

DAY MONTH YEAR
22-May-2009

Application #
1605110

APPLICANT'S FILE NUMBER
Lindbergh 144kV

SUBMISSION STATUS Registered SUBMISSION ID 195483 CREATION DATE 21-May-2009

1. APPLICANT INFORMATION

Primary Applicant

COMPANY NAME ATCO Electric Ltd. BA CODE 0A5Z
 CONTACT NAME Deb Nelson
 TELEPHONE (780) 420-4151 FAX (780) 420-8017
 E-MAIL facilityapp@atcoelectric.com
 MAILING ADDRESS 10035 - 105 Street, Edmonton AB T5J 2V6

2. PROJECT OVERVIEW

1. Application Description:

Lindbergh Substation 969S, 144kV Line 7LA53, & Associated Transmission Facilities

2. Are there other AUC applications directly related to this application? Yes No

Application Category	Application Type	Application Number (If Known)
<u>Electric</u>	<u>Need Assessment</u>	<u>1605087</u>

3. APPLICATION TYPES

1. Identify what this application is for:

Electric Transmission Lines
Electric Transmission Lines
Electric Transmission Lines
Electric Substations
Electric Substations

If you have any questions or comments, please contact the EAS Administrator.

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SUBMISSION STATUS Registered SUBMISSION ID 195483 CREATION DATE 21-May-2009

4. TRANSMISSION LINE

1. Provide the name(s) of all other companies having ownership in the project, details of their incorporation, and the share in the project that each would have.

Company Name: _____ Percentage: _____
 Details:

 Total other ownership (%)

2. Have you conducted a participant involvement program?
 Yes No
 If No, explain:

3. Are there outstanding public or industry objection and/or concerns? Yes No

4. Provide Electric Facility ID Number(s):

5. Provide the legal descriptions, including latitudes and longitudes of start and end points of the transmission line.(Provide latitude and longitude coordinate in decimal degrees.)

Start Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
4	11	58	7	4	53.9915	-110.9454

End Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
4	7	58	4	4	53.9936	-110.5956



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Details:

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Yes No

If No, explain:

3. Are there outstanding public or industry objection and/or concerns? Yes No

4. Provide Electric Facility ID Number(s):

5. Provide the legal descriptions, including latitudes and longitudes of start and end points of the transmission line.(Provide latitude and longitude coordinate in decimal degrees.)

Start Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
12	32	50	6	4	53.3585	-110.8574

End Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
16	17	55	6	4	53.7584	-110.8479

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Company Name: _____ Percentage: _____
 Details:

 Total other ownership (%)

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 Yes No
 If No, explain:

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4. Provide Electric Facility ID Number(s):

5. Provide the legal descriptions, including latitudes and longitudes of start and end points of the transmission line.(Provide latitude and longitude coordinate in decimal degrees.)

Start Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
16	17	55	6	4	53.7584	-110.8476

End Point of Transmission Line

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
13	24	61	6	4	54.2959	-110.7797



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SUBMISSION STATUS Registered SUBMISSION ID 195483 CREATION DATE 21-May-2009

4. SUBSTATION

1. Provide the name(s) of all other companies having ownership in the project, details of their incorporation, and the share in the project that each would have.

Company Name: _____ Percentage: _____

Details:

Total other ownership (%)

2. Have you conducted a participant involvement program?

Yes No

If No, explain:

3. Are there outstanding public or industry objection and/or concerns? Yes No

4. Provide Electric Facility ID Number(s):

5. Provide legal description, latitude and longitude of the substation. (Provide latitude and longitude coordinates in decimal degrees.)

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
<u>4</u>	<u>7</u>	<u>58</u>	<u>4</u>	<u>4</u>	<u>53.9938</u>	<u>-110.5956</u>

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4. SUBSTATION

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Company Name: _____ Percentage: _____

Details:

Total other ownership (%)

2. Have you conducted a participant involvement program?

Yes No

If No, explain:

3. Are there outstanding public or industry objection and/or concerns? Yes No

4. Provide Electric Facility ID Number(s):

5. Provide legal description, latitude and longitude of the substation. (Provide latitude and longitude coordinates in decimal degrees.)

Lsd	Sec	Twp	Rge	Mer	Lat (NAD 83)	Long (NAD 83)
<u>16</u>	<u>17</u>	<u>55</u>	<u>6</u>	<u>4</u>	<u>53.7581</u>	<u>-110.8476</u>

If you have any questions or comments, please contact the EAS Administrator.

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**APPLICATION TO THE
ALBERTA UTILITIES COMMISSION**

**LINDBERGH SUBSTATION 969S,
144 kV TRANSMISSION LINE 7LA53
AND RELATED TRANSMISSION FACILITIES**

May 22, 2009



10035 - 105 Street
P.O. Box 2426 Station Main
Edmonton, Alberta T5J 2V6

INDEX OF ATTACHMENTS 1 THROUGH 11

ATTACHMENT 1	APPLICATION TEXT	
ATTACHMENT 2	CONSERVATION AND RECLAMATION DOCUMENT	
ATTACHMENT 3	PUBLIC AND LANDHOLDER CONSULTATION	
ATTACHMENT 4	PROJECT AREA MAPS	
	• Regional Map	Drawing RS-7LA53-A-01
	• Reference Map	Drawing RS-7LA53-A-02
ATTACHMENT 5	ELECTRICAL DIAGRAMS AND SITE LAYOUTS	
	• Proposed System Single Line Diagram	Drawing RS-7LA53-A-03
	• Lindbergh Substation 969S Proposed Site Plan	Drawing RS-7LA53-A-04
	• Lindbergh Substation 969S Proposed Single Line Diagram	Drawing RS-7LA53-A-05
	• Irish Creek Substation 706S Site Plan	Drawing RS-7LA53-A-06
	• Irish Creek Substation 706S Proposed Single Line Diagram	Drawing RS-7LA53-A-07
ATTACHMENT 6	AIR PHOTO MOSAICS	
	• Proposed Route Mosaics	Drawings RS-7LA53-A-08a and 08b
ATTACHMENT 7	TRANSMISSION LINE DRAWINGS	
	• Right-of-Way Cross-Section Drawings	Drawings RS-7LA53-A-09a – 09d
	• Typical Structures	Drawings RS-TW301-144SC and -TW321-144SC
ATTACHMENT 8	CONSTRAINT MAPS	
	• Soil Capability Map	Drawing RS-7LA53-A-11a
	• Environmental Constraints Map	Drawing RS-7LA53-A-11b
ATTACHMENT 9	AESO DIRECTION AND TECHNICAL INFORMATION	
	• AESO Direction to ATCO Electric, dated October 14, 2008)	
	• AESO Notice pursuant to the Direction, to ATCO Electric, dated March 2, 2009	
	• AESO Functional Specification, File No. RP-05-722, Rev. 1, Final, dated August 28, 2008	
ATTACHMENT 10	PUBLIC NOTIFICATION PACKAGES	
	• Public Notification Documents	
ATTACHMENT 11	REFERENCE NOTE (CROSS-REFERENCE OF ATTACHMENTS)	

INDEX TO INFORMATION REQUIRED PER AUC RULE 007

Information Requirements (Short Description)		Found at:
TS1	Sections of the HEAA under which application is made.	Attach.1: s.1.2
TS2	Other acts that may affect the project.	Attach.1: s.1.3
TS3	Approvals being applied for.	Attach.1: s.1.2
TS4	Existing approvals for facilities being altered.	Attach.1: s.1.2
TS5	Details/outcomes of consultations with local jurisdictions.	Attach.1:s.1.4; Attach.3
TS6	Other companies affected, concerns, agreements.	Attach.1: s.1.4 Attach. 3
TS7	Description of proposed project.	Attach.1: s.2.0, s.4.0
TS8	Copy of ISO direction letter.	Attach.9
TS9	Dates when approval and facilities required.	Attach.1: s.2.5
TS10	Route alternatives and relative impacts.	Attach.1: s.3.3, 3.4
TS11	Description of participant involvement program.	Attach.3
TS12	List of occupants, residents, landowners, interested parties contacted.	Attach.3:
TS13	Mailing addresses and labels.	(Sent separately)
TS14	Persons identifying concerns and specifics.	Attach.3
TS15	Summary of discussions with directly/adversely affected persons.	Attach.3
TS16	How concerns are being dealt with.	Attach.3
TS17	Confirmation of resolution of concerns.	Attach.3
TS18	Design and operating voltages.	Attach.1: s.2.4
TS19	Continuous and maximum ratings of transmission line; line losses.	Attach.1: s.2.4;
TS20	Conductor choice, size and arrangement.	Attach.1: s.2.4
TS21	Transmission line structure types, height/spacing, locations.	Attach.1: s.2.4; Attach.7: Dwgs. TW301 & 321-144SC.
TS22	Right-of-way width and the basis for width.	Attach.1: s.2.4; Attach.7: Dwg. A-09a to d.
TS23	Major substation equipment: applied for and final list.	Attach.1: s.2.1 & 2.2
TS24	Switching and protection features.	Attach.5: Dwg.A-05 & 07
TS25	Electrical interaction with other facilities.	Attach.1: s.5.2
TS26	Changes required to existing facilities.	Attach.1: s.2.2 & 2.3
TS27	Map of study area; reasons for area chosen.	Attach.4: Dwg.A-02; Attach.1: s.3.1
TS28	Maps/drawings of route and alternative routes, kilometre points (nodes); right-of-way (R/W) widths and line locations re: R/W and property lines.	Attach.6: Dwg.A-06a & b; Attach.7: Dwg.A09a to d.
TS29	Maps/air photo mosaics of routes, residences/landowners and land-use/resource features.	Attach.6: Dwg.A-06a & b; Attach.8: Dwg.A-011a
TS30	Map of project area suitable for use in public notice.	Attach.4: Dwg.A-01
TS31	Electric single-line diagrams; substation layout.	Attach.5: Dwg.A-05 & 07
TS32	Construction schedule; construction and R/W maintenance methods.	Attach.1: s.2.5; Attach.2
TS33	Functional Specification	Attach. 9
TS34	Noise Impact Assessment – Rule 012 Noise Control	Attach. 2 s. 20
TS35	Conservation and reclamation plan for R/W clearing/maintenance as required by AENV.	Attach.2 (not required by AENV)
TS36	Landscape/screening areas and measures.	Attach.2: s.19
TS37	Aesthetics: viewpoints and measures to minimize impacts.	Attach.1: s. 3.1 Attach.2: s.19
TS38	Tower location flexibility to reduce inconvenience to residents.	Attach.2: s.19
TS39	Archaeological/historical impacts, consultation with ACCS.	Attach.2: s.17
TS40	Environmental evaluation of study area and routes, table/discussion of land-use/resource factors, comparison of environmental factors/costs; compatibility with municipal services if near urban centres.	Attach.1: s.3.0; (urban centres: not applicable) Attach.2
TS41	Detailed cost breakdown, Rule 007-Appendix B format.	Attach.1: s.2.6

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
1.1	SUMMARY OF PROPOSED FACILITIES	1
1.2	PROPOSAL	1
1.3	PROJECT NEED AND AESO DIRECTION	1
1.4	AGENCY APPROVALS	2
1.5	LANDHOLDER POSITIONS	3
1.6	FACILITY LOCATION SUMMARY	3
2.0	PROJECT DESCRIPTION	4
2.1	LINDBERGH SUBSTATION 969S	4
2.2	IRISH CREEK SUBSTATION 706S	5
2.3	144 KV TRANSMISSION LINES 7L53 AND 7L117	5
2.4	PROPOSED 144 KV TRANSMISSION LINE 7LA53	6
2.5	SCHEDULE	8
2.6	PROJECT COST ESTIMATE	9
3.0	ROUTE SELECTION	10
3.1	STUDY AREA	10
3.2	GENERAL TRANSMISSION LINE ROUTING CRITERIA	10
3.3	ROUTE OPTIONS	11
3.4	COMPARISON OF ROUTE OPTIONS	15
3.5	SELECTION OF PROPOSED ROUTE	15
3.6	SELECTION OF SUBSTATION LOCATION	20
4.0	PROPOSED ROUTES	21
4.1	PROPOSED ROUTE	21
4.2	PROPOSED ALTERNATIVE ROUTE	25
5.0	ENVIRONMENTAL AND ELECTRICAL EFFECTS	26
5.1	ENVIRONMENTAL EFFECTS	26
5.2	ELECTRICAL EFFECTS	26
6.0	PARTICIPANT INVOLVEMENT	28
7.0	CONCLUSION	29

LIST OF TABLES

		Page
TABLE 1 – Location Coordinates		3
TABLE 2 – Transmission Line 7LA53 Details		7
TABLE 3 – 7LA53 Thermal Ratings		7
TABLE 4 – Transmission Line 7LA53 Alignment and Right-of-Way		8
TABLE 5 – Project Cost Estimates		9
TABLE 6 – Summary of 7LA53 Preliminary Route Options		14
TABLE 7 – Summary of 7LA53 East Study Area Route Options		18
TABLE 8 – Proposed vs. Landowner (AO) Routes		19

1.0 INTRODUCTION

1.1 SUMMARY OF PROPOSED FACILITIES (TS7)

ATCO Electric Ltd. proposes to build new power transmission facilities in the vicinity of Elk Point in east central Alberta. The project includes a new substation designated as Lindbergh 969S to be located about 30 kilometres (km) northeast of the Town of Elk Point, construction of between 26.5 and 28 km of new 144 kilovolt (kV) transmission line designated as 7LA53, and alterations at the existing Irish Creek substation (see regional and reference maps, drawings A-01 and A-02 in Attachment 4). The facilities are proposed to be completed by February 28, 2010.

1.2 PROPOSAL (TS1, TS3, TS4, TS26)

ATCO Electric Ltd. (the "Applicant" or "ATCO") hereby applies to the Alberta Utilities Commission pursuant to Sections 14 and 15 of the *Hydro and Electric Energy Act*, being Chapter H-16 of the Revised Statutes of Alberta 2000, as amended, for Permits, Licences, Approvals and Orders to:

- a. Construct a new substation designated as **Lindbergh Substation 969S**;
- b. Construct a new 144 kV transmission line designated as **7LA53**, from the existing 144 kV transmission line 7L53 to the proposed Lindbergh substation;
- c. Alter the existing **Irish Creek Substation 706S** (*Permit and Licence No. U2006-216*);
- d. Alter the existing Vermillion to Bonnyville 144 kV transmission line **7L53** (*Permit and Licence No. AP 88-94*) by:
 - i. Operating the portion of existing line from Vermillion substation 710S to Irish Creek substation 706S as 144 kV transmission line **7L117**; and
 - ii. Operating the portion of existing line from Irish Creek substation 706S to Bonnyville substation 700S as 144 kV transmission line **7L53**; and to
- e. Connect these facilities to ATCO's electrical system, and operate and maintain the aforementioned transmission facilities.

1.3 PROJECT NEED AND AESO DIRECTION (TS2, TS8)

Development of transmission facilities is required to provide power to a new Inter Pipeline Fund (IPF) pump station north of Lindbergh. Pursuant to the applicable processes under the *Electric Utilities Act*, the need for the project has been addressed by the Alberta Electric System Operator (AESO) as AESO project RP-05-722, and is the subject of a needs identification document (NID) filed by AESO on May 13, 2009, as **Application No. 1605087**. In accordance with Section 35 of the *Electric Utilities Act*, the AESO has directed the Applicant to submit this application. A copy of that

correspondence is included in Attachment 9. AESO and ATCO have agreed to coordinate the submission of the need and facility applications. Under the provisions of the applicable AESO and AUC rules and of Section 15.4 of the *Hydro and Electric Energy Act*, **ATCO hereby requests that this application be combined for consideration with Application No. 1605087.**

1.4 AGENCY APPROVALS (TS2, TS6, TS11)

The status of approvals from other agencies is described below. All of these agencies have been provided information as part of the participant involvement process and have indicated no objections to the proposed transmission facilities.

