

**ATTACHMENT 2      ALTALINK COST ESTIMATES**

November 5, 2015

**Mr. Dale Bergman**  
Project Manager, Transmission Project Delivery,  
**Alberta Electric System Operator (AESO)**  
2500, 330 – 5<sup>th</sup> Avenue SW  
Calgary, Alberta T2P 0L4

**Subject: Assistance in amending the AESO's Southern Alberta Transmission Reinforcement Needs Identification Document ("NID") to incorporate an amendment to the Medicine Hat Area 138kV Re-Configuration – Project No. 888**

Dear Mr. Bergman,

Please find the attached documentation to support the request by the AESO to provide a PPS level cost estimate comparison in 2016 dollars between the original approved SATR NID Scope and the new NID Amendment Scope. This documentation includes the following:

- 1) Cost Comparison Letter containing explanations for the cost difference of the PPS estimate in 2016 dollars between the original approved NID Scope and the new amended NID Scope.
- 2) Appendix A – Original 2012 PPS estimate updated to 2016 dollars (the "Updated PPS").
- 3) Appendix B – New PPS estimate in 2016 dollars for the Amended Scope (the "Amended PPS").

Please contact me if you have any questions or if you require further information. Thank you for your consideration.

Yours truly,



James Howland, P. Eng.  
Project Manager, Major Projects South  
403-267-4238



**Project:**

SATR: Southern Alberta Transmission Reinforcement Project – AESO Project No. 888 (the "Project")

**Purpose:**

This letter is in response to the AESO request for AltaLink to provide a PPS level cost estimate comparison between the original approved SATR NID scope and new NID amendment scope for the project.

**Description of Amended Project Scope:**

The approved SATR NID includes a new 138 kV double circuit transmission line from the Bowmanton 244S substation to the Medicine Hat 41S substation. On April 17, 2012 the City of Medicine Hat submitted an application to the AESO to move the location of their connection to the Alberta Interconnected electric System (AIES) from the Medicine Hat 41S substation to the proposed new Al Rothbauer 321S substation ("Project No. 1326"). Therefore, the new 138 kV transmission line will only be required from the Bowmanton 244S substation to the location nearest to the proposed new Al Rothbauer 321S substation.

The AESO anticipates submitting a further amendment to the Commission for the SATR NID Approval to incorporate the Amended Scope (the "**SATR NID Amendment**"), which is as follows:

1. Rebuild of an existing 138kV transmission line (674L) from the Bowmanton 244S substation to the location nearest the proposed new Al Rothbauer 321S substation (structure 674L11). The new transmission line, to be constructed as part of Project No. 888, will be a double circuit 138kV transmission line to be named 675L/892L.
2. The existing portion of 674L that runs from the 41S Medicine Hat substation to structure 674L11 will be connected to the new 675L transmission line as is. This approximately 2km segment of existing transmission line was previously planned to be re-built as part of Project No. 888. The amended scope no longer re-builds this segment of transmission line.
3. Project No. 888 had originally planned to salvage the section of existing 892L from the 41S substation to structure 892L10. This section of 892L will no longer be salvaged under Project No. 888 and will instead be de-commissioned until Project No. 1326 re-commissions the line as required under that project.

**Estimate & Escalation**

The original 2012 PPS was used to determine an escalated cost for the PPS project scope (the Updated PPS) and the amended project scope (the Amended PPS) in 2016 dollars. These estimates do not incorporate any other changes which have occurred to Project No. 888 since the submission of the PPS in January 2012. The PPS line item costs have been escalated to 2015 dollars, and an additional year of escalation has been accounted for in the escalation line item under distributed costs. The resulting estimates are in 2016 dollars.

**PPS level estimate for original project scope:**

Attached in **Appendix A** is a copy of the January 2012 PPS estimate escalated to reflect the 2012 PPS approved project scope in 2016 dollars. The total cost of this estimate is **\$143,655,000** (+20/-10%, 2016\$).



**PPS level estimate for the Amended Scope:**

Attached in **Appendix B** is a copy of the amended January 2012 PPS estimate that reflects the costs of the Amended Scope in 2016 dollars. The amended project scope does not include any other changes which have occurred to Project No. 888 since the delivery of the January 2012 PPS. The total cost of this estimate is **\$139,972,000** (+20/-10% in 2016\$).

