UTILITIES BOARD

Decision 2004-075: Alberta Electric System Operator
Needs Identification Document Application

Southwest Alberta 240-kV Transmission System Development
Pincher Creek – Lethbridge Area

Application No. 1340849

Published by

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ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

ALBERTA ELECTRIC SYSTEM OPERATOR NEEDS IDENTIFICATION DOCUMENT APPLICATION SOUTHWEST ALBERTA 240-kV TRANSMISSION SYSTEM DEVELOPMENT PINCHER CREEK – LETHBRIDGE AREA

Decision 2004-075
Application No. 1340849

1 INTRODUCTION

The Application

The Alberta Electric System Operator (AESO) filed Application No. 1340849 on April 5, 2004, requesting approval of the Needs Identification Document (NID) for 240-kV transmission system development in Southwestern Alberta (the SW Transmission System).

The proposed 240-kV development would be developed according to one of two options. Option 1 would consist of a double-circuit, 240-kV, both-sides-strung transmission line from Pincher Creek substation 396S to Peigan substation 59S and a double-circuit, one-side-strung transmission line from Peigan substation 59S to North Lethbridge substation 370S. All substations currently exist. Option 2 would consist of a double-circuit, 240-kV, both-sides-strung transmission line from Pincher Creek substation 396S to proposed Mud Lake substation 116S and a double-circuit, one-side-strung transmission line from proposed Mud Lake substation 116S to North Lethbridge substation 370S.

The second circuit from either Peigan substation or proposed Mud Lake substation 116S to North Lethbridge substation 370S would be strung when and if the proposed Waterton Wind Farm is commissioned.

2 DECISION

Following consideration of the evidence, the Board has decided to refer the application back to AESO pursuant to section 34 (3)(b) of the *Electric Utilities Act*. The Board recognizes that the issues raised in this proceeding are of significant importance to interested parties and has decided to issue its decision in this brief report to allow AESO to respond to the matters that the Board has set out later in this report in an expedient fashion. The Board will issue a further report giving more detailed reasons in due course.

Having regard for the evidence presented at the hearing, the Board believes that it is necessary for AESO to more fully assess and describe existing constraints on the SW Transmission System. Similarly, the Board believes that it is necessary for AESO to assess and describe the viable transmission upgrade alternatives available to address the existing constraint.

As such, the Board requests that AESO respond to the matters detailed below prior to the Board making a final determination on AESO's application. (Transmission Regulation AR 174/2004,

came into force on August 11, 2004, after the close of the hearing. Accordingly, the Board believes that there is an opportunity now for AESO to have specific regard for this newly enacted regulation in its proposal.)

I. AESO is requested to describe in detail the constraints affecting the operation and performance of the existing SW Transmission System.

The Board believes that it is necessary for AESO to further assess and describe the extent of the current constraint on the SW Transmission System under current conditions and with regard to the conditions that would exist should all currently approved and proposed generation come on line.¹ An indication of the level of constraint would be the level of congestion or the amount of curtailed energy (MWH/year) or the congestion that would be faced by the area generators absent a system expansion.

To determine the level of constraint of the area as it relates to power generation, AESO is requested to perform a “Congestion Analysis” for the SW Alberta Transmission System using the same methodology as that used in the 500-kV north-south transmission development application (ie: Figure 3-5 on page 26 of the North-South 500-kV Application 1346298). This analysis should be based on the 2006 forecast of hourly production data of the wind generators and loads in the area. The results should clearly indicate the percentage of time of congestion and/or the MWH of curtailed generation on an annual basis.

II. AESO is requested to evaluate alternative means by which the existing and reasonably anticipated constraint can be alleviated.

AESO is to address the adequacy of the existing system in view of the Transmission Development Policy (TDP) which states “The ISO will be required to ensure that the transmission system internal to Alberta is appropriately reinforced so that **under normal operating conditions** (i.e. all transmission facilities in service) all in-merit generation can be dispatched and virtually all economic wholesale transactions may be realized without congestion.”

The Board notes that the TDP states “transmission internal to Alberta should be reinforced so that **about 95%** of expected economic wholesale transactions can be realized **without transmission congestion**”.² The Board recognizes that the newly enacted Transmission Regulation provides similar guidance.³

It is the Board’s view that AESO’s proposed transmission solution in its NID was designed to meet 100% of all in-merit transmission under abnormal operating conditions (i.e. N-1 planning criteria).