- The County of St. Paul and County of Two hills are the municipal authorities pursuant to the *Municipal Government Act*. ATCO will seek the necessary approvals for construction of facilities on highways under municipal jurisdiction. The proposed facilities are exempt from the planning and development part of the *Municipal Government Act* with respect to subdivision and development approvals.
- Alberta Transportation (AT) administers access and proximity to primary highways under the *Public Highways Development Act*. The Applicant will apply for approvals with respect to facilities to be located along or across Highways 29 and 41.
- Alberta Sustainable Resource Development ("ASRD") administers the Crown land under the *Public Lands Act*. The Applicant will apply for easements on Crown land.
- Alberta Culture and Community Spirit (ACCS) has confirmed that an historic resources impact assessment is required under the *Historical Resources Act* (HRA). ATCO will obtain HRA clearance from ACCS prior to construction.
- The proposed transmission facilities are not of the class requiring Conservation and Reclamation Approval or an environmental impact assessment report under the *Environmental Protection and Enhancement Act*.
- With respect to agreement by TELUS Communications pursuant to Section 39 of the *Hydro and Electric Energy Act*, ATCO has referred the project to TELUS and on completion will provide further information as requested. The Applicant will install appropriate mitigation if identified by TELUS.
- With respect to the federal *Navigable Waters Protection Act*, ATCO will submit the required information to the Transport Canada (TC) navigable waters protection officer for determination of navigability and approvals. (Fisheries and Oceans Canada Navigable Waters Division referred the applicant to TC for approvals).
- NAV Canada has requested structure design data for the new power line. The data will be provided following the completion of line design.
- With respect to the federal *Aeronautical Act*, the Applicant will submit the required information to the Transport Canada (TC) civil aviation safety inspector and if required submit an application for Aeronautical Obstruction Clearance.

1.5 LANDHOLDER POSITIONS (TS11)

ATCO notified over 200 landowners, occupants, agencies, industry stakeholders and potentially interested parties in the transmission line project study area. ATCO conducted personal consultation with 69 landholders (includes 4 trappers), 11 agencies and 15 industry stakeholders for the proposed site and routes, and ATCO has confirmed no objections to the site and routes for all parties except for two families of private landowners, both of whom have indicated that they have outstanding concerns and/or objections, as described in Attachment 3, Public and Landholder Consultation. ATCO also consulted the 4 agencies and 7 landowners/occupants within 800 m of Irish Creek substation, and confirmed no concerns or objections. The participant involvement program, compliant with AUC Rule 007, is described in Attachment 3, Public and Landholder Consultation.

1.6 FACILITY LOCATION SUMMARY (TS7)

The following table is a summary of facility land locations and latitude/longitude coordinates (upon completion).

TABLE 1 – Location Coordinates

	Facility	Land (Legal)	Latitude (N)	Longitude (E)
(1)	144 kV Line 7LA53 -Start (Tap Point at 7L53) -End (Lindbergh Substation)	LSD 4, SW 11-58-7-W4M LSD 4, SW 7-58-4-W4M	53.9915 53.9936	-110.9454 -110.5956
(2)	144 kV Line 7L117 -Start (Vermilion Substation) -End (Irish Creek Substation)	LSD 12, NW 32-50-6-W4M LSD 16, NE 17-55-6-W4M	53.3585 53.7584	-110.8574 -110.8479
(3)	144 kV Line 7L53 -Start (Irish Creek Substation) -End (Bonnyville Substation)	LSD 16, NE 17-55-6-W4M LSD 13, NW 24-61-6-W4M	53.7584 54.2959	-110.8478 -110.7797
(4)	Lindbergh Substation 969S	LSD 4, SW 7-58-4-W4M	53.9938	-110.5956
(5)	Irish Creek Substation 706S	LSD 16, NE 17-55-6-W4M	53.7581	-110.8476

2.0 PROJECT DESCRIPTION (TS2, TS7)

This section describes the location, project details and engineering specifications of the proposed transmission facilities. The facilities will be designed in accordance with the AESO's direction and final functional specification (Attachment 9). The facilities will be built and operated in accordance with the authorizations granted pursuant to this application, and in accordance with the requirements of Section 34 of the *Hydro and Electric Energy Act* (highway authority approvals), Section 39 of the *Electric Utilities Act* (safe and reliable operation), the *Safety Codes Act*, and applicable regulations and industry standards. The proposed facilities will be inspected and declared safe prior to being energized.

2.1 LINDBERGH SUBSTATION 969S (TS18, TS23, TS28, TS31)

ATCO proposes to construct the new Lindbergh substation 969S, including a 144/25/4.16 kV transformer, a 144 kV circuit breaker and associated foundation, structural, protection and control facilities. The substation will be connected to the electric system by the proposed 144 kV transmission line 7LA53 originating from a tap point on the existing 7L53 144 kV transmission line. The proposed single line diagram of the substation is shown in drawing A-04 in Attachment 5.

Location and Land Area

The proposed Lindbergh substation is situated in the County of St. Paul about 30 km northeast of the Town of Elk Point. The proposed site is located in SW 7-58-4-W4M, partially located on the IPF Pump Station site and partially on adjacent Crown land, as shown on the proposed site plan and route mosaic (drawings A-04 and A-08b in Attachments 5 and 6 respectively). ATCO requires an approximately 144 m by 115 m site with a substation fenced area of approximately 45 m by 35 m. ATCO will apply to Alberta Sustainable Resource Development for a Crown land disposition.

Proposed Major Equipment Final Design Specification

- (a) One 15/20/25 MVA, 144/25/4.16 kV transformer
- (b) One 144 kV circuit breaker
- (c) An enclosure surrounded by a chain link fence, and other substation equipment as described in the Application

General Equipment and Engineering Outline

The general equipment layout is indicated on the proposed site plan, drawing A-04 in Attachment 5. Engineering information, including switching and protection features, is shown on the proposed single line diagram, drawing A-05 in Attachment 5.

2.2 IRISH CREEK SUBSTATION 706S (TS18, TS23, TS26, TS28, TS31)

The Irish Creek substation will be upgraded with a 144 kV transmission line-termination in-out configuration, and will require the replacement of one 144 kV circuit switch with a circuit breaker and the addition of two 144 kV circuit breakers and related support equipment and infrastructure.

Location and Land Area

The Irish Creek substation is situated in the County of Two Hills about 16 km southeast of the Town of Elk Point. The substation is located in NE 17-55-6 W4M as shown on proposed site plan (drawing A-06 in Attachments 5). The Applicant owns the 150 by 170 m substation site in fee simple. No expansion of the 92 m by 67 m fenced area is required for this project.

Proposed Addition/Removal of Major Equipment

- Three - 144 kV circuit breakers (to be added)
- One - 144 kV circuit switcher (to be removed)

Proposed Major Equipment Final Design Specification

- (a) One - 25/33.3/41.6 MVA 144-25 kV transformer
- (b) Three - 144 kV circuit breakers
- (c) Five - 25 kV circuit breakers
- (d) One - 25/33.3/41.6 MVA 25 kV voltage regulator
- (e) An enclosure surrounded by a chain link fence, and other substation equipment as described in the Application

General Equipment and Engineering Outline

The general equipment layout is indicated on the site plan, drawing A-06 in Attachment 5. Engineering information, including switching and protection features, is shown on the proposed single line diagram, drawing A-07 in Attachment 5.

2.3 144 KV TRANSMISSION LINES 7L53 AND 7L117 (TS18, TS26, TS28, TS31)

The existing 144 kV transmission line 7L53 operates between the Vermilion substation 710S in the Town of Vermilion and the Bonnyville substation 700S north of the Town of Bonnyville. The line extends northwards approximately 50.4 km as single 144 kV circuit from the Vermilion substation to a point south of the Town of Elk Point, where the line turns eastward and goes 8.0 km as the south circuit of a double-circuit portion of line to the Irish Creek substation, where the Irish Creek substation connects to the line via a circuit switcher. From the substation, the line extends westward as the north circuit of

the double-circuit portion for 8.0 km, then turns north and continues for approximately 68.5 km as a single 144 kV circuit to the Bonnyville substation.

ATCO proposed to split this line at the Irish Creek substation by adding two 144 kV circuit breakers and replacing the 144 kV circuit switcher with a 144 kV circuit breaker. See area transmission map drawing A-03, and Irish Creek single-line diagram, drawing A-07. The 58.4-km south portion of existing line 7L53 from Vermilion to Irish Creek, including the 50.4-km single-circuit portion and the 8.0-km south circuit of the double-circuit portion, will be re-designated as line 7L117. The 76.5-km north portion of existing line 7L53 from Irish Creek to Bonnyville, including the 8.0-km north circuit of the double-circuit portion and the 68.5-km single-circuit portion, will retain the designation 7L53. The lines will retain the existing operating specifications: standard 144 kV with 1 x 266 MCM (Partridge) conductors per phase.

ATCO proposes to tap 7L53 at SW 11-58-7-W4M about 44.2 km south of Bonnyville substation, and connect proposed 144 kV line 7LA53. The tap point is indicated on the proposed route mosaic drawing A-08a (Attachment 6). Three sets of line switches will be installed at the tap point, to enable isolation of 7LA53 north or south of the tap, and 7LA53 from the main line. Otherwise, there will be no physical alterations to line 7L53 outside of the Irish Creek substation fence.

2.4 PROPOSED 144 KV TRANSMISSION LINE 7LA53 (TS18, TS 20, TS21, TS22, TS28, TS31)

ATCO proposes to construct between 26.5 and 28.0 km of new 144 kV transmission line designated as 7LA53, originating from a tap point on the existing 7L53 transmission line north of Elk Point, and extending eastward to the proposed Lindbergh substation 969S. The proposed routes are shown on the regional and reference maps (drawings A-01 and A-02 in Attachment 4) and the air photo mosaic drawings A-08a to A-08b in Attachment 6.

The proposed line would be standard three-phase design with a circuit of three conductor wires strung on wood pole structures built to ATCO's standards for operation at the nominal voltage of 144 kV. The typical structure for most of the line would be a single-pole "wishbone" design or similar. This design has a typical height of about 18.6 m and a typical span length of about 125 to 140 m between poles. The line would have an overhead shield wire for lightning protection. The typical structure is shown on drawing RS-TW301-144SC in Attachment 7. Design details are summarized in Table 2. The typical structure may vary with final design.

TABLE 2 - Transmission Line 7LA53 Details

Design Type	Typical 144 kV Single-Pole Structure
Nominal voltage	144 kV
Line length	26.5 to 28.0 km
Number of transmission circuits	1
Transmission line conductor	266 MCM, 3 phases per circuit
Overhead shield wires (9.5 mm)	1
Typical structure height	18.6 m
Typical span between structures	125 to 140 m
Minimum conductor clearance, mid-span	6.8 – 9.0 m (varies with location per safety codes)

Non-typical structures with taller or additional poles, and/or anchors and guy wires may be required where the line turns or terminates, or requires longer spans, greater clearance or extra stability such as across wet areas or valleys. In all cases, the line would meet or exceed the requirements of applicable safety regulations. Final structure specifications will be determined following survey and line design. For one known segment (N8A to N9 as shown on route mosaic drawing A-08A in Attachment 6), the line is proposed to be built with a two-pole H-frame design with typical specifications as shown on drawing RS-TW321-144SC in Attachment 7.

Conductors for the line will be single 266.8 MCM (Partridge) per phase as specified by AESO. The initial loading for the line is estimated to be 15 MW. Thermal ratings for the line are shown in Table 3.

TABLE 3 – 7LA53 Thermal Ratings

Conductor	Thermal Rating, Normal		Thermal Rating, Emergency	
	Summer	Winter	Summer	Winter
266.8 MCM (Partridge)	114 MVA	146 MVA	130 MVA	157 MVA

Transmission Line Alignment and Right-of-Way

The proposed transmission line alignments were based on the location of physical and environmental constraints between the tap point on the existing 7L53 transmission line and the proposed Lindbergh substation. The proposed route generally follows existing linear disturbances and property boundaries to minimize impacts on adjacent land uses.

A minimum right-of-way width is required for construction and maintenance access. The width and structure placements vary with route location. Typical minimum right-of-way widths for the new line are as indicated in Table 4.

TABLE 4 – Transmission Line 7LA53 Alignment and Right-of-Way

Transmission Line (T/L) Route Location	Typical Structure Location	Minimum Right-of-Way Width (R/W)
Road Allowance (or road plan)	0.6 m onto road allowance	9.0 m adjacent to road allowance
Along a Quarter or Section Line	1 m offset from the quarter- or section line	9.0 m on each side of quarter- or section line (18 m total)
Cross-Country	Centre of new R/W	7.5 m on each side of T/L (15 m total)

Right-of-way requirements for specific route segments are shown on the cross-section diagrams A to J, drawings A-09a to A-09d in Attachment 7. Locations with 144 kV two-pole "H-frame" structures would require additional right-of-way width as shown on cross-section E on drawing A-09b.

Besides the minimum widths indicated, additional area is required as follows:

- At non-typical structures such as at corners, in muskeg, and at watercourse crossings, for anchors, guy wires, additional poles and wider spacing.
- In treed areas, to keep the power line "tree-free" by removing adjacent trees that could fall onto the line now or in the future.

Additional right-of-way width for tree clearing is related to the tree height. A table of tree-free distances is included in Table 2 in the Conservation and Reclamation document (Attachment 2). Additional tree clearing will be required along an estimated 19 to 19.5 km of the Proposed and Proposed Alternative routes.

2.5 SCHEDULE (TS9, TS32)

Key project activities and dates are as follows:

Activity or Milestone	Start	Completed
AUC approvals	May 2009 (application filed)	August 2009 (approvals issued)
Land survey	June 2009	August 2009
Easements and related approvals	July 2009	September 2009
Transmission line right-of-way clearing and construction	September 2009	December 2009 (target)
Substation alterations/construction	September 2009	December 2009 (target)
In-service date	December 2009 (target)	February 28, 2010

Delays in the approvals and in-service dates will result in costs to the customer associated with alternative power arrangements and/or pump-station capacity limitations.

2.6 PROJECT COST ESTIMATE (TS39)

The cost estimate for the scope of the project work, as detailed in the ATCO's proposal to provide service as submitted to AESO, is provided in Table 5.

TABLE 5 - Project Cost Estimates

+20 / -10 % (2009 Dollars)	System Portion	Customer Portion	TOTAL
Transmission Line Costs			
Material	-	\$ 1,782,000	\$ 1,782,000
Labour	-	2,277,000	2,277,000
Total-Transmission line	-	4,059,000	4,059,000
Substation Facilities Cost			
Material	\$ 740,000	2,603,000	3,343,000
Labour	1,212,000	1,757,000	2,969,000
Total-Substations	1,952,000	4,360,000	6,312,000
Telecommunication Cost			
Material	125,000	717,000	842,000
Labour	17,000	194,000	211,000
Total-Telecommunication	142,000	911,000	1,053,000
Owner Costs			
Proposal to Provide Service	10,000	40,000	50,000
Facility Applications	25,000	179,000	204,000
Land – Easements and Acquisitions	10,000	115,000	125,000
Total - Owner's Cost	45,000	334,000	379,000
Distributed Costs			
Procurement	20,000	35,000	55,000
Project Management	25,000	55,000	80,000
Construction Management	152,000	166,000	318,000
Contingency	195,000	842,000	1,037,000
Total - Distributed Costs	392,000	1,098,000	1,490,000
Total Direct Costs	2,531,000	\$10,762,000	\$13,293,000
Other Costs			
AFUDC	109,000	465,000	574,000
E&S	202,000	861,000	1,063,000
Total - Other Costs	311,000	1,326,000	1,637,000
Total In-Direct Costs	311,000	1,326,000	1,637,000
TOTAL PROJECT COSTS	\$ 2,842,000	\$ 12,088,000	\$ 14,930,000

3.0 ROUTE SELECTION

3.1 STUDY AREA (TS27, TS38, TS40)

The study area for the transmission line was selected to provide a sufficiently broad area for routing assessment, with the study area primarily being a mixture of public and private land in a rural agricultural area in the County of St. Paul. The location and orientation of Kehewin Lake and Moosehills Lake severely limited the north-south extents of the study area and consequently the number of route options considered. Crown land and grazing leases dominate the north and northeast portion of the study area. Freehold agricultural properties dominate the western, southern, and eastern portions of the study area. The land use in the area is mainly pasture, and forested grazing leases on Crown lands. The entire study area is located in an area of intensive oil and gas activity, with several well sites and pipelines being located on private and Crown lands. The soil capabilities for agricultural land use, based on Canada Land Inventory (CLI) data, are primarily Class 5 in the central and northern portions of the study area and Class 3 in the far east and west as shown in CLI soils map, drawing A-11a in Attachment 8).