**PPS level cost comparison:**

The estimated cost difference resulting from the proposed amendment is **\$3,683,000** (+20/-10% in 2016\$). A more detailed explanation of the estimated cost reduction:

- Eliminating the rebuild of existing 674L between the 41S Medicine Hat substation and structure 674L11 reduces costs as follows:
  - **\$2,325,000** – Transmission Line Material & Labour
  - **\$160,000** – Substation Material & Labour no longer required at 41S Medicine Hat
  - **\$68,000** – Telecommunication Material & Labour
  - **\$571,000** – Distributed costs including procurement, project management, construction management, escalation and contingency
  - **\$74,000** – Salvage cost for section of 674L and 892L between 41S and structures 674L11, 892L10
  - **\$109,000** – Salvage costs no longer required at 41S Medicine Hat
  - **\$160,000** – Reduction in E&S
  - **\$216,000** – Reduction in AFUDC
  
- An estimated **\$422,000** has been incurred to date on engineering, material and owners costs associated with the work removed from this project in the amended scope. These costs were executed prior to the initiation of this change and as part of executing this change. This incurred cost is included in the updated PPS (\$143,655,000) and the amended PPS (\$139,972,000).
  - **\$109,000** – Transmission Line Engineering Costs
  - **\$163,000** – Substation & Telecommunication Engineering Costs
  - **\$80,000** – Substation Material (Plan to re-deploy this material)
  - **\$70,000** – Owner costs

**APPENDIX A**  
**Proposal to Provide Services (PPS) - Combined Summary**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>Transmission Line Costs</b>			
Material	\$ 30,141,000	\$ -	\$ 30,141,000
Labour	\$ 36,263,000	\$ -	\$ 36,263,000
<b>Total - Transmission Line</b>	<b>\$ 66,404,000</b>	<b>\$ -</b>	<b>\$ 66,404,000</b>
<b>Substation Facilities Cost</b>			
Material	\$ 9,804,000	\$ -	\$ 9,804,000
Labour	\$ 6,248,000	\$ -	\$ 6,248,000
<b>Total - Substation</b>	<b>\$ 16,052,000</b>	<b>\$ -</b>	<b>\$ 16,052,000</b>
<b>Telecommunication Cost</b>			
Material	\$ 36,000	\$ -	\$ 36,000
Labour	\$ 187,000	\$ -	\$ 187,000
<b>Total - Telecommunication</b>	<b>\$ 223,000</b>	<b>\$ -</b>	<b>\$ 223,000</b>
<b>Owner Costs</b>			
Proposal to Provide Service	\$ 157,000	\$ -	\$ 157,000
Facility Applications	\$ 12,135,000	\$ -	\$ 12,135,000
Land Rights - Easements	\$ 1,740,000	\$ -	\$ 1,740,000
Land - Damage Claims	\$ 463,000	\$ -	\$ 463,000
Land - Acquisitions	\$ -	\$ -	\$ -
<b>Total - Owner Costs</b>	<b>\$ 14,495,000</b>	<b>\$ -</b>	<b>\$ 14,495,000</b>
<b>Distributed Costs</b>			
Procurement	\$ 701,000	\$ -	\$ 701,000
Project Management	\$ 4,782,000	\$ -	\$ 4,782,000
Construction Management	\$ 4,715,000	\$ -	\$ 4,715,000
Escalation	\$ 4,157,000	\$ -	\$ 4,157,000
Contingency	\$ 16,234,000	\$ -	\$ 16,234,000
<b>Total - Distributed Costs</b>	<b>\$ 30,589,000</b>	<b>\$ -</b>	<b>\$ 30,589,000</b>
<b>Total - Direct Costs</b>	<b>\$ 127,763,000</b>	<b>\$ -</b>	<b>\$ 127,763,000</b>
<b>Salvage</b>			
Transmission Line Labour	\$ 721,000	\$ -	\$ 721,000
Substation Labour	\$ 132,000	\$ -	\$ 132,000
Land Remediation and Reclamation	\$ -	\$ -	\$ -
<b>Total - Salvage</b>	<b>\$ 853,000</b>	<b>\$ -</b>	<b>\$ 853,000</b>
<b>Other Costs</b>			
E&S	\$ 6,223,000	\$ -	\$ 6,223,000
<b>Total - Other Costs</b>	<b>\$ 6,223,000</b>	<b>\$ -</b>	<b>\$ 6,223,000</b>
<b>Total In-Direct Costs</b>	<b>\$ 7,076,000</b>	<b>\$ -</b>	<b>\$ 7,076,000</b>
<b>Total Project Costs</b>	<b>\$ 134,839,000</b>	<b>\$ -</b>	<b>\$ 134,839,000</b>
AFUDC	\$ 8,816,000	\$ -	\$ 8,816,000
<b>Total Project Costs (w/ AFUDC)</b>	<b>\$ 143,655,000</b>	<b>\$ -</b>	<b>\$ 143,655,000</b>