As such, the Board requests that AESO take the following steps:

A. Development of Alternative Transmission Solution

- Develop a transmission alternative or alternatives that meet the 95 per cent target for expected economic wholesale transactions so they can be realized without

¹ As indicated in Table 3.2-1 on page 8 of the application.

² Transmission Development Policy, page 8.

³ Transmission Regulation, Section 8(1)(e).

transmission congestion under abnormal operating conditions. This analysis is to include cost estimates for construction of the alternative(s).

- Assess the resulting system performance with the development option or each development option, if there is more than one possible option.
- For each development option, determine the generation constraint based on the 2006 forecast of hourly production data of wind generators and loads in the area. The results should clearly indicate the percentage of time of congestion and/or the MWH of curtailed generation on an annual basis.
- If more than one alternative is presented, AESO is to indicate and explain its preference among the development options.

B. Comparison of Alternative Transmission Solution With AESO Proposed Transmission Solution

- AESO is requested to prepare a comparative analysis of its proposed transmission solution with the alternative transmission solution. The analysis is to include system upgrade costs for each solution, and the estimated system constraint associated with each alternative at N-1 conditions.

AESO is required to provide its reasons as to which transmission solution should be approved by the Board. If AESO proposes the adoption of its initially proposed transmission solution, it is to provide justification for the development of a system that provides greater system access than contemplated by the TDP and the new Transmission Regulation.

Dated in Calgary, Alberta on September 7, 2004.

ALBERTA ENERGY AND UTILITIES BOARD

(original signed by)

J. R. Nichol, P.Eng.
Presiding Board Member

(original signed by)

J. D. Dilay, P.Eng.
Board Member

(original signed by)

Gordon J. Miller
Board Member

APPENDIX A – THOSE WHO APPEARED AT THE HEARINGPrincipals and Representatives
(Abbreviations Used in Report)

Witnesses

Alberta Electric System Operator (AESO)

J. Smellie

N. Millar, P. Eng.
N. Brausen, P. Eng.
J. Billinton, P. Eng.

AltaLink Management Ltd. (AltaLink)

Z. Lazic

T. Rutkunas, P. Eng.
D. Walters
C. Barton

TransAlta Utilities Corporation (TransAlta)

T. Dalglish, Q.C.

K. Van Koughnett, P. Eng.
F. Gallagher
J. Leskiw

Industrial Power Consumers Association of Alberta (IPCAA)

D. Davies

D. Macnamara
R. Gallant
M Drazen
of Drazen Consulting Group
R. Mikkelsen
of Drazen Consulting Group
P. Kos, P. Eng.
of Power System Solutions Inc.

Piikani First Nation and Piikani Utilities Corporation

ATCO Electric Ltd. (Piikani/ATCO Group)

R. Jeerakathil
N. Sanderson

City of Lethbridge (the City)

J. Sparkes

Pembina Institute for Appropriate Development (Pembina)

J. Row

ATCO Power Ltd.

R. Lowe

Municipal District of Pincher Creek (the M.D.)

D. Hammond

D. Hammond

Principals and Representatives
(Abbreviations Used in Report)

Witnesses

Town of Pincher Creek (the Town)

A. Bonertz

A. Bonertz

New Generation Processors (NGP)

B. Mowat

B. Mowat

Canadian Hydro Developers

J. Keating, CA

Alberta Energy and Utilities Board Staff

J. P. Mousseau, Board Counsel

T. Chan, P.Eng.

K. G. Gladwyn

R. Guzman

J. Wang

**ATTACHMENT A - PREHEARING MEETING DECISION REPORT
(DECISION 2004-044)**



"Attachment A -
Decision 2004-044.doc

(Consists of 5 pages)



Alberta Electric System Operator

**Needs Identification Document Application
Southwest Alberta 240-kV Transmission Facilities
Pincher Creek – Lethbridge Area**

Prehearing Conference

May 20, 2004

ALBERTA ENERGY AND UTILITIES BOARD
Decision 2004-044: Alberta Electric System Operator
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ALBERTA ENERGY AND UTILITIES BOARD

Calgary Alberta

ALBERTA ELECTRIC SYSTEM OPERATOR NEEDS IDENTIFICATION DOCUMENT APPLICATION SOUTHWEST ALBERTA 240-KV FACILITIES PREHEARING CONFERENCE

**Decision 2004-044
Application No. 1340849**

The Alberta Energy and Utilities Board (Board) held a prehearing meeting in Lethbridge, Alberta, on May 18, 2004 with respect to the upcoming hearing into Application No. 1340849 filed by the Alberta Electric System Operator (AESO) for approval of a Needs Identification Document for Southwest Alberta transmission system development.