The topography in the study area is generally flat to undulating with one localized area of steeper topography located adjacent to Highway 41, along the southern tip of Kehewin Lake. There are several small lakes and creeks within the study area, but no major rivers. Alberta Sustainable Resource Development manages the study area as part of the Cold Lake Subregional Integrated Resource Plan (Alberta Environmental Protection, 1996). Implications of this plan for the study area and this project are discussed in greater detail in the Conservation and Reclamation document (Attachment 2), however few limitations were identified. Scenic vistas or view points were not specifically identified through consultation activities, although Kehewin Lake and Moosehills Lake may be considered to have scenic qualities.

3.2 GENERAL TRANSMISSION LINE ROUTING CRITERIA (TS38)

- Minimize impacts with other land uses such as residences, built-up areas and oil and gas facilities.
- Utilize existing linear disturbances to minimize new disturbance and clearing, following existing power lines where possible.
- Follow road allowances where possible, for access, to reduce new clearing and to avoid impacts to agriculture.
- Keep routes as straight as possible, to reduce line length.
- Avoid environmentally sensitive areas such as watercourses, recreation areas, parks, campgrounds and wildlife habitat.
- Avoid wet areas and steep slopes for better access and to reduce environmental impacts.

3.3 ROUTE OPTIONS (TS38)

Preliminary route options were chosen based on the technical, economic, environmental and land-use criteria described in 3.1 and 3.2. The study area was closely analyzed to determine all feasible routes during the earliest stages of route development. A number of potential route options that were considered but eventually rejected prior to or during project notification and consultation activities are described as follows:

- **Alignment through centre of section 12 of 58-7-W4 to the centre of section 7 of 58-6-W4M:** rejected due to the complexity of the Highway 41 crossing, and the proximity to water bodies and a residence adjacent to the alignment.
- **Alignment from the south boundary of 12 of 58-7-W4 to the south boundary of south east corner of SE 7-58-6-W4M:** rejected due to the complexity of the Highway 41 crossing, and the proximity to three residences adjacent to the alignment.
- **Alignments north of the North Option in 58-6-W4M:** rejected due to concentration of communication towers in the Moose Hills in the W½ section 10, and continuous wet ground conditions (relative to other alignments) in sections 11 and 12 of 58-6-W4, and sections 7 and 8 of 58-5-W4.
- **Alignment through the centre of sections 1 to 4 of 58-5-W4M:** rejected due to the confluence of two creeks in the west half of section 3 that would have been difficult to span across without bisecting an 80-acre parcel in LSDs 11 and 12 of NW 3, the bisection of several cross-cultivated fields (Section 2, E½ of 3), and the presence of Dion Lake in W½ of section 1.
- **Alignments in Range 5 south of the South Option:** rejected due to the combination of additional line length and costs, and relative high number of residences compared to other more viable options.

Route options were presented to landowners and land occupants, the general public and agencies. One additional route option in the eastern portion of the study area (**Central** route) was introduced after the Project Information package was distributed in November 2008, and during consultation activities April 2009. Route options and alternatives, including those developed through landholder consultation, are shown on the reference map drawing A-02 in Attachment 4, and on the constraint maps in Attachment 8. The preliminary route options, excluding those developed during consultation activities, are shown on the preliminary routes map P-05 in Attachment 10. The route alternatives are described as six main routes and are further described in Table 6. The descriptions and maps include "node" identifiers (e.g., "N1") as reference points to clarify the description.

3.3.1 Proposed Route

The **Proposed** route from "tap-point" NC1, goes **east/south** for 2.8 km along quarter-section boundaries to N7; **southeast** to N9; **north** along undeveloped road allowance to N10; **east** for 11.2 km along quarter section boundary to N20; **north** for 1.6 km along an open but undeveloped road allowance to C22; **east** for 3.2 km along quarter-section boundaries to C25; **north** for 800 m along a developed road allowance to N26;

east for 3.2 km along Twp. Rd. 582 to N29; **south** along Rge. Rd. 50 for 1.2 km to S29; then **east** 0.2 km to the proposed Lindbergh substation site. Total length is 28.0 km, with about 70% along Crown land and about 30% along private property.

3.3.2 Proposed Alternative Route

The **Proposed Alternative** route follows the same alignment as the **Proposed** route to C25 where it continues straight east along quarter section lines to C29; **south** 0.5 km along Rge. Rd. 50 to S29; then **east** 0.2 km to the proposed Lindbergh substation site. Total length is 26.5 km, with about 70% along Crown land and about 30% along private property.

3.3.3 North Route

From tap-point N1 or NC1 to NC5, the **North** route would follow the same alignment as the **Proposed** route from NC5 to N20 where it would continue **north** for 2.4 km along an open but undeveloped road allowance to N23; **east** for 6.4 km along developed road allowance to N29; **south** along Rge. Rd. 50 for 1.2 km to S29; then **east** 0.2 km to the proposed Lindbergh substation site. Total length is 28.1 to 28.9 km, with about 70% along Crown land and about 30% along private property.

3.3.4 North Central Route

From tap-point N1 or NC1, would go **east/south** following the **north route** to N8; then along undeveloped road allowances **south** 0.8 km to C8, **east** 6.4 km (to C15) and **north** 0.8 km to rejoin the north option at N15. The **North Central** route would then follow the **Proposed** route from N15 to N20; then **north** for 1.6 km along an open but undeveloped road allowance to C22; **east** for 6.4 km along quarter-section boundaries to C25; then would follow the **Proposed Alternative** route to the Lindbergh substation site. Total length is about 28 km, with about 65% along Crown land and about 35% along private property.

3.3.5 Central Route

The **Central** route was added during the consultation stage of the project and would follow the same alignment as the **Proposed** route to N20, then would go **north** 0.8 km along an open but undeveloped road allowance to D21, **east** 6.5 km along section lines to D29, **north** along Rge. Rd. 50 to S29, then **east** 0.2 km to the proposed Lindbergh substation site. Total length is 25.5 km, with about 70% along Crown land and about 30% along private property.

3.3.6 South Route

From "tap-point" C1, SC1 or S1, would go **eastward** for 2.4 to 3.2 km along Highway 28 (C1-C5) or along quarter/section lines to S5; **east** for 7.2 km along quarter

lines to S15; **north** for 0.8 km along an undeveloped road allowance to C15; **east** for 6.4 km along mainly undeveloped road allowances to S20; **east** along Twp. Rd. 580 for 6.4 km; **north** 2.4 km along Rge. Rd. 50 to S29, then **east** 0.2 km to the proposed Lindbergh substation site. Total length is about 26 km, with about 40% along Crown land and about 60% along private property.

3.3.7 Connecting Routes

Several north-south road allowances were included as preliminary route options and served to connect various portions of the routes described above.

TABLE 6 - Summary of 7LA53 Preliminary Route Options

Routing Factor	Proposed Route	Proposed Alternative Route	Rejected North Route Option	Rejected North Central Route	Rejected Central Route	Rejected South Route
Line Length	28.0 km	26.5 km	28.1 to 28.9 km	28.0 km	25.5 km	25.4 to 26.2 km
Adjacent Linear Facility						
Road or Road Allowance	9.2 km	4.4 km	11.3 km	8.6 to 9.4 km	3.3 km	15.7 to 16.5 km
Quarter/Section Line	16.6 km	19.8 km	15.1 or 15.9 km	15.9 to 17.5 km	19.1 km	8.1 to 9.7 km
Cutline/Trail	7.0 km	7.0 km	6.1 km	9.2 km	7.7 km	4.4 km
Cross Country	2.3 km	2.3 km	2.3 km	1.5 km	3.0 km	0.2 to 0.6 km
Adjacent Access	7.2 km	2.3 km	7.1 km	0.5 to 1.3 km	2.0 km	8.0 to 10.4 km
Nearest Residence	375 m	375 m	49 m	375 m	150 m	40 m
Residences ≤ 50 m	0	0	1	0	0	2
Residences > 50 m ≤ 100 m	0	0	1	0	0	3 to 4
Residences > 100 m ≤ 200 m	0	0	1	0	1	4 to 5
Residences > 200 m ≤ 400 m	1	1	2	1	4	7 to 9
Number of Landowners (within 800 m of route)	42	42	43-46	44-50	44	51-53
Total Number of Landowner/Landholder Objections	2	2	3-4	2-3	10	10-11
Number of Land Parcels (within 800 m of route)	147 • Crown: 79 • Private: 68	143 • Crown: 75 • Private: 68	150 to 156 • Crown: 70 • Private: 68	143 to 151 • Crown: 70-71 • Private: 72 to 81	138 • Crown: 70 • Private: 68	142 to 148 • Crown: 52 • Private: 90 to 96
Number of Land Parcels With Objections (within 800 m of route)	14	13	13-14	13-14	21	27-28
Agricultural Soil Capability						
CLI Class 3	7.1 km	8.8 km	6.8 or 7.6 km	9.5 to 10.3 km	9.0 km	8.3 to 9.0 km
CLI Class 4	4.4 km	3.1 km	4.3 km	3.1 km	2.6 km	7.5 km
CLI Class 5	13.8 km	12.5 km	14.4 km	12.5 km	11.6 km	8.5 km
CLI Class 6	2.3 km	1.2 km	1.7 km	1.3 km	1.2 km	0.4 km
ROW Clearing Estimate	43 ha	45 ha	39 or 40 ha	43 to 45 ha	39 ha	29 to 30 ha
Line Cost (preliminary comparative estimate)	\$4.3 M	\$4.3 M	\$4.3 to 4.8 M	\$4.6 M	\$4.0 M	\$4.0 to 4.2 M

 = Most favourable.  = Least favourable.

Proposed Route = NC1→N8→N9→N20→C22→C25→N26→ N29→S29→Lindbergh Substation.

Proposed Alternative Route = NC1→ N8→N9→N20→C22→C25→C29→S29→Lindbergh Substation.

Rejected North Route = N1 or NC1→N8→N9→N20→N23→N26→ N29→S29→Lindbergh Substation.

Rejected North Central Route = N1 or NC1→N8→C8→C15→N15→N20→C22→C25→C29→S29→Lindbergh Substation.

Rejected Central Route = NC1→N8→N9→N20→D21→D29 →S29→Lindbergh Substation.

Rejected South Route = C1, SC1 or S1→S15→C15→S20→S27→S29→Lindbergh Substation.

3.4 COMPARISON OF ROUTE OPTIONS (TS38)

In evaluating the route options and selecting the proposed route, the Applicant considered the information summarized in Tables 6 and 7, and information obtained through consultation with the affected landholders, agencies and interested parties as further described in Attachment 3. In analyzing the key characteristics in Table 6, none of the route options appear to be outright superior to others. While the **South** option is the shortest and least expensive, it has the greatest number of objections. Many aspects of the **Proposed, Proposed Alternative, North** and **Central** options are similar because they share a common alignment from the tap-point NC1 at 7L53 to Node N20 (approximately 17.6 km). The **North Central** option also shares a significant portion of common alignment with these options (tap-point NC1 to N8, and N15 to N20; approximately 11.4 km). As such, key characteristics such as line length, cost, proximity to residences and objections are relatively similar, with each route having marginal strengths and weaknesses in certain categories relative to the other routes.

Through consultation with the affected landowners, occupants, agencies and interested parties, the Applicant identified an objection associated with the N1 tap-point along the **North Central** and **North** route options. Since the **North Central** and **North** route options have an alternate tap-point at NC1, the **Proposed, Proposed Alternative, North Central** and **North** route options could all be constructed without objections to Node N20. Based on this conclusion, ATCO conducted a further and separate comparative analysis of the key characteristics concentrating on the "east study area" from Node N20 or S20 to the proposed Lindbergh substation (Table 7). The analysis included in Table 7 proved to be critical in identifying the superior route.

3.4.1 East Study Area

With the exception of the **South** option and the utilization of the N1 tap-point (for the **North Central** and **North** options), no objections or outstanding concerns were identified from the tap point on existing 144 kV transmission line 7L53 to Node N20 or S20. However, consultation on the route options within the east study area proved much more complicated. Table 7 details key criteria in determining ATCO's preferred option.

3.5 SELECTION OF PROPOSED ROUTE

The **Proposed** route is ATCO's **preferred** route option based on all factors considered, including the potential impacts to the one directly affected landowner with outstanding concerns and/or objections. However, with the Commission's approval, ATCO is also prepared to construct the **Proposed Alternative** option. For the ease of comparison, relatively favourable characteristics associated with the various route

options in Table 7 are highlighted in green, and relatively unfavourable criteria are highlighted in pink.

3.5.1 **Proposed Route**

The Applicant has selected the **Proposed** route as the option that best meets the selection criteria. The **Proposed** route has:

- The least number of landowner objections,
- Only one objection from a directly affected landowner,
- The greatest separation from the nearest residence,
- Good accessibility from developed road allowances, which minimizes transmission line construction and maintenance costs, and
- Almost no impact on agricultural operations.

While the **Proposed** route was one of the longest route options initially considered in the east study area, line costs are only marginally higher than the lowest cost route options because of good access and limited brushing requirements. The one directly affected landowner that indicates objections to the **Proposed** route also is directly affected by and objects to all other route options in the east study area for the reasons detailed in Section 4.a of Attachment 3. In ATCO's opinion, the outstanding concerns and objections that have been communicated to ATCO by the objecting party are most effectively mitigated by the **Proposed** route and include eliminating the placement of structures on the objecting landowner's property and minimizing the amount of easement required on the landowner's property. The **Proposed** route has no significant environmental impacts that would trigger a review under the *Environmental Protection and Enhancement Act*. For environmental and resource considerations, it is generally equal to others, with the minimization of habitat fragmentation by following existing linear disturbances.

3.5.2 **Proposed Alternative Route**

The **Proposed Alternative** is 1.6 km shorter, and has a slightly lower cost (by approximately \$100,000) than the **Proposed** route, but in ATCO's opinion does not mitigate the outstanding landholder concerns as well as the **Proposed** route. Access to **Proposed Alternative** route is also less favourable when compared to the **Proposed** route. The **Proposed Alternative** route has:

- The least number of landowner objections,
- Only one objection from a directly affected landowner, and
- The greatest separation from the nearest residence.

3.5.3 **North Route**

The **North** route was rejected primarily because of the proximity of the **North** option to one residence (less than 50 m) in SW 15-58-5-W5M, and the associated objection from the landowner. The landowners indicating objections to the **Proposed** route have also

indicated their objection to the **North** route for the same reasons as described in Section 4 of Attachment 3.

3.5.4 North Central Route

The **North Central** route is the same as the **Proposed Alternative** route in the east study area. The **North Central** route was rejected based on the presence of two unmitigated landowner concerns that were identified in the west study area. The **North Central** route is 1.6 km shorter, and has a slightly lower cost than the **Proposed** option, but in ATCO's opinion does not mitigate the outstanding landholder concerns as well as the **Proposed** route. Access to the **North Central** route is less favourable when compared to the **Proposed** route. The landowners indicating objections to the **Proposed** route have also indicated their objection to the **North Central** route for the same reasons as described in Section 4 of Attachment 3.