**APPENDIX A**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Transmission Lines**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>892L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 3,677,000	\$ -	\$ 3,677,000
Hardware	\$ 527,000	\$ -	\$ 527,000
Conductor	\$ 326,000	\$ -	\$ 326,000
<b>Subtotal - Materials</b>	<b>\$ 4,530,000</b>	<b>\$ -</b>	<b>\$ 4,530,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 302,000	\$ -	\$ 302,000
Survey	\$ 152,000	\$ -	\$ 152,000
R/W Preparation & Brushing	\$ 351,000	\$ -	\$ 351,000
Construction	\$ 4,040,000	\$ -	\$ 4,040,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 4,845,000</b>	<b>\$ -</b>	<b>\$ 4,845,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 9,375,000</b>	<b>\$ -</b>	<b>\$ 9,375,000</b>
<b>879L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 7,403,000	\$ -	\$ 7,403,000
Hardware	\$ 1,021,000	\$ -	\$ 1,021,000
Conductor	\$ 601,000	\$ -	\$ 601,000
<b>Subtotal - Materials</b>	<b>\$ 9,025,000</b>	<b>\$ -</b>	<b>\$ 9,025,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 475,000	\$ -	\$ 475,000
Survey	\$ 283,000	\$ -	\$ 283,000
R/W Preparation & Brushing	\$ 603,000	\$ -	\$ 603,000
Construction	\$ 10,336,000	\$ -	\$ 10,336,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 11,697,000</b>	<b>\$ -</b>	<b>\$ 11,697,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 20,722,000</b>	<b>\$ -</b>	<b>\$ 20,722,000</b>
<b>676L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 7,533,000	\$ -	\$ 7,533,000
Hardware	\$ 1,070,000	\$ -	\$ 1,070,000
Conductor	\$ 1,896,000	\$ -	\$ 1,896,000
<b>Subtotal - Materials</b>	<b>\$ 10,499,000</b>	<b>\$ -</b>	<b>\$ 10,499,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 474,000	\$ -	\$ 474,000
Survey	\$ 294,000	\$ -	\$ 294,000
R/W Preparation & Brushing	\$ 621,000	\$ -	\$ 621,000
Construction	\$ 11,068,000	\$ -	\$ 11,068,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 12,457,000</b>	<b>\$ -</b>	<b>\$ 12,457,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 22,956,000</b>	<b>\$ -</b>	<b>\$ 22,956,000</b>

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<b>675L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 4,182,000	\$ -	\$ 4,182,000
Hardware	\$ 590,000	\$ -	\$ 590,000
Conductor	\$ 1,121,000	\$ -	\$ 1,121,000
<b>Subtotal - Materials</b>	<b>\$ 5,893,000</b>	<b>\$ -</b>	<b>\$ 5,893,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 338,000	\$ -	\$ 338,000
Survey	\$ 162,000	\$ -	\$ 162,000
R/W Preparation & Brushing	\$ 367,000	\$ -	\$ 367,000
Construction	\$ 6,044,000	\$ -	\$ 6,044,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 6,911,000</b>	<b>\$ -</b>	<b>\$ 6,911,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 12,804,000</b>	<b>\$ -</b>	<b>\$ 12,804,000</b>
<b>674L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 120,000	\$ -	\$ 120,000
Hardware	\$ 57,000	\$ -	\$ 57,000
Conductor	\$ 17,000	\$ -	\$ 17,000
<b>Subtotal - Materials</b>	<b>\$ 194,000</b>	<b>\$ -</b>	<b>\$ 194,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 67,000	\$ -	\$ 67,000
Survey	\$ 12,000	\$ -	\$ 12,000
R/W Preparation & Brushing	\$ 17,000	\$ -	\$ 17,000
Construction	\$ 257,000	\$ -	\$ 257,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 353,000</b>	<b>\$ -</b>	<b>\$ 353,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 547,000</b>	<b>\$ -</b>	<b>\$ 547,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 30,141,000</b>	<b>\$ -</b>	<b>\$ 30,141,000</b>
<b>Total - Labour Costs</b>	<b>\$ 36,263,000</b>	<b>\$ -</b>	<b>\$ 36,263,000</b>
<b>Total - Transmission Line Costs</b>	<b>\$ 66,404,000</b>	<b>\$ -</b>	<b>\$ 66,404,000</b>