By Notice of Prehearing Meeting issued on April 30, 2004, the Board invited interested parties to provide their views on the issues to be examined at the hearing, the scope of the hearing, the interest of the interveners with respect to the application, the proposed schedule for hearing incorporated in the notice of prehearing meeting, and any other preliminary matter that participants wished to address in relation to the hearing of the application. The Board heard submissions on these points from the participants listed in Appendix A.

This hearing will be the first hearing on an application pursuant to section 34 of the *Electric Utilities Act*, which reads as follows:

When the Independent System Operator determines that an expansion or enhancement of the capability of the transmission system is required to meet the needs of market participants, the Independent System Operator must prepare and submit to the Board for approval a needs identification document that:

- (a) describes the constraint or condition affecting the operation or performance of the transmission system and indicates the means by which or the manner in which the constraint or condition could be alleviated,
- (b) describes a need for improved efficiency of the transmission system, including means to reduce losses on the interconnected electric system, or
- (c) describes a need to respond to requests for system access service.

The Board has considered the views of the parties in light of the above legislative provision and in light of the requirements of Board Directive 28: *Applications for Power Plants, Substations, Transmission Lines, and Industrial System Designations* to determine the appropriate scope of the hearing and the issues properly within the scope of the hearing.

The Board confirms that it will examine the Needs Identification Document filed by the AESO and determine whether it can approve the document with or without changes or conditions, or reject it. This means that the issues relevant to this hearing will include the following:

- the current state of the electric transmission system in Southwest Alberta,
- the need to improve and upgrade that system,
- planning criteria and performance standards,
- the need for the facilities identified for that purpose in the application, and

- any related issue such as a high level examination of costs and impacts included in the Needs Identification Document.

The Board will not decide on any specific option proposed by the AESO in the Needs Identification Document nor address site-specific impacts that the proposed facilities may have on land use except at a very high level. Should the Needs Identification Document be approved, issues involving economics, routing, environmental concerns, etc. would be dealt with in a subsequent transmission facility owner (TFO) application for a specific project filed under the *Hydro and Electric Energy Act*.

The hearing of the application will proceed as scheduled at 9:00 a.m. on July 6, 2004, at the Lethbridge Lodge Hotel. The Board has modified the schedule proposed in the Prehearing Meeting Notice to provide an opportunity for interveners to file rebuttal submissions if necessary.

Therefore the Board approved schedule for the hearing of the application is as follows:

Proposed Hearing Schedule

Information Requests (IR) to Applicant	May 25, 2004
Responses from Applicant to IRs	June 8, 2004
Intervener Evidence	June 14, 2004
IRs to Interveners	June 18, 2004
Intervener Responses	June 25, 2004
Intervener Rebuttal Evidence, if any	June 28, 2004
Applicant Rebuttal Evidence, if any	June 30, 2004
Hearing	July 6, 2004

Dated in Calgary, Alberta on May 20, 2004.

ALBERTA ENERGY AND UTILITIES BOARD

(original signed by)

J. R. Nichol, P.Eng.
Presiding Member

(original signed by)

J. D. Dilay, P.Eng.
Member

(original signed by)

Gordon J. Miller
Member

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TransAlta Corporation T. Dalglish, Q.C.
Benign Energy Canada Inc. R. Davidson
Piikani First Nation and Piikani Utilities/ATCO Electric Ltd. F. Martin
Pembina Institute for Appropriate Development J. Rowe
City of Lethbridge O. Lenz
Melcor Developments Ltd. N. Johnson
Industrial Power Consumers Association of Alberta D. Macnamara
Charities & Benevolent Organisations of Alberta D. Jenkins
Wind Power Inc. D. Johnson
Alberta Energy and Utilities Board Staff L. Lacasse, Board Counsel T. Y. K. Chan, P.Eng. K. Gladwyn J. Wang