3.5.5 Central Route

Despite being the shortest and lowest cost route, the **Central** route was rejected based on having 10 outstanding objections, including 7 from landowners of directly affected land parcels, 4 of which have residences, and 3 additional landowners within 800 m. The **Central** route was the least acceptable route option in the east study area based on the feedback received from stakeholders. The landowners indicating objections to the **Proposed** route have also indicated their objection to the **Central** route for the same reasons as described in Section 4 of Attachment 3.

3.5.6 South Route

Despite being the shortest, least expensive, and most easily accessible route option considered, the **South** route was rejected based on significantly greater number of landowner objections (11) and parcels with objections relative to other options, and on its proximity to nearby residences. The **South** route was opposed in both the east and west study areas, and overall was the route option most opposed by stakeholders. The landowners objecting to the **Proposed** route have also indicated their objection to the **South** route for the same reasons as described in Section 4a and 4b of Attachment 3.

TABLE 7 - Summary of 7LA53 East Study Area Route Options

Routing Factor	Proposed Route	Proposed Alternative	Rejected North Route	North Central Route*	Rejected Central Route	Rejected South Route
Line Length	10.4 km	8.9 km	10.4 km	8.9 km	7.9 km	8.6 km
Adjacent Linear Facility						
Road or Road Allowance	7.0 km	2.1 km	10.2 km	2.1 km	1.1 km	8.4 km
Quarter/Section Line	3.2 km	6.7 km	0 km	6.7 km	5.7 km	0 km
Cutline/Trail	0 km	0.2 km	0 km	0.2 km	0.3 km	0 km
Cross Country	0.2 km	0.2 km	0.2 km	0.2 km	0.9 km	0.2 km
Adjacent Access	5.4 km	0.5 km	6.2 km	0.5 km	0.3 km	6.4 km
Nearest Residence	522 m	522 m	49 m	522 m	187 m	30 m
Residences ≤ 50 m	0	0	1	0	0	2
Residences > 50 m ≤ 100 m	0	0	1	0	0	3
Residences > 100 m ≤ 200 m	0	0	1	0	1	3
Residences > 200 m ≤ 400 m	0	0	1	0	3	6
Number of Landowners (within 800 m of route)	17	17	16	17	18	14
Total Number of Landowner/Landholder Objections	2	2	3	2	10	6
Number of Land Parcels (within 800 m of route)	55 • Crown: 29 • Private: 26	51 • Crown: 26 • Private: 25	60 • Crown: 36 • Private: 24	51 • Crown: 26 • Private: 25	45 • Crown: 20 • Private: 25	46 • Crown: 13 • Private: 33
Number of Land Parcels With Objections (within 800 m of route)	12	11	12	11	19	21
Agricultural Soil Capability						
CLI Class 3	3.3 km	4.4 km	2.2 km	4.4 km	4.6 km	2.3 km
CLI Class 4	2.7 km	1.4 km	2.6 km	1.4 km	0.9 km	5.1 km
CLI Class 5	3.4 km	2.1 km	4.3 km	2.1 km	1.3 km	0 km
CLI Class 6	0.5 km	0 km	0.5 km	0 km	0 km	0 km
ROW Clearing Estimate	12 ha	14 ha	11 ha	14 ha	9 ha	9 ha
Line Cost (preliminary comparative estimate)	\$1.6 M	\$1.5 M	\$1.6 M	\$1.5 M	\$1.3 M	\$1.3 M

 = Most favourable.  = Least favourable.

*The **North Central** route is identical to the **Proposed Alternative** route in the east study area.

Proposed Route = N20→C22→C25→N26→ N29→S29→Lindbergh Substation.

Proposed Alternative Route = N20→C22→C25→C29→S29→Lindbergh Substation.

Rejected North Route = N20→N23→N29→S29→Lindbergh Substation.

North Central Route = N20→C22→C25→C29→S29→Lindbergh Substation

Rejected Central Route =N20→D21→D29 →S29→Lindbergh Substation..

Rejected South Route = S20→S27→S29→Lindbergh Substation.

3.5.7 Landowner Route Options – North and Far North "AO"

Additional route options were considered during the consultation stage at the request of one party (Mr. Opanavicius) who indicated objections to the **Proposed** and **Proposed Alternative** routes. Both private landowners/families with outstanding concerns or objections to the project (Opanavicius and Ockerman) have suggested that their concerns may be mitigated if ATCO chose a route that did not directly affect any privately-owned land in the east study area. These route options are shown on the reference and route maps as the **North AO** and **Far North AO** routes. ATCO committed to completing a preliminary route analysis of the routes recommended by Mr. Opanavicius and to provide the assessment details to his representative Ray Strom. The results of this comparison are included in Table 8. ATCO has concluded through the preliminary assessment that the **AO routes** are inferior to the **Proposed** and **Proposed Alternative** routes. Compared to the **Proposed** route, the **AO routes** add 3.2 to 4.0 km of line length, double the tree-clearing for the east study area, and increase the cost by \$0.4 to \$0.8 million. The primary advantage is the possible removal of the remaining concerns or objections with the **Proposed** route and **Proposed Alternative**. Responses to these concerns or objections are provided in sections 4.a and 4.b of Attachment 3.

TABLE 8 – Summary of 7LA53 East Study Area Route Options, Proposed vs. Landowner (AO) Routes

Routing Factor	Proposed Route	Proposed Alternative	Rejected North AO Route	Rejected Far North AO Route
Line Length	10.4 km	8.9 km	13.6	14.4
Adjacent Linear Facility				
Road or Road Allowance	7.0 km	2.1 km	6.2 to 6.6 km	6.5 to 6.9 km
Quarter/Section Line	3.2 km	6.7 km	5.3 to 7.3 km	0 to 2.0 km
Cutline/Trail	0 km	0.2 km	0.5 to 0.8 km	0.5 to 0.8 km
Pipeline	0 km	0 km	0 to 1.6 km	4.8 to 7.4 km
Cross Country	0.2 km	0.2 km	0.2 km	0.4 to 0.8 km
Adjacent Access	5.4 km	0.5 km	3.0 km	3.3 km
Nearest Residence	522 m	522 m	510 to 890 m	510 to 890 m
Number of Landowners (within 800 m of route)	16	17	9 to 13	9 to 13
Total Number of Landowner/Landholder Objections	2	2	0	0
Number of Land Parcels (within 800 m of route)	45 • Crown: 24 • Private: 21	44 • Crown: 22 • Private: 22	69 • Crown: 54-55 • Private: 14-15	66 • Crown: 53-54 • Private: 12-13
Number of Land Parcels With Objections (within 800 m of route)	8	8	0	0
ROW Clearing Estimate	12 ha	14 ha	22 or 24 ha	22 or 24 ha
Line Cost (preliminary comparative estimate)	\$1.6 M	\$1.5 M	\$2.0 M	\$ 2.4 M

3.6 SELECTION OF SUBSTATION LOCATION

The selection of a new site requires consideration of factors such as suitable site conditions (level, well-drained), good access, sufficient space, adequate setback from adjacent development and environmentally sensitive areas but in a location with sufficient area and egress for connection of transmission and distribution lines.

Key siting criteria for substation location were as follows:

- Proximity to the Inter Pipeline Fund pump station.
- Adequate setback from other land uses such as residences and adjacent developments.
- Level topography and well drained soils.
- Sufficient space for present and future substation and line development.
- All weather road access for construction and operational access.
- Away from environmentally sensitive areas such as watercourses, recreation areas, parks, campgrounds and wildlife habitat.
- Minimal impact to forested or agricultural lands.

The Lindbergh substation site was determined by the location of the point of delivery for new customer service as specified by AESO. The new Lindbergh substation site will have suitable site conditions (level, well-drained); good access; sufficient space for initial development, incoming lines and substation expansion; and adequate setback from adjacent development and environmentally sensitive areas. There are no residences within approximately 3 km of the site.

ATCO will apply to Alberta Sustainable Resource Development for a Crown disposition for the substation property.

4.0 PROPOSED ROUTES

4.1 PROPOSED ROUTE

The proposed 144 kV transmission line 7LA53 from the tap point on existing 144 kV transmission line 7L53 to the proposed Lindbergh substation 969S is described in detail in the segment-by-segment descriptions that follow. Detailed route information is shown on the proposed route mosaics, drawings A-08a and A-08b (Attachment 6) and on the cross-sections drawings A-09a to A-09d in Attachment 7.

Tap Point NC1 to N7 (3.7 km)

Centre line location:	1 m north of section lines (NC1 to NC5, and N6 to N7); 1 m east of a quarter line (NC5 to N6).
Predominant vegetation:	Section 11 mainly treed; section 1 & 12 cultivated pasture.
Right-of-way width:	18 m along quarter line (9 m each side of section or ¼ line); may overlap existing pipeline corridor (NC3 to NC5).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	Some oil/gas leases.
Crossings:	Pipeline, power distribution line, county road, 2 unnamed creeks.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Crown and private lands.
Residences within 400 m:	0.
Route mosaic:	Drawing A-08a.
Cross-section drawing:	"A" to "C" (drawing A-09a).

N7 to N8A (1.4 km)

Centre line location:	Cross country, centred on 15 m right-of-way.
Predominant vegetation:	Mainly treed areas with some cultivated, pasture land.
Right-of-way width:	15 m (7.5 m each side).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	Some oil & gas leases.
Crossings:	Highway 41, power distribution line, 1 unnamed creek & sloped area.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Private land.
Residences within 400 m:	1
Route mosaic:	Drawing A-08a.
Cross-section drawing:	"D" (drawing A-09b).

N8A to N9 (0.6 km)

Centre line location:	Cross-country, centred on 24 m right-of-way (H-frame structure to span cultivated area).
Predominant vegetation:	Mainly treed areas with some cultivated, pasture land.
Right-of-way width:	24 m (12 m each side).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	None.
Crossings:	Unnamed creek.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Private land.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08a.
Cross-section drawing:	"E" (drawing A-09b).

N9 to N10 (0.5 km)

Centre line location:	0.6 m within east boundary of undeveloped road allowance.
Predominant vegetation:	Cultivated, pasture land with some tree cover.
Right-of-way width:	9 m adjacent to road allowance.
Veg. control right-of-way:	0 to 20 m (east side, as required).
Adjacent features:	None.
Crossings:	None.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Private land.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08a.
Cross-section drawing:	"F" (drawing A-09b).

N10 to N20 (11.3 km)

Centre line location:	1 m north of quarter line.
Predominant vegetation:	Mainly treed.
Right-of-way width:	18 m (9 m each side of ¼ line) ; may overlap existing road-lease (N13 to N14).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	Existing road-lease plan 0 to 12 m north of ¼ line (N13 to N14); some oil/gas leases.
Crossings:	4 oil lease roads/pipelines; 8 creek crossings.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Mainly Crown land, some private quarter-sections.
Residences within 400 m:	None.
Route mosaic:	Drawings A-08a and A-08b.
Cross-section drawing:	"A" (drawing A-09a) and "G" (drawing A-09c).

N20 to C22 (1.6 km)

Centre line location:	0.6 m within west boundary of road allowance.
Predominant vegetation:	Adjacent land cultivated, pasture, some treed.
Right-of-way width:	9 m adjacent to road allowance.
Veg. control right-of-way:	0 to 20 m (east side, as required)
Adjacent features:	Some oil/ gas leases
Crossings:	Access road and pipeline.
Access:	Existing roads/ road allowances and proposed right-of-way.
Land ownership/jurisdiction:	Crown land.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08b.
Cross-section drawing:	"H" (drawing A-09c).

C22 to C25 (3.2 km)

Centre line location:	1 m north of quarter line.
Predominant vegetation:	Adjacent land cultivated, pasture, some treed.
Right-of-way width:	18 m (9 m each side of ¼ line).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	Some oil/ gas leases.
Crossings:	1 county road, 1 power distribution line, 2 pipelines, 2 unnamed creeks.
Access:	Existing road allowances and proposed right-of-way.
Land ownership/jurisdiction:	Crown and private lands.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08b.
Cross-section drawing:	"A" (drawing A-09a).

C25 to N26 to N29 (Proposed) (4.1 km)

Centre line location:	0.6 m within west boundary of developed road allowance (C25 to N26); 0.6 m within south boundary of developed road allowance (N26 to N29).
Predominant vegetation:	Adjacent land cultivated, pasture, some treed.
Right-of-way width:	9 m adjacent to road allowance.
Veg. control right-of-way:	0 to 20 m (west and south sides, as required).
Adjacent features:	Some oil/ gas leases.
Crossings:	County roads (3), pipelines (5 locations).
Access:	Existing road allowances and proposed right-of-way.
Land ownership/jurisdiction:	Private and Crown lands.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08b.
Cross-section drawing:	"H" and "I" (drawing A-09c).

N29 to C29 (0.8 km)

Centre line location:	0.6 m within east boundary of Hwy 657 road plan.
Predominant vegetation:	Adjacent land cultivated, pasture, some treed.
Right-of-way width:	9 m adjacent to road allowance/plan.
Veg. control right-of-way:	0 to 20 m (east side, as required).
Adjacent features:	Rge.Rd.50, pipeline corridor.
Crossings:	Pipeline.
Access:	Existing road and proposed right-of-way.
Land ownership/jurisdiction:	Private land.
Residences within 400 m:	None.
Route mosaic:	A-08b.
Cross-section drawing:	"J" (drawing A-09d).

C29 to S29 (0.6 km)

Centre line location:	0.6 m within east boundary of Rge.Rd.50 road plan.
Predominant vegetation:	Adjacent land cultivated, pasture, some treed.
Right-of-way width:	9 m adjacent to road allowance/plan.
Veg. control right-of-way:	0 to 20 m (east side, as required).
Adjacent features:	Rge.Rd.50, pipeline corridor, oil/ gas leases.
Crossings:	None.
Access:	Existing road and proposed right-of-way.
Land ownership/jurisdiction:	Crown land.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08b.
Cross-section drawing:	"J" (drawing A-09d).

S29 to Lindbergh Substation 969S (0.2 km)

Centre line location:	Cross country, centred on 15 m right-of-way.
Predominant vegetation:	Adjacent land treed.
Right-of-way width:	15 m (7.5 m each side).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	IPF Lindbergh pump station site.
Crossings:	Pipeline corridor.
Access:	Existing road and proposed right-of-way/substation site.
Land ownership/jurisdiction:	Crown land.
Residences within 400 m:	None.
Route mosaic:	A-08b.
Cross-section drawing:	"D" (drawing A-09b)

4.2 PROPOSED ALTERNATIVE ROUTE

The **Proposed Alternative** route is the same as the detailed by segment-by-segment descriptions for the **Proposed Route** in Section 4.1, from the tap point at NC1 to C25, and C29 to the proposed Lindbergh Substation site. Detailed route information for the portion of alignment unique to the **Proposed Alternative** route, C25 to C27 to C29, is described below and is shown on the proposed route mosaic, drawing A-08b (Attachment 6), and on the cross-section drawing A-09a in Attachment 7.

C25 to C29 (Proposed Alternative) (3.2 km)

Centre line location:	1 m north of quarter line.
Predominant vegetation:	Mainly treed; some cultivated pasture.
Right-of-way width:	18 m (9 m each side of ¼ line).
Veg. control right-of-way:	0 to 20 m (each side, as required).
Adjacent features:	Some oil/ gas leases.
Crossings:	County roads (2), Rge.Rd.50, pipelines (3 locations); unnamed creek.
Access:	Existing roads and proposed right-of-way.
Land ownership/jurisdiction:	Private and Crown land.
Residences within 400 m:	None.
Route mosaic:	Drawing A-08b.
Cross-section drawing:	"A" (drawing A-09a).