**APPENDIX A**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Substations**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>895S Suffield</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 62,000	\$ -	\$ 62,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 7,000	\$ -	\$ 7,000
Commissioning	\$ 4,000	\$ -	\$ 4,000
<b>Subtotal - Labour</b>	<b>\$ 73,000</b>	<b>\$ -</b>	<b>\$ 73,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 73,000</b>	<b>\$ -</b>	<b>\$ 73,000</b>
<b>649S Chapice Lake</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 64,000	\$ -	\$ 64,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 7,000	\$ -	\$ 7,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 71,000</b>	<b>\$ -</b>	<b>\$ 71,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 71,000</b>	<b>\$ -</b>	<b>\$ 71,000</b>



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<b>523S Bullshead</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ 44,000	\$ -	\$ 44,000
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ 16,000	\$ -	\$ 16,000
<misc>	\$ 1,000	\$ -	\$ 1,000
<b>Subtotal - Materials</b>	<b>\$ 61,000</b>	<b>\$ -</b>	<b>\$ 61,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 117,000	\$ -	\$ 117,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 32,000	\$ -	\$ 32,000
Commissioning	\$ 15,000	\$ -	\$ 15,000
<b>Subtotal - Labour</b>	<b>\$ 164,000</b>	<b>\$ -</b>	<b>\$ 164,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 225,000</b>	<b>\$ -</b>	<b>\$ 225,000</b>
<b>368S Burdett</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ 40,000	\$ -	\$ 40,000
SCADA	\$ 19,000	\$ -	\$ 19,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 59,000</b>	<b>\$ -</b>	<b>\$ 59,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 133,000	\$ -	\$ 133,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 19,000	\$ -	\$ 19,000
Commissioning	\$ 12,000	\$ -	\$ 12,000
<b>Subtotal - Labour</b>	<b>\$ 164,000</b>	<b>\$ -</b>	<b>\$ 164,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 223,000</b>	<b>\$ -</b>	<b>\$ 223,000</b>
<b>244S Bowmanton</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ 4,961,000	\$ -	\$ 4,961,000
Circuit Breakers <Voltage 1>	\$ 1,088,000	\$ -	\$ 1,088,000
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ 609,000	\$ -	\$ 609,000
Switchyard buswork, switches, structures, foundations, grounding	\$ 1,640,000	\$ -	\$ 1,640,000
Control Building	\$ 382,000	\$ -	\$ 382,000
Protection, Control, Metering	\$ 753,000	\$ -	\$ 753,000
SCADA	\$ 106,000	\$ -	\$ 106,000
<misc>	\$ 17,000	\$ -	\$ 17,000
<b>Subtotal - Materials</b>	<b>\$ 9,556,000</b>	<b>\$ -</b>	<b>\$ 9,556,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 1,012,000	\$ -	\$ 1,012,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 3,749,000	\$ -	\$ 3,749,000
Commissioning	\$ 659,000	\$ -	\$ 659,000
<b>Subtotal - Labour</b>	<b>\$ 5,420,000</b>	<b>\$ -</b>	<b>\$ 5,420,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 14,976,000</b>	<b>\$ -</b>	<b>\$ 14,976,000</b>