5.0 ENVIRONMENTAL AND ELECTRICAL EFFECTS

5.1 ENVIRONMENTAL EFFECTS

ATCO will construct and maintain the proposed transmission facilities adhering to Alberta Environment's C&R/IL/95-2, *Environmental Protection Guidelines for Electric Transmission Lines*, and in accordance with the terms and conditions of the right-of-way agreements and easements, including any requirements identified in environmental field reports filed for easements on Crown land.

Measures to reduce the environmental impacts of this project are described in the conservation and reclamation document (Attachment 2), along with general reclamation and long term right-of-way management practices.

5.2 ELECTRICAL EFFECTS (TS25)

High voltage electrical transmission facilities may induce a voltage in metal objects that are located nearby. The most common objects are metal fences and buildings, telephone lines, and pipelines. Appropriate mitigation measures are outlined as follows.

Radio and Television Interference

The transmission facilities will be constructed and maintained in such a manner as to keep radio and television interference levels within limits acceptable to Industry Canada, the federal government department that regulates communications.

Telephone Facilities

Under certain conditions, power transmission facilities can induce both electrical noise and hazardous voltages on telephone lines. ATCO will work with TELUS before and after construction to identify and mitigate adverse impacts.

Metal Fences, Buildings and Structures

Where necessary, metal fences, buildings, and structures will be grounded by ATCO to minimize induced voltages. Minimum clearance required between all transmission facilities and buildings will be in accordance with the *Safety Codes Act* and regulations.

Oil and Natural Gas Well Heads

Regulations under the *Safety Codes Act* require that transmission facilities must not be located any closer than 40 m from any natural gas or oil well head. This requirement will be adhered to with the use of the most up-to-date information available. Well sites established subsequent to the date of our information and prior to Commission approval will be appropriately accommodated in the design of the project.

Pipelines

The *Safety Codes Act* and the *Pipeline Act* both have regulations to which the Applicant and the pipeline operators must adhere. ATCO, in conjunction with pipeline operators, will continue to meet the regulated standards so that both facilities can be operated safely.

Electric and Magnetic Fields (EMF)

While landowners and occupants occasionally raise questions regarding the potential for health effects from EMF, ATCO's review of available information on biomedical research and epidemiological studies indicates that EMF associated with high-voltage transmission facilities are not demonstrated to cause harmful biological effects.

6.0 PARTICIPANT INVOLVEMENT (TS11)

ATCO undertook a comprehensive consultation program with landholders, agencies and other interested parties, as described in Attachment 3, Public and Landholder Consultation. ATCO notified over 200 landholders, agencies and other potential interested parties within at least 800 m and up to several kilometres away from the preliminary route options.

ATCO has conducted individual consultation with the 95 landowners, occupants, agencies and interested parties within 800 m of the proposed route right-of-way and proposed substation. ATCO has confirmed no objections to the proposed route for all parties except for two families of private landowners, both of whom have indicated that they have outstanding concerns and/or objections. ATCO is in ongoing communications with the landowners and will continue to work with the landowners to address the outstanding concerns, as described in the consultation summary.

ATCO consulted the 11 landowners, occupants and agencies within 800 m of the Irish Creek substation site, and confirmed no concerns or objections.

Land ownership along the proposed transmission line right-of-way is partially freehold. Easements will be required on Crown lands.

Since the project is located in traditional area identified by several First Nation communities including Beaver Lake First Nation, Chipewyan Prairie Dene First Nation, Fort McMurray #468 First Nation, Frog Lake First Nation, Onion Lake First Nation, Kehewin Cree Nation, and Saddle Lake Cree Nation ATCO implemented a plan to ensure thorough and meaningful consultation with the affected communities. Consultation continues with each community regarding ongoing aspects of the Project. The consultation with each community is described in Attachment 3.

All parties will be provided a project update, and those on the proposed route will be advised of the construction schedule and details prior to construction.

7.0 CONCLUSION

Consultation with affected parties played an important role in the planning of these facilities. The **Proposed** and **Proposed Alternative** routes were selected based on input from landowners, occupants, agencies and interested parties potentially affected by the project. The Applicant believes that the proposed transmission facilities are the most acceptable and respectfully requests the Commission's timely and favourable approval.

If there are any questions concerning this submission please contact Deb Nelson, at 780-420-4151, or the project manager, Michael Bischof, at 780-420-3294.

Sincerely,
ATCO Electric Ltd.

< Original signed by >

Paul Goguen, P. Eng., MBA
Vice President, Transmission

ATTACHMENT 2

CONSERVATION AND RECLAMATION

ATCO Electric Ltd. proposes to construct approximately 26.5 to 28 kilometres (km) of new single circuit 144 kilovolt (kV) transmission line from a tap point on existing 144 kV transmission line 7L53 to the proposed Lindbergh Substation 969S, to provide power to a new Inter Pipeline Fund (IPF) pump station, approximately 30 km northeast of Elk Point, Alberta. These facilities are shown on the proposed route mosaics (drawing A-08a and A-08b, Attachment 6), and are described in the application text (Attachment 1 of this application to the Alberta Utilities Commission). The proposed line is a single-pole design.

Project study area setting and details are provided in Section 3 of Attachment 1. This document describes conservation and reclamation measures for the project.

1 Project Setting and Study Area

The entire project area is located within County of St. Paul. The eastern extent of the project study area is approximately 10 km north of Elk Point, and the western extent is approximately 15 km northeast of Lindbergh. The new transmission line will extend from the existing 144 kV transmission line 7L53 in LSD 4, SW 11-58-7-W4M (N 53.9915, E -110.9455), to the proposed Lindbergh substation 969S in LSD 4, SW 7-58-4-W4M (N 53.9936, E -110.5956), for a distance between 26.5 and 28.0 km, depending on the final approved route. Refer to Attachment 6, drawings A-08a and A-08b.

The project area is located in the "Central Mixedwood" subregion of east central Alberta, within the "Boreal Forest" (Natural Regions and Subregions of Alberta, 2005). The land is a mixture of privately owned agricultural land and forested Crown land. There is intensive industrial (oil and gas) development throughout the area. The proposed routes for 7LA53 do not cross any significant waterbodies, or Environmentally Significant Areas.

The study area is actively managed by government agencies according to the Cold Lake Subregional Integrated Resource Plan (CLSIRP) (Alberta Environmental Protection, 1996). Specifically, the study area falls into the La Corey-Moose Hills-Tulliby Lake Resource Management Area (RMA) where the management intent is:

To conserve a healthy ecosystem, and in so doing maintain and enhance a land base for improved and unimproved grazing, and conserve and enhance wildlife resources, particularly moose populations.

Management objectives and guidelines have been identified for the RMA in support of the management intent, and include strategies around agriculture, fisheries, historical resources, infrastructure, mineral resources, recreation, timber, tourism and wildlife. Relevant objectives and guidelines are discussed in more detail in Sections 14 to 17.

Detailed consultation has occurred with Alberta Sustainable Resource Development (ASRD) for route options impacting Crown Land. Consultation with ASRD representatives led to the identification of general concerns with the development/preservation of grazing areas on Crown Land, noxious weed infestation of right-of-ways, and the potential for soil erosion along steep slopes.

Major surface industrial facilities in the area include an existing Pengrowth processing facility (E½ 13-58-5-W4M), a major pipeline corridor along the east side of Range Road 50, and the new IPF pump station (SW 7-58-4-W4M), for which this transmission project is being constructed. The nearest occupied residence (NE 3-58-5-W4M) to the substation is located approximately 2.8 km southeast of the proposed site.

The proposed new 144 kV transmission line requires a minimum right-of-way of 9 metres (m) in width adjacent to road allowances, and a minimum of 15 to 18 m along quarter- or section-line boundaries or cross-country alignments (see right-of-way cross-sections, drawings A-09a to A-09d, Attachment 7). Additional area is required at corners and termination points for special structures and anchoring. The estimated ROW clearing for the project ranges from 43 to 45 ha. The proposed routes are detailed in Section 4.0 of Attachment 1. The scope of this activity is relatively minor with respect to surface disturbance, and the proposed facilities will be constructed in and along existing corridors or disturbances (road allowances, quarter section/section lines, field edges, and seismic lines), except for three portions of the routes detailed below.

- (a) 1.9 km of cross-country alignment between nodes N7 and N9 that is required to cross Highway 41 and maximize the distance from a large slough in the NE 6-58-6-W4M (Proposed and Proposed Alternative routes);
- (b) Approximately 1.5 km of route along generally undisturbed quarter section lines between nodes C22 and C25 (NW 9 and NW10-58-5-W4M) (Proposed and Proposed Alternative routes); and
- (c) Approximately 1.8 km of route along generally undisturbed quarter section lines between nodes C25 and C29 (NE 11 and 12-58-5-W4M).

The alignments described in (b) and (c) above are located in discontinuous patches of forest, intermixed with lowland spruce and shrub.

2 General Routing Considerations

The construction of the major portion of the Proposed and Proposed Alternative routes will occur on existing quarter- and section lines in privately-owned agricultural lands, and along existing seismic lines in Crown lands. Smaller segments of the line will occur along cleared or developed road allowances (Range Road 50, Township Road 582), particularly for the Proposed route. An overview of the routing is provided in Attachment 1.

The proposed routing avoids larger expanses of wetland and muskeg areas. Smaller pockets of wetland and muskeg areas are encountered in the W½ 2-58-6-W4M, and W½ 9 and 12-58-5-W4M.

This Proposed and Proposed Alternative routes are generally easily accessible for future maintenance as may be required.

3 Substation Considerations

The construction of the proposed Lindbergh substation 969S will be partially located on IPF's existing Lindbergh pump station site. This site is already entirely cleared, and has an industrial land use. ATCO intends to apply for a Crown lease on an approximately 144 by 115 m area immediately south of the pump station site. This area is partially cleared, and immediately adjacent to a major pipeline corridor (with several pipelines) and Range Road 50, which is heavily utilized by industrial traffic in the area. Development of the substation site will be minor and consistent with the surrounding land uses.

4 Requirements of Alberta Environment

The facilities proposed are not of a type requiring a Conservation and Reclamation Approval or an environmental impact assessment report under the *Environmental Protection and Enhancement Act* (EPEA).

5 General Conservation and Reclamation Measures

ATCO will undertake the alterations adhering to:

- Alberta Environment's C&R/IL/95-2, *Environmental Protection Guidelines for Electric Transmission Lines*;
- ATCO's general construction and maintenance environmental protection standards; and
- Terms and conditions of the applicable right-of-way agreements and easements.

All activity will be confined to the existing or acquired rights-of-way and to road allowances.

ATCO will follow standard good practices to minimize potential soil erosion and compaction, spills and prairie or forest fires, and to implement post-construction clean-up and reclamation. The majority of the area is accessible year round, and does not require seasonal timing considerations. Isolated segments of the proposed line may require site specific measures (e.g. seasonal timing, rig matting, etc.) to ensure environmental impacts such as soil erosion, soil compaction and rutting are minimized. Construction activities will be delayed if required by weather and soil conditions.

6 Equipment

All construction equipment will be sent to the right-of-way in a clean condition to minimize the risk of weed or disease introduction. Logging equipment and crawler tractors will be used for clearing the right-of-way where required. The following types of equipment may be used to construct the transmission line:

- pick up trucks for hauling crews;
- 1 ton trucks with generators;
- 3 and 4 ton drill trucks for digging holes;
- pole trucks with crane (similar to logging trucks);
- skidder or D6 Crawlers for pulling wire;
- 3 ton picker trucks for framing;
- Nodwells or LGP crawlers may be used to pull wire or drag poles depending on ground conditions; and
- all terrain vehicles (ATVs) or Nodwells may be used to transport crews to work sites.

7 Waste Disposal

The Applicant will ensure that during the course of the project no fuel, lubricating fluids, hydraulic fluids, antifreeze, herbicides, biocides, or other chemicals are released on the ground or into any watercourse. In the event of a spill, the spilled contents will be cleaned up to the satisfaction of the landowner, Crown or County.

Construction waste will be continuously collected and disposed of at an approved facility to avoid the attraction of wildlife. Waste containers will accompany each working unit. All garbage will be stored in wildlife-proof containers. Personnel will be made aware of proper disposal methods for cigarette butts and other hot or burning materials. Each working unit will have fire fighting equipment on hand as regulated by the *Forest and Prairie Protection Regulations*.

8 Operation and Maintenance

Continued operation and maintenance of the line will require access to the structures and conductors. Access for work on the line will be from the acquired right-of-way, using existing access where available.

Tree clearing will be required along many segments of the Proposed or Proposed Alternative routes, based on the present land use and land cover. Vegetation management and removal, where required to control the growth of vegetation along the line will be done in accordance with the standards of practice for the Industrial Vegetation Management Association of Alberta.

9 Vegetation Clearing

ATCO will remove all trees and woody shrubs that would infringe on the required clearance to maintain the safe and reliable operation of the transmission facilities. All incompatible vegetation and trees posing a risk to the line will be cleared from the right-of-way as well as areas surrounding anchors.

10 Additional Right-of-Way for Tree Clearing

Minimum right-of-way widths are described in Section 2.4 of the application text (Attachment 1). Additional right-of-way width for tree clearing will also be required, based

on tree height. Standard right-of-way widths have been devised for areas having tree growth of varying heights to ensure that the vegetation does not pose a problem. The clearing standards for tree free zones are based on tree heights in relation to the location of the nearest conductor at maximum sag. Typical tree-free requirements are shown on Table 2-2 included in this attachment.

11 Timber Salvage

The exact right-of-way width and the timber to be salvaged will be determined once the clearing requirements along the proposed line have been flagged following final field surveys.

First right of refusal for salvaged timber generally will be given to the landowner or timber disposition holder (Forest Management Agreement or quota holder). On Crown land, ATCO will be in contact with the local forest officer and the disposition holder to address salvage regarding the specifications, decking and transportation components for the salvaged timber.

12 Slash Disposal

All piled slash not required for corduroy, slash berms or rollback will be burned during periods of low fire hazard. If burning is delayed, slash will be stored along the edge of the right-of-way. Slash burning crews will have fire fighting equipment on hand as regulated by the *Forest and Prairie Protection Regulations*. ATCO will avoid locating burn piles on peat-rich soils in order to limit the risk of residual fires after construction. During periods of high fire hazard, ATCO will wait until the hazard is reduced. Burn locations will be hand checked or infrared scanned upon completion of the burning.

13 Clearing at Watercourse Crossings

Trees will be felled away from watercourses to reduce the damage to stream banks, beds and adjacent trees. Steep slopes near the watercourse will be hand cleared to minimize disturbance. Trees felled within the high watermark will be removed in a manner that minimizes disturbance of the bed and banks. ATCO will not stand or yard trees across the watercourses.

14 Wildlife and Species-at- Risk

Several wildlife resource inventories were searched to identify the status of wildlife in the study area. Several species were identified using the Species at Risk Public Registry (Species at Risk Act (SARA), and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC, 2009)), the General Status of Alberta Wild Species 2005 (Alberta Sustainable Resource Development), and the Report of Alberta's Endangered Species Conservation Committee (AESCC, June 2006). Table 1 details the species identified and their status according to each inventory.

TABLE 2-1. Status of Wildlife Species Potentially Present in the Study Area.

Common Name	Scientific Name	Species at Risk Act (SARA)	Committee on the Status of Endangered Wildlife in Canada (COSEWIC)	General Status of Alberta 2005	Alberta Endangered Species Conservation Committee
North American Badger	<i>Taxidea taxus</i>	Not Listed	Not Listed	Sensitive	Data Deficient
Piping Plover	<i>Charadrius melodus</i>	Endangered	Endangered	At Risk	Endangered
Black-throated Green Warbler	<i>Dendroica virens</i>	Not Listed	Not Listed	Sensitive	Species of Special Concern
Sprague's Pipit	<i>Anthus spragueii</i>	Threatened	Not Listed	Sensitive	Species of Special Concern
Cape May Warbler	<i>Dendroica tigrina</i>	Not Listed	Not Listed	Sensitive	In Process
Barred Owl	<i>Strix varia</i>	Not Listed	Not Listed	Sensitive	Species of Special Concern
Western Grebe	<i>Aechmophorus occidentalis</i>	Not Listed	Not Listed	Sensitive	Species of Special Concern
Canadian Toad	<i>Bufo hemiophrys</i>	Not Listed	Not Listed	May be at Risk	Data Deficient

The study area falls in the extreme extents of some species' range, including the North American Badger, Piping Plover and Sprague's Pipit. Encountering these species during construction activities is unlikely, particularly given that Piping Plovers are shorebirds and Sprague's Pipit's generally utilize native grasslands. These habitats are not present in the project's study area. Obvious signs of the North American Badger include den sites and any encounter will be documented during pre-construction environmental field reporting.

The Green Warbler, Cape May Warbler, Western Grebe and Barred Owl are all bird species with more widely distributed geographical ranges. The Green Warbler and Cape May Warbler are both bird species demonstrating a preference for old growth forests, and the Western Grebe is a colonial water bird. The proposed facilities will not impact these habitat types and consequently impacts to these species are considered unlikely. Habitat associated with the Barred Owl may be consistent with the study area, and documentation of potential signs of the owl will be documented during pre-construction environmental field reporting.

The Canadian Toad also has a relatively wide distribution encompassing the study area, and generally prefers wetland habitat. Impacts from the proposed facilities on the Canadian Toad are expected to be minimized because the proposed routes generally avoid wetland and riparian habitat, construction activities in wet areas will be completed under frozen conditions (during subterranean hibernation), and the right-of-way likely has little long term impact on habitat suitability.

The La Corey-Moose Hills-Tulliby Lake RMA (CLSIRP, 1996) identifies the key wildlife resources in the area as moose and white-tailed deer populations and habitat, as well as waterfowl and upland bird, and black bear populations in the context of recreational sport hunting opportunities, and furbearers to maintain trapping activities in the area. The Proposed and Proposed Alternative routes bisect white-tailed deer wintering areas through the Kehewin Lake – Moosehills Lake drainage, and moose range in the study area east of the Moose Hills (Attachment 8, drawing A-11b). Consultation with ASRD representatives indicated that the proposed transmission line was not in conflict with wildlife management strategies and that no specific mitigation actions are required.

The Alberta Natural History Information Centre (ANHIC) advised that no Elements of Occurrence have been identified within the project study area.

Any wildlife that is encountered will not be harassed or fed. Construction personnel will not be permitted to have dogs or firearms on the right-of-way, and the recreational use of ATVs and/or snowmobiles by construction personnel on the right-of-way will be prohibited.

15 Environmentally Sensitive Areas

The CLSIRP (1996) identified key wildlife habitat in the study area to include white-tailed deer wintering areas and moose range (see Section 14). No other environmentally sensitive areas have been identified.

The western and eastern extents of the study area are relatively flat. The central portion of the study area includes the Moose Hills to the north and the Kehewin Lake - Moosehills Lake drainage to the southwest and as such includes some considerable slopes and valleys. Specific facility planning and construction activities will be implemented to ensure effective mitigation of soil erosion concerns identified during consultation with ASRD representatives.

Grazing leases on Crown lands exist along and adjacent to the proposed route. Maintenance and enhancement of forage production is a key management objective on these lands, and lease holder sensitivities to access control and fencing integrity have been identified. Implementation of access restriction measures and fence integrity monitoring during and upon the completion of construction activities will be required. The potential for establishment of noxious weeds along the proposed right-of-way in these areas will require specific monitoring and management strategies as well, as indicated during consultation with ASRD.

16 Local Landscape and Environmental Considerations in Conservation and Reclamation

For conservation and reclamation purposes, general procedures and environmental considerations are provided under several headings in this document. Given that there will be some deviations from paralleling existing road allowances, some additional considerations for conservation and reclamation are warranted for this study area where the proposed route encroaches on agricultural lands, pasture lands, ephemeral wetlands and riparian areas. Additional measures to be followed for these areas will include:

- Monitoring of construction activities (pre-disturbance assessment and on-going assessment) to ensure that any impacts to the landscape will be noted and appropriate mitigation plans developed for remedy.
- Halting of construction activities in wet or inclement weather to avoid soil compaction, rutting and soil erosion.
- Replacement of topsoil that may have been bladed or removed during construction activities (i.e., single lift and subsequent replacement to avoid permanent exposure of sub-horizons).
- Use of low ground pressure (LGP) equipment to minimize soil disturbance and compaction.
- Use of appropriate re-vegetation seed mixtures for native grasslands, to be approved through consultation with landowner or ASRD, as may be required.
- Use of weed control methods, to be approved through consultation with the landowner, County of St. Paul, or ASRD, as may be required.
- Post-disturbance (grass species establishment, and noxious weed infestation) monitoring, in consultation with the landowner, County of St. Paul, or ASRD, as may be required.
- Wetland and riparian areas should not be affected, as these features can be spanned through placement of poles and use of structures that permit longer spans. In the event of any impact to these areas, mitigation plans will be developed in consultation with the appropriate authorities (landowner or ASRD).

17 Historical Resources and Sensitive Areas

Alberta Culture and Community Spirit (ACCS) requested an historic resources impact assessment be completed along all sections of the Proposed and Proposed Alternative routes. This work is scheduled to commence in May 2009, under snow-free and unfrozen conditions. In the interim, ATCO has conducted a review of publicly available historical resource information (see drawing A-11b, Attachment 8), and has found only one noted location in the study area. Historical Resource Values (HRV) of 4 and 5 are located in parts of Sections 2, 3, 10 and 11 of 58-5-W4M. An HRV of 4 indicates that a historical resource is present and may require avoidance, and an HRV of 5 indicates that a historic resource is believed to be present. The rejected Central route and one connecting route option were the only routes bisecting the identified historical resources.

ATCO considers the potential of encountering any sites with historical resource value very low. Work in proximity to any such sites that may be discovered during construction will be suspended until permission to continue is granted by ACCS.

18 Agricultural Impacts

Canada Land Inventory (CLI) Agricultural Soil Capability classification for the project area indicates that soils are of CLI classes 3, 4, 5 and 6 (drawing A-11a, Attachment 8), with a moderately to severely restricted range of crops, and special conservation practices required for agricultural activity. The current land use is primarily pasture (on both freehold land, and Crown grazing leases), hayland and some cereal cropping. There are several buried pipelines and many oil and gas well sites located on the agricultural properties throughout the study area. Construction activities will be limited to within the acquired easement right-of-ways and the existing road allowances. Linear distances traversed by each route option in each CLI class are described in Attachment 1, Tables 6 and 7.

The management intent within the La Corey-Moose Hills-Tulliby Lake RMA (CLSIRP, 1996) includes the maintenance and enhancement of the land base for grazing. Through detailed consultation with ASRD representatives, it was identified that the Proposed and Proposed Alternative route options may actually contribute to the enhancement of grazing opportunity on lands where Crown grazing leases exist through tree clearing which accelerates forage production and easier fence construction and maintenance.

The introduction and establishment of noxious weeds along the right-of-way has been identified as a concern by ASRD representatives. Appropriate measures to minimize introduction and monitor/manage infestations will be taken, as described in Sections 10 and 11.

Construction may occur during the crop growing or haying season. Efforts will be made to avoid damages to crops, haylands and pasture where possible. ATCO will provide compensation for crop and fence damages associated with the construction activities where applicable. All construction equipment will be sent to the right-of-way in a clean condition to minimize the potential for introduction of weeds or disease.

If necessary ATCO will properly brace fences prior to cutting, and fences will be returned to pre-construction condition or as agreed upon with the landowners. Gates will be closed after use.

19 Landscape, Aesthetics and Residential Considerations

The Proposed and Proposed Alternative routes are located primarily on quarter or section lines, and along road allowances. The distance to the closest residences along these routes have been maximized relative to the rejected route options. The nearest residence is located approximately 375 m from the Proposed and Proposed Alternative routes (see Table 6, Attachment 1).

There were no areas identified on the route that would require tree planting or landscaping. No residents have identified visual concerns, but ATCO is committed, if requested, to work with affected landowners and residents during the line design and construction stages, including consulting on structure placement to minimize impacts to agricultural operations

and to reduce the visibility of specific structures from residential viewpoints where practical. If concerns with the specific location of structures were identified, that information would be taken into account with reasonable flexibility to locate the poles to reduce impacts.

Scenic vistas or view points were not specifically identified through consultation activities, although Kehewin Lake and Moosehills Lake may be considered to have scenic qualities.

20 Noise and Traffic

Any significant noise or traffic is generally limited to the initial construction period, when larger trucks and equipment are required for clearing, hauling and construction. Longer-term traffic is generally limited to less frequent traffic and lighter equipment, mainly along the existing highways and developed Township and Range roads. There would be no appreciable noise increase from the proposed 144 kV facilities relative to the local agricultural and oil-field activities and associated traffic, and the at the existing pump station site. The transformer at the Lindbergh substation would be the only significant continuous noise source. There are no dwellings within 2.8 km of the proposed Lindbergh substation. ATCO's experience with similar equipment indicates that permissible sound levels as specified in AUC Rule 012 (ERCB Directive 038) would be met.

21 Electrical Effects

Where necessary, metal fences, buildings, and structures will be grounded by ATCO to minimize induced voltages. Minimum clearance required between all transmission facilities and buildings will be in accordance with the *Safety Codes Act* and regulations.

ATCO will work with the pipeline operators to ensure compliance with the *Safety Codes Act*, *Pipeline Act* and applicable regulations for all pipeline crossings. ATCO will ensure that applicable regulations for setbacks are followed.

The transmission facilities will be constructed and maintained in such a manner as to keep radio and television interference levels within limits acceptable to Industry Canada, the federal government department that regulates communications.

22 Socio-economic Considerations

The proposed alterations will not have a significant socio-economic impact relative to the various industrial facilities in the area. Nearby established centres such as Elk Point, St. Paul and Bonnyville, have services and amenities equipped to deal with construction activities of this magnitude.

**Table 2-2
TYPICAL TREE CLEARING CHART
FOR 144 kV TRANSMISSION LINE (WISHBONE STRUCTURE)**

Width of Clearing from Centre Line

TREE HEIGHT (m)	CLEARING WIDTH (m)
1	8.0
2	9.0
3	11.0
4	12.0
5	13.0
6	14.0
7	15.0
8	16.0
9	17.0
10	17.5
11	18.5
12	19.5
13	20.0
14	21.0
15	22.0
16	22.5
17	23.5
18	24.5
19	25.5
20	26.0
21	27.0
22	28.0
23	29.0
24	29.5
25	30.5
26	31.5
27	32.5
28	33.5
29	34.5
30	35.5

Chart includes both conifers and hardwoods,
and is designed for a 10 year tree-free cycle.

PUBLIC AND LANDHOLDER CONSULTATION

1. SUMMARY OF PUBLIC AND LANDHOLDER CONSULTATION (TS11)

Consultation with affected parties played an important role in the planning of the proposed route. ATCO Electric Ltd. (ATCO) undertook a comprehensive consultation program with landowners and occupants ("landholders"), agencies and other interested parties. ATCO notified approximately 200 landholders, agencies and other potentially interested parties within at least 800 metres (m) of, and up to several kilometres away from, the preliminary route and site options for the new transmission line project. In addition, the 11 agencies and landholders in the vicinity of Irish Creek substation were notified of the proposed alterations at Irish Creek. An open house was held on December 11, 2008, in Elk Point. The proposed route was selected based on input from the landholders, agencies and other potentially affected parties. Consultation activities are summarized in Table A.

ATCO has conducted personal consultation with all of the 95 landholders, agencies and interested parties within 800 m of the proposed 7LA53 right-of-way and substation site, including:

- 11 government departments, agencies/organizations that are landholders
- 65 private individual landowners or occupants
- 15 other industry/business landholders and
- 4 trappers

ATCO has confirmed no objections to the proposed route for all parties except for two families of private landowners who have indicated that there are outstanding concerns. ATCO will continue to work to address the outstanding concerns, as described in this consultation summary.

Since the project is located in traditional areas identified by Beaver Lake First Nation, Chipewyan Prairie Dene, Fort McMurray #468, Frog Lake, and Onion Lake First Nations communities and Kehewin Cree and Saddle Lake Cree communities. ATCO implemented a plan to ensure thorough and meaningful consultation with the affected communities. Consultation continues with each community regarding ongoing aspects of the project. The consultation with the each community is described in the Section 2.

ATCO also consulted the 4 agencies, 3 private landholders and 4 industry landholders within 800 m of the Irish Creek substation site, and confirmed no concerns with the proposed alterations at Irish Creek.

Section 4 and Tables B and C in Section 5 summarize comments or concerns identified through the consultation process, and ATCO's responses for the proposed transmission line project. Landowner questions or concerns that currently may be unresolved are identified in Section 4. Comments received from relevant agencies are summarized in Table B. Comments from landholders along the proposed route are summarized in Table C. Table D summarizes the number of potential objections by private/individual landowners along other

route options, as identified during consultations. Table E in Section 5 lists the parties and feedback consulted for Irish Creek alterations. Feedback information from transmission line consultations was applied in the comparison of route options, Sections 3.4 and 3.5 of Attachment 1 (application text document).

All those on the proposed route and in the vicinity of the substation sites will be provided a project update, and will be advised of the construction schedule and details prior to construction. Parties along rejected routes will be provided an update for closure of the notification and consultation process.

2. SUMMARY OF CONSULTATION WITH FIRST NATION COMMUNITIES

ATCO Electric's relationship with Aboriginal communities has evolved over the years and we continue to further enhance relationships with our Aboriginal communities. ATCO believes that responsible development must take into account the issues and concerns of all ATCO stakeholders, including Aboriginal communities. Through information sharing, consultation and collaboration, ATCO works with Aboriginal communities to understand issues and concerns so as to avoid and mitigate impacts within Aboriginal communities' traditional lands wherever possible.

Based on information from First Nation communities and Alberta Sustainable Resource Development (ASRD), ATCO determined the project area to be within the traditional land use areas identified for seven First Nation communities:

- Beaver Lake First Nation
- Chipewyan Prairie Dene First Nation (CPDFN)
- Fort McMurray #468 First Nation (FMFN)
- Frog Lake First Nation (FLFN)
- Kehewin Cree Nation (KCN)
- Onion Lake First Nation (OLFN)
- Saddle Lake Cree Nation (SLCN)

Starting in late November 2008, project information packages were hand-delivered and the project was discussed with each of the First Nations. The CPDFN confirmed (via e-mail) they have no concerns and further consultation is not required for this project. To date, none of the other First Nations have identified any objections or concerns with the proposed routes. ATCO will continue to work with the communities to address any interests or concerns that may be identified. This will include joint site visits during May 2009 as requested and as ground and weather conditions permit, to identify potential impacts to traditional rights and uses. We will work together with the Aboriginal communities to address their concerns.

3. LANDHOLDER/PUBLIC CONSULTATION STEPS

With routing data gathered, ATCO selected preliminary routes for full landholder/public review. On November 28, 2008, ATCO mailed an information package to landholders, agencies and other potentially interested parties, advertised the project in the local newspapers, and held an open house in Elk Point on December 11, 2008. As more information on routes was gathered and analyzed, including initial feedback from respondents along the various routes, ATCO selected a preferred route, made necessary adjustments, and completed personal consultation in person, by phone, or by direct correspondence with the parties along the preferred route. The proposed route and proposed alternative reflected the feedback from that consultation.

A comprehensive program of personal consultation with landholders throughout the entire study area commenced after the open house and continued through to March 2009 (see Table A). ATCO followed up with personal consultation, either in person or by phone (at the stakeholder's preference), with landholders on all route options. Using the feedback obtained in the initial consultations, ATCO identified a preferred route, made necessary adjustments, and undertook more intensive consultation to ensure that all landholders had been consulted, and to ensure that all concerns of all landowners along the proposed route were documented and mitigated wherever possible. All landholders for the proposed site and route have been consulted (see Table C).

TABLE A – KEY CONSULTATION ACTIVITIES

Timing	Activity or Milestone
November 2008	Preliminary meeting with representatives from Frog Lake, Kehewin Cree, Chipewyan Prairie, Fort McMurray, Onion Lake, Cold Lake, Saddle Lake, Beaver Lake First Nations; Elizabeth Métis and Fishing Lake Métis Settlements.
November 2008	Project Information packages sent to approximately 200 landholders, agencies and interested parties for the new transmission line and substation, and 11 parties for the Irish Creek substation alterations. Project details published on ATCO Electric's world-wide web site.
December 2008	Open house in Elk Point, attended by approximately 30 guests.
December 2008 to March 2009	Follow up with 149 landholders, agencies and interested parties along all preliminary routes; comments documented/ reviewed. Routing criteria and consultation feedback used to determine preferred route(s). Consulted the 11 parties for Irish Creek substation. Personal communications with the 95 landholders, agencies and interested parties adjacent to and within 800 m of proposed route and substation, to discuss route and further document/address concerns.
December 2008 to present	Ongoing consultation with First Nation communities.
June 2009 (proposed)	Updated Project Information packages to be sent to landholders, agencies and interested parties, and updated project details published on ATCO Electric's world-wide web site.

4. OUTSTANDING CONCERNS

4.a. Mr. A. K. Opanavicius

Mr. Opanavicius owns properties along the **Proposed Route**: LSDs 15 and 16 of NE 10-58-5-W4M, N½ 11-58-5-W4M, and SW 14-58-5 W4M (cultivated and pasture land with oil and gas activities). The **Proposed** route is located 0.6 m within the road allowance boundary on the west side of the north-south road allowance between sections 10 and 11 (route segment C25 to N26), and 0.6 m within the road allowance boundary on the south side of the east-west road allowance between sections 11 and 14 (segment N26 to N27). Mr. Opanavicius's sons, P.M. Opanavicius and P.C. Opanavicius, have registered caveats (re: Agreement for Sale) on Mr. Opanavicius's properties. ATCO understands that Mr. Opanavicius and his designated representative, Mr. Ray Strom, were representing all interests associated with the Opanavicius family on the lands in question, and ATCO has treated them as one objection for the purpose of analyzing route options.

Mr. Opanavicius also owns properties along the **Proposed Alternative Route**: section 11 of 58-5-W4M (cultivated and pasture land with oil and gas activity); The **Proposed Alternative** route is located 1 m north of the east-west quarter section lines that divide the north and south halves of section 11 (route segment C25 to C27).

The Opanaviciuses have three residences (two occupied, one unoccupied) in the project area, located approximately 2.4 km south of the **Proposed** route and **Proposed Alternative** route, in NE 34 and- NW 35-57-5-W4M.

Members of the Opanavicius family attended ATCO's open house on December 11, 2009, while Mr. Opanavicius was out-of-country, and upon his return ATCO engaged in telephone conversations with Mr. Opanavicius and Mr. Strom to discuss the project. Several concerns were identified:

- i. Opposed to any routes on or near lands.
- ii. Concerned about the future development of a "corridor" where other industrial developments follow the transmission route on or adjacent to his land.
- iii. Does not want easement registered on his land.
- iv. Does not want to farm in the vicinity of transmission facilities.
- v. Suggested route should be located north of his properties and in Crown land.
- vi. Requests compensation for himself and Mr. Strom for time spent to consult with ATCO.

Mr. Opanavicius has declined to meet, in person, to discuss project details unless he is provided compensation for consultation, and he has referred consultation to Mr. Strom. ATCO's payment for consultation policy was communicated to Mr. Opanavicius and Mr. Strom on three occasions. Mr. Opanavicius was out-of-country and could not be contacted until February 16, 2009, and was out-of-country again as of February 27, 2009.

ATCO's Response to Opanavicius Concerns:

- i. Regarding opposition to any routes on or near Opanavicius' lands, Mr. Opanavicius owns a continuous (except road allowance) 6.5 km block of land oriented in a north to south direction, only 1.8 km west of the proposed Lindbergh substation site. ATCO believes that there is no reasonable way of entirely avoiding Mr. Opanavicius' lands, and instead derived the **Proposed** route that eliminates structure placement and minimizes easement requirements on his properties. The **Proposed Alternative** route would require the placement of structures on his properties, and requires additional easement, but minimizes the linear distance of line affecting his properties.
- ii. Regarding concerns about the future development of a "corridor", ATCO is unaware of any such future developments in the transmission system, and confirmed with the AESO that they too are not aware of any future development in the area. The **Proposed** route follows developed road allowance wherever it is adjacent to Mr. Opanavicius' properties, and the presence of the road can present limitations to future routing of major linear infrastructure.
- iii. Regarding the registration of easement on property, the **Proposed** route minimizes the amount of easement required on Opanavicius property by utilizing a route that follows the developed road allowances, and requires practically no additional right-of-way for vegetation control. ATCO estimates that 9 m of easement will be required on Opanavicius properties for a linear distance of 2.0 km (1.8 ha total area). Land use for the 1.8 ha of ATCO's required easement should not change from its current use. The **Proposed Alternative** route requires approximately 2.9 ha of easement plus an additional amount of easement for vegetation control for approximately 750 m, and is therefore considered to have a greater impact on Mr. Opanavicius in this regard.
- iv. Regarding not wanting to farm in the vicinity of transmission facilities, the line can be designed for the **Proposed** route to result in the placement of no transmission structures (poles) on Opanavicius properties. The **Proposed Alternative** route would require the placement of approximately 12 to 15 structures to be located on Opanavicius properties, 6 to 8 of which would be placed in uncleared (forested) land. ATCO has requested feedback from Mr. Opanavicius as to which side of the road allowance (for the **Proposed** route) or the quarter section line (for the **Proposed Alternative** route) would be preferred for routing, but did not receive a preference.
- v. Regarding the suggestion that the route should be placed north of his properties and in Crown land, ATCO considered Mr. Opanavicius's suggestion, completed a preliminary analysis of key routing factors, and provided the assessment of such route options in written correspondence and a meeting with Mr. Strom on April 24, 2009. ATCO determined the suggested routes to be technically deficient because of additional cost (\$400,000 to \$800,000), additional line length (+4.8 km), increased environmental impacts (additional 18 ha of brushing/clearing required) and reduced accessibility (0 to 4.0 km less access) relative to the **Proposed** route and **Proposed Alternative** route.

- vi. Regarding compensation for meeting with ATCO and reviewing the project, ATCO would expect costs to be compensated in accordance with AUC Rule 009. After reviewing an unsolicited invoice from Mr. Strom, ATCO determined that the requested rates for compensation were not consistent with AUC Rule 009.

On May 4, 2009, ATCO provided further information, via e-mail, as requested at the April 24, 2009, meeting with Mr. Strom. Mr. Strom also indicated at the April 24 meeting he would be in correspondence with Mr. Opanavicius and would advise ATCO of outcomes. A telephone message was left, on May 8, 2009, with Mr. Strom requesting feedback and providing an updated Facility Application filing date, but a return call has not been received.

ATCO has clearly communicated a desire to continue working with the Opanavicius' to try to resolve any outstanding concerns or objections.

4.b. Mr. G. & Mrs. C. Ockerman,

Property along the **Proposed Route** and the **Proposed Alternative Route**: LSDs 13 and 14 of NW 3-58-5 W4M (private land, primarily pasture) and SE 16-58-5 W4M (Crown land grazing lease). The edge of right-of-way for the **Proposed** route and the **Proposed Alternative** route would be located approximately 795 m north of the Ockerman's parcel of land and approximately 820 m south of G. Ockerman's grazing lease.

The Ockerman residence is located in the SW 27-57-5-W4M, approximately 5.6 km south of the **Proposed** route and **Proposed Alternative** route.

Mr. Ockerman attended the Open House on December 11, 2008, and was consulted by telephone, and in person during all stages of the project. He informed ATCO representatives of his standing as a County Councillor with the County of St. Paul and stated he objected to the entire project. Mr. Ockerman's concerns were:

- i. That a north-south route utilizing an existing industrial corridor from Bonnyville should be utilized.
- ii. Why an existing distribution line was not being utilized.
- iii. Whether or not the County had been consulted.
- iv. That the preliminary and proposed routes all limited future development of private property and road allowances in the area.
- v. That the route should be located in Crown lands north of the **Proposed** route and **Proposed Alternative** route and not affect private property.

ATCO's Response to Ockerman Concerns:

- i. Regarding the use of an existing industrial corridor, ATCO determined that the industrial corridor in question contains several industrial pipelines, passes immediately adjacent to the proposed Lindbergh substation site, and exits the extreme northeast corner of the study area (northward toward the Town of Bonnyville). The **Proposed** route follows the industrial corridor in question for approximately 1.3 km, and then

goes west towards the tap point on existing 144 kV transmission line 7L53. The **Proposed Alternative** route follows the industrial corridor for approximately 0.3 km. Since the industrial corridor continues north (and not west at any point) it does not provide a potential routing solution beyond the degree to which the routing options are already paralleling the industrial corridor. ATCO understands Mr. Ockerman's concern is potentially relevant to alternatives considered by the AESO as part of the need identification process. ATCO has provided Mr. Ockerman with the appropriate contact information for the AESO, and made the AESO aware of Mr. Ockerman's concerns.

- ii. Regarding the use of an existing distribution line, ATCO provided information to Mr. Ockerman indicating that the distribution system in the Lindbergh area was not capable of providing the new load requirements, and that a new transmission line and substation in the area had been determined to be the proposed solution.
- iii. Regarding whether or not the County of St. Paul had been consulted, ATCO confirms that Mr. Tim Mahdiuk from the County of St. Paul was consulted, and indicated no concerns or objections to any of the route options. On April 2, 2009, ATCO attended a County of St. Paul council meeting with the AESO, where Mr. Ockerman was present, and confirmed that Mr. Mahdiuk was the appropriate contact for County of St. Paul. Following the April 2, 2009 meeting Mr. Mahdiuk was contacted by telephone once again and indicated no concerns or objections to any of the route options.
- iv. Regarding limitations to future development in the area, ATCO has chosen a **Proposed** route that follows developed road allowances wherever possible, maximizes distance from existing residential properties in the area, follows property boundaries, and only directly affects agricultural and Crown land parcels. The **Proposed** route and **Proposed Alternative** route would have very limited impact on future development in the area.
- v. Regarding the suggestion that the route should be placed north of private property and in Crown land, ATCO considered this suggestion, completed a preliminary analysis of key routing factors, and presented the assessment of such route options during a meeting with Mr. and Mrs. Ockerman on April 27, 2009. ATCO determined the suggested routes to be technically deficient because of additional cost (\$400,000 to \$800,000), additional line length (+4.8 km), increased environmental impacts (additional 8 to 12 ha of brushing/clearing required) and reduced accessibility (0 to 4.0 km less access) relative to the **Proposed** route and **Proposed Alternative** route.

ATCO will continue to work with the Mr. Ockerman to try to resolve any outstanding concerns or objections.

5. SUMMARY OF COMMENTS

The following tables summarize the comments and concerns of Agencies (Table B), landholders on the proposed route including the proposed alternative (Table C), and landholders along rejected routes (Table D), for the proposed transmission line and Lindbergh substation. Table E summarizes comments and concerns for the agencies and landholders for Irish Creek substation.

TABLE B – SUMMARY OF AGENCY COMMENTS, 7LA53-LINDBERGH (Part 1 of 2) (TS5)

Organization	Comments/Concerns	Applicant's Response
MUNICIPAL		
County of St. Paul	Send referral to Tim Mahdiuk. No concerns.	Complied See Table C
County of Two Hills	Send referral to Robert Jorgensen. No concerns.	Complied
PROVINCIAL		
Alberta Environment	Send referral to Al Corbett. No concerns.	Complied
Alberta Culture and Community Spirit Heritage Resources Management Parks & Protected Areas ANHIC	HRIA required: Historical Resources Act clearance to be obtained prior to construction. Report any historic resources encountered during construction. No concerns. No occurrences recorded in system to date, for elements on tracking lists in the vicinity of area of interest.	Will comply Will comply N/A N/A
Alberta Sustainable Resource Development Fish and Wildlife Division Rangeland Management Public Lands	Prefer south route to avoid habitat fragmentation and provide contiguous forest cover for wildlife during critical periods. No other concerns. South route preferred. Proposed Routes – section 11-58-7 W4M, prefer line to follow south section line. Weed management plan in place for construction and maintenance. Ensure adequate Aboriginal consultation. Utilize the Cold Lake Integrated Resource Plan for easement applications. Provide erosion control plan for areas with rough topography. Commit to annual inspections of ROW to monitor and address interim reclamation issues.	South route rejected. Proposed routes maximize existing cutlines, roads, and trails. South route rejected. Will comply Will comply Will comply Will comply. Will comply.
Alberta Transportation Development and Planning Dick Golonka Athabasca	Apply for Highway crossing permit. No concerns.	Will comply.

TABLE B – SUMMARY OF AGENCY COMMENTS, 7LA53-LINDBERGH (Part 2 of 2)

Organization	Comments/Concerns	Applicant's Response
FEDERAL		
Transport Canada Navigable Waters	Navigable Waters Protection advises all water crossings will require separate applications.	Will comply.
Civil Aviation	Submit Aeronautical Clearance form if within 6 km of airport.	N/A
NAV CANADA Fisheries and Oceans	Submit line design data for review.	Will comply.
Habitat Impact Assessment	Watercourse crossings during construction- provide information on crossing structures.	Will comply.
Navigable Waters	Referred to Transport Canada.	
UTILITIES / OTHER		
TELUS	Provide induction mitigation if required.	Will comply.
Elk Point REA	No concerns with proposed and proposed alternative routes.	

TABLE C – SUMMARY OF LANDHOLDERS, PROPOSED ROUTE(S) (Part 1 of 5)

(TS5, TS6, TS12, TS14, TS15, TS16, TS17)

GOVERNMENT / AGENCY LANDOWNERS AND LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
ASRD – Public Lands	PNT (11).	(See Table B).	(See Table B).
ASRD – Fish and Wildlife	PNT (1).	(See Table B).	(See Table B).
ASRD –Rangeland Management	PNT (8). CNT (5).	(See Table B).	(See Table B).
THE COUNTY OF ST. PAUL	Freehold (1)	No concerns.	N/A
PRIVATE LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
ADOMAITIS, J.	Freehold (within 800 m) SE & NW 3-58-7 W4M.	No concerns with proposed or proposed alternative routes.	
ARDEN, L.	Freehold (within ROW) NW 6-58-6 W4M.	No concerns with proposed or proposed alternative routes..	
BERBER, M.	Occupant (within 800 m).	No concerns with proposed or proposed alternative routes.	
BOYCHUCK, D.	TPA 387	See Table D.	
BROWN, I.	Freehold (within ROW) SW 6-58-6 W4M	New fence; gate on ROW required.	Will comply.

TABLE C – SUMMARY OF LANDHOLDERS, PROPOSED ROUTE(S) (Part 2 of 5)

PRIVATE LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
BURAK, D.	Freehold (within 800 m) SW 10-58-7 W4M	No concerns with proposed or proposed alternative routes.	
CAMERON, D. & S.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
CAPJACK, B.	Freehold (within 800 m) North 80 Acres NW & SW 10 & North 80 Acres SW 15-58-5 W4M Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
CHAN, D.	Freehold (within ROW) South 80 Acres NW & NE 10-58-5 W4M	No concerns with proposed or proposed alternative routes.	
CHRISTENSEN, R.	Freehold (within 800 m) South 80 Acres SW 10-58- 5 W4M	Concerns regarding health for herself and livestock. No objection to the proposed or proposed alternative routes.	Follow up with L/O, provide literature on EMF.
CZERKAWSKI, G. & M.	Freehold (within ROW) NW 6-58-6 W4M	Requests gate on ROW.	Will comply.
DESILETS, T.	Freehold (within 800 m) Plan 0825126 Block 1 Lot 1	No concerns with proposed or proposed alternative routes.	
DUMAIS, F.	TPA 416	See Table D.	
FAITHFUL, R.	TPA 396	See Table D.	
FERENCE, K. & C.	Freehold (within 800 m) NE 31-57-6 W4M	No concerns with proposed or proposed alternative routes.	
FRISBY, C. & S.	Freehold (within ROW) SW 6-58-6 W4M	No concerns with proposed or proposed alternative routes. Discuss salvageable timber.	Will comply.
GIBSON, D. & V.	Freehold (within 800 m) SE 9-58-5 W4M	No concerns with proposed or proposed alternative routes.	
GOLLEDGE, D. & D.	Freehold (within ROW & 800 m) NE 32-57-6 W4M & W ½ 5-58-6 W4M & NW 36-57-7 W4M	No concerns with proposed or proposed alternative routes.	
HAWKINS, J.	Freehold (within 800 m) NW 31-57-6 W4M	No concerns with proposed or proposed alternative routes.	
HILLEBRAND, J. E. & E.	Freehold (within 800 m) NW 7-58-4 W4M & SE 4- 58-5 W4M Occupant (within 800m)	No concerns with proposed or proposed alternative routes.	
HILLEBRAND, J. L.	Occupant (within 800m)	No concerns with proposed or proposed alternative routes.	
HILLEBRAND, K.	Freehold (within ROW) NE 3 & SE 10-58-5 W4M	No concerns with proposed or proposed alternative routes.	
HILLEBRAND FARMS C/O K. HILLEBRAND	Occupant (within ROW & 800 m)	No concerns with proposed or proposed alternative routes.	
KINCH, V.	Freehold (within 800 m) NE 31-57-5 W4M	No concerns with proposed or proposed alternative routes.	

TABLE C – SUMMARY OF LANDHOLDERS, PROPOSED ROUTE(S) (Part 3 of 5)

PRIVATE LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
KRAGNES, D.	Freehold (within 800 m) SW 4-58-5 W4M Occupant (within ROW & 800 m)	Keep line on north side of quarter line – avoid freehold lands and corrals	Will comply.
KRAGNES, L. & D.	Occupant (within ROW & 800 m)	Keep line on north side of quarter line – avoid freehold lands and corrals	Will comply.
LAU, E.	Freehold (within ROW) South 80 Acres in NW & NE 10-58-5 W4M	No concerns with proposed or proposed alternative routes.	
LAURSEN, M	Freehold (within 800 m) NE 36-57-7 W4M	No concerns with proposed or proposed alternative routes.	
LESYK, W. & J.	Freehold (within 800 m) NE 3-58-7 W4M	No concerns with proposed, or proposed alternative routes..	
LESYK, W.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
MCKENZIE, M.	Occupant (within ROW)	No concerns with proposed or proposed alternative routes. Interested in obtaining salvageable timber from lease.	Will consider and advise.
MOOSE HILLS VENTURES LTD C/O L. AARBO & F. MYSHANIUK	Freehold (within ROW) Occupant (within ROW)	Install Texas gates on ROW. Interested in obtaining salvageable timber from lease.	Will comply. Will consider and advise.
MUTCH, K. & L.	Freehold (within ROW) SE 1-58-7 W4M	No concerns with proposed or proposed alternative routes. Surveyors to contact when route is flagged to determine line placement.	Will comply.
MYSHANIUK, J.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
NELSON, D.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
NELSON, J. V.	Freehold (within 800 m) South 80 Acres SW 15-58-5 W4M	No concerns with proposed or proposed alternative routes.	
NELSON, N.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
NELSON, R.	TPA 424	See Table D.	
NIELSEN, K. & B.	Freehold (within 800 m) Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
NIELSON, L.	Occupant (within ROW)	No concerns with proposed or proposed alternative routes.	
NIELSON, M.	Occupant (within ROW)	No concerns with proposed or proposed alternative routes. Requests business opportunity.	Will consider and advise.
OCKERMAN, D. & E.	Freehold (within ROW) NE 9-58-5 W4M Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
OCKERMAN, G. & C.	Freehold (within 800 m) North 80 Acres NW 3-58-5 W4M	Objects to routes on/ near private lands. See Section 4.b.	

TABLE C – SUMMARY OF LANDHOLDERS, PROPOSED ROUTE(S) (Part 4 of 5)

PRIVATE LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
OPANAVICIUS, A. K.	Freehold (within ROW) NE 10 (North 80 Acres) & N ½ 11-58-5 W4M Freehold (within 800 m) NE 32 & NW 33-57-5 W4M S½ 11, SW 14-58-5 W4M	Objects to all proposed routes. See Section 4.a.	
OPANAVICIUS, P. M.	Caveat-Agreement for Sale NE 10 (North 80 Acres) & N ½ 11-58-5 W4M NE 32 & NW 33-57-5 W4M S½ 11, SW & NW 14 and NE 15-58-5 W4M	Objects to all proposed routes. See Section 4a. A. K. Opanavicius handles all matters regarding lands.	
OPANAVICIUS, P. C.	Caveat-Agreement for Sale NE 10 (North 80 Acres) & N ½ 11-58-5 W4M NE 32 & NW 33-57-5 W4M S½ 11, SW & NW 14 and NE 15-58-5 W4M	Objects to all proposed routes. See Section 4a. A. K. Opanavicius handles all matters regarding lands.	
ORR, J. & M.	Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
PILISKO, D.	Freehold (within ROW) SE 1 (West 30 Acres) & SW 1-58-7 W4M	No concerns with proposed, or proposed alternative routes.. Discuss salvageable timber.	Will comply.
PILISKO, D.	Freehold (within ROW) NE 1-58-7 W4M Freehold (within 800 m) SE 12-58-7 W4M	No concerns with proposed or proposed alternative routes.	
PILISKO, D. & I.	Freehold (within ROW) NW 1 & SW 12-58-7 W4M Freehold (within 800 m) NW 12-58-7 W4M	No concerns with proposed or proposed alternative routes.	
PILISKO, E.	Freehold (within 800 m) SE & N½ 2-58-7 W4M Occupant (within ROW and 800 m)	No concerns with proposed or proposed alternative routes.	
SKARSEN , J.	Freehold (within 800 m) NE 36-57-7 W4M	No concerns with proposed or proposed alternative routes.	
SMITH, G.	Freehold (within 800 m) NE 35-57-6 W4M Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
SMITH, L.	Freehold (within 800 m) NE 35-57-6 W4M Occupant (within 800 m)	No concerns with proposed or proposed alternative routes.	
STONE, R.	Freehold (within 800 m) NE 31-57-5 W4M	No concerns with proposed or proposed alternative routes.	
STONE, M. G.	Freehold (within 800 m) N ½ 31-57-5 W4M SW 5 & SE 6-58-5 W4M	No concerns with proposed or proposed alternative routes.	
THOMPSON, S.	Freehold (within 800 m) NW 31-57-6 W4M	No concerns with proposed or proposed alternative routes.	
UCHMAN, J.	Freehold (within ROW) SW 6-58-6 W4M	No concerns with proposed or proposed alternative routes.	
VAN MAARION, G. & L.	Freehold (within ROW) SE 6-58-6 W4M Freehold (within 800 m) E½ 6-58-6 W4M & Plan 0222129 Block 1 Lot 2	Avoid structures in fields wherever possible. No concerns with proposed or proposed alternative routes..	Provided structure placement options to landowners.

TABLE C – SUMMARY OF LANDHOLDERS, PROPOSED ROUTE(S) (Part 5 of 5)

PRIVATE LANDHOLDERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
WESTMAN FARMS C/O D. WESTMAN	Occupant (within ROW and 800 m)	No concerns with proposed or proposed alternative routes.	
WOO, R. & L.	Freehold (within ROW) (South 80 Acres) NW 10 -58-5 W4M	No concerns with proposed or proposed alternative routes.	
YOUNG, D.	Freehold (within 800 m) SW 2-58-7 W4M	No concerns with proposed or proposed alternative routes.	
YOUNG, K.	Freehold (within 800 m) SW 2-58-7 W4M	No concerns with proposed or proposed alternative routes.	
ZACHARUK, J.	Freehold (within ROW) SE 10-58-7 W4M Freehold (within 800 m) NE 10-58-7 W4M	No concerns with proposed or proposed alternative routes.	
INDUSTRY / MISCELLANEOUS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
ALBERTA-PACIFIC FOREST INDUSTRIES	Deciduous Timber Permit (1)	<p>Several agencies and oil/gas, forestry or utility operators identified the need for ATCO to obtain the necessary approvals or crossing agreements. These are considered routine matters rather than outstanding concerns, and would be handled as standard industry practice.</p> <p>ATCO will be contacting all of those parties from whom crossing consents or agreements are required when applying for the easements, following survey when the line and right-of-way details are known.</p>	
ALTAGAS UTILITIES INC.	Utility Right of Way (32), Caveat (9), Lease (12)		
BONAVISTA PETROLEUM LTD.	Freehold (3), Caveat (3)		
CANADIAN NATURAL RESOURCES LTD.	LOC (5), MSL (1), PLA (1)		
CRESCENT POINT ENERGY LTD.	Utility Right of Way (9)		
DESOTO RESOURCES LTD.	Caveat (7)		
ENBRIDGE PIPELINES (ATHABASCA) INC.	Utility Right of Way (2), Caveat (10)		
GLENTEL INC.	Caveat (5)		
HARVEST OPERATIONS CORP.	Caveat (1)		
HUSKY OIL OPERATIONS LTD.	Lease (4), Utility Right of Way (7), Caveat (10)		
INTER PIPELINE FUND	Freehold (3), Utility Right of Way (19), Lease (5), Caveat (15)		
MURPHY OIL COMPANY LTD.	Caveat (2)		
PENGROWTH CORPORATION	Lease (1)		
PINNACLE TOWERS CANADA	Utility Right of Way (1), Caveat (3)		
THE CANADIAN SALT COMPANY LTD.	Caveat (1), Utility Right of Way (1)		
TRAPPERS	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
DALE BOYCHUK	TPA 387	Concerns regarding potential impacts to environment/ water, increased access for recreationalists that have no respect for the land. Prefers the route is as south as possible.	The proposed route mainly follows existing linear disturbances therefore minimal environmental effects expected. ROW will be fenced/ gated wherever current fences exist, and wherever else required.
FRANCIS DUMAIS	TPA 416	No concerns.	
RAYMOND FAITHFUL	TPA 396	No concerns.	
RICHARD NELSON	TPA 424	No concerns.	

TABLE D – SUMMARY OF LANDHOLDER COMMENTS ON REJECTED ROUTES

Rejected Route Options	Stakeholder Feedback	General Comments	Applicant's Response
Central Route	<ul style="list-style-type: none"> 10 objections 21 parcels with landholder objections 	<ul style="list-style-type: none"> Proximity to land or residence. 	Rejected Central Route
North Central Route Includes N1 & NC1 Possible Tap Points	<ul style="list-style-type: none"> 2-3 objections 13-14 parcels with landholder objections 	<ul style="list-style-type: none"> N1 Tap – no power or gas to property therefore transmission line undesirable. Cabin and airstrip in the area. Plans to construct fence – ATCO's construction timeline. Requests to be present during brushing. 	Rejected North Central Route.
North Route Includes N1 & NC1 Possible Tap Points	<ul style="list-style-type: none"> 3-4 objections 13-14 parcels with landholder objections 	<ul style="list-style-type: none"> Proximity to land or residence. 	Rejected North Route
South Route Includes C1, SC1 & S1 Possible Tap Points	<ul style="list-style-type: none"> 10-11 objections 25-26 parcels with landowner objections 	<ul style="list-style-type: none"> SC1 Tap/ line – proximity to residence. Proximity to residences. Loss of windrow. Noise from snowmobiles on ROW. Cabin/ airstrip in the area. No poles on or adjacent to property. Do not want transmission line along north property boundary. Concerns for fences/ gates/ livestock. 	Rejected South Route.

TABLE E – SUMMARY OF AGENCY AND LANDHOLDERS, IRISH CREEK SUBSTATION

AGENCY/ LANDHOLDER	LAND INTEREST	COMMENTS/CONCERNS	APPLICANT'S RESPONSE
AGENCY		No concerns or objections.	
COUNTY OF TWO HILLS			
COUNTY OF VERMILION RIVER			
DUCKS UNLIMITED	CAVEAT (3)		
TELUS			
LANDOWNER			
P & M BEZPALKO	NW 16-55-6 W4M		
K & R STUPARYK	SE 20-55-6 W4M		
D & S BLAZENKO	NE 17-55-6 W4M		
INDUSTRY			
AMOCO CANADA	CAVEAT (1)		
CANADIAL FOREST OIL	CAVEAT (1)		
ELAN ENERGY	CAVEAT (7) UTRW (4)		
CNRL	CAVEAT (15) UTRW (1)		

ATTACHMENT 11

Reference Note – Required Attachments for EAS/DDS Registration

This attachment provides information requirements in accordance with the Alberta Utilities Commission's Integrated Application Registry/Digital Data Submission (IAR/DDS) system. To avoid duplicate submission in the IAR/DDS system of an attachment that is otherwise deemed by the IAR/DDS system as a required attachment, this reference note is provided to indicate where the required attachment or information may be found and to substitute for the required or duplicate attachment. Attachments cited are considered to be submitted for the applicable facilities as referenced below.

Cross-Reference of Common Attachments

Description of Attachment:	Applicable Facilities				
	7LA53 144 kV Line (Tap Off 7L53 to Lindbergh)	7L117 144 kV Line (Vermilion to Irish Creek)	7L53 144 kV Line (Irish Creek to Bonnyville)	969S Lindbergh Substation	706S Irish Creek Substation
Electric Facility, Application Type	(1) Transmission Lines	(2) Transmission Lines	(3) Transmission Lines	(4) Substations	(5) Substations
AESO Direct Assignment Letter	Filed as <u>Attachment 9</u> (DA letters, and func. spec.)	See Attachment 9	See Attachment 9	See Attachment 9	See Attachment 9
Application (text)	Filed as <u>Attachment 1</u>	See Attachment 1	See Attachment 1	See Attachment 1	See Attachment 1
Project Area Map	Filed as <u>Attachment 4</u> (Dwgs. A-01 and A-02), and <u>Attachment 5</u> (Dwg. A-03)	See Attachment 4, Dwg. A-01	See Attachment 4, Dwg. A-01	See Attachment 4, Dwg. A-02	See Attachment 5, Dwg. A-06
Substation Single-line Diagram (site plan, and electrical)				Filed as <u>Attachment 5</u> (Dwgs. A-04 and A-05)	Filed as <u>Attachment 5</u> (Dwgs. A-06 and A-07)
Air Photo Mosaics	Filed as <u>Attachment 6</u> (Dwgs. A-08a & A-08b)	N/A (no line construction)	N/A (no line construction)		
Conservation & Reclamation Plan	Filed as <u>Attachment 2</u>	N/A (no line construction)	N/A (no line construction)		
Route Maps	Filed as <u>Attachment 8</u> (Dwgs. A-11a & A-11b)	N/A (no line construction)	N/A (no line construction)		
Transmission Line Maps	Filed as <u>Attachment 7</u> (Dwgs. A-09a to A-09d, Dwg. TW301- 144SC, & Dwg. TW321-144SC)	N/A (no line construction)	N/A (no line construction)		
Public Notification Program	Filed as <u>Attachment 3</u> and <u>Attachment 10</u>	See Attachments 3 and 10	See Attachments 3 and 10	See Attachments 3 and 10	See Attachments 3 and 10