**APPENDIX A**

<b>41S Medicine Hat</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ 46,000	\$ -	\$ 46,000
Switchyard buswork, switches, structures, foundations, grounding	\$ 58,000	\$ -	\$ 58,000
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ 19,000	\$ -	\$ 19,000
<misc>	\$ 5,000	\$ -	\$ 5,000
<b>Subtotal - Materials</b>	<b>\$ 128,000</b>	<b>\$ -</b>	<b>\$ 128,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 211,000	\$ -	\$ 211,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 67,000	\$ -	\$ 67,000
Commissioning	\$ 36,000	\$ -	\$ 36,000
<b>Subtotal - Labour</b>	<b>\$ 314,000</b>	<b>\$ -</b>	<b>\$ 314,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 442,000</b>	<b>\$ -</b>	<b>\$ 442,000</b>
<b>562S Cypress</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 38,000	\$ -	\$ 38,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -
Commissioning	\$ 4,000	\$ -	\$ 4,000
<b>Subtotal - Labour</b>	<b>\$ 42,000</b>	<b>\$ -</b>	<b>\$ 42,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 42,000</b>	<b>\$ -</b>	<b>\$ 42,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 9,804,000</b>	<b>\$ -</b>	<b>\$ 9,804,000</b>
<b>Total - Labour Costs</b>	<b>\$ 6,248,000</b>	<b>\$ -</b>	<b>\$ 6,248,000</b>
<b>Total - Substation Costs</b>	<b>\$ 16,052,000</b>	<b>\$ -</b>	<b>\$ 16,052,000</b>

**APPENDIX A**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Telecommunications**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>523T Bullshead</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ 1,000	\$ -	\$ 1,000
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ 7,000	\$ -	\$ 7,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 8,000</b>	<b>\$ -</b>	<b>\$ 8,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 26,000	\$ -	\$ 26,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 15,000	\$ -	\$ 15,000
Commissioning	\$ 7,000	\$ -	\$ 7,000
<b>Subtotal - Labour</b>	<b>\$ 48,000</b>	<b>\$ -</b>	<b>\$ 48,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 56,000</b>	<b>\$ -</b>	<b>\$ 56,000</b>
<b>244T Bowmanton</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ 2,000	\$ -	\$ 2,000
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ 15,000	\$ -	\$ 15,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 17,000</b>	<b>\$ -</b>	<b>\$ 17,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 37,000	\$ -	\$ 37,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 28,000	\$ -	\$ 28,000
Commissioning	\$ 14,000	\$ -	\$ 14,000
<b>Subtotal - Labour</b>	<b>\$ 79,000</b>	<b>\$ -</b>	<b>\$ 79,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 96,000</b>	<b>\$ -</b>	<b>\$ 96,000</b>
<b>41T Medicine Hat</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ 1,000	\$ -	\$ 1,000
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ 10,000	\$ -	\$ 10,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 11,000</b>	<b>\$ -</b>	<b>\$ 11,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 32,000	\$ -	\$ 32,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 19,000	\$ -	\$ 19,000
Commissioning	\$ 9,000	\$ -	\$ 9,000
<b>Subtotal - Labour</b>	<b>\$ 60,000</b>	<b>\$ -</b>	<b>\$ 60,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 71,000</b>	<b>\$ -</b>	<b>\$ 71,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 36,000</b>	<b>\$ -</b>	<b>\$ 36,000</b>
<b>Total - Labour Costs</b>	<b>\$ 187,000</b>	<b>\$ -</b>	<b>\$ 187,000</b>
<b>Total - Telecommunication Costs</b>	<b>\$ 223,000</b>	<b>\$ -</b>	<b>\$ 223,000</b>

## APPENDIX B

### Proposal to Provide Services (PPS) - Combined Summary

Project Name:	Medicine Hat 138kV TL Development - Preferred		
Estimate Prepared by:	Altalink Management Ltd		
Estimate Date:	September 9, 2010		
Estimate Accuracy:	+20 / -10 %		
Revision:		Revision Date:	23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>Transmission Line Costs</b>			
Material	\$ 29,356,000	\$ -	\$ 29,356,000
Labour	\$ 34,723,000	\$ -	\$ 34,723,000
<b>Total - Transmission Line</b>	<b>\$ 64,079,000</b>	<b>\$ -</b>	<b>\$ 64,079,000</b>
<b>Substation Facilities Cost</b>			
Material	\$ 9,756,000	\$ -	\$ 9,756,000
Labour	\$ 6,136,000	\$ -	\$ 6,136,000
<b>Total - Substation</b>	<b>\$ 15,892,000</b>	<b>\$ -</b>	<b>\$ 15,892,000</b>
<b>Telecommunication Cost</b>			
Material	\$ 25,000	\$ -	\$ 25,000
Labour	\$ 130,000	\$ -	\$ 130,000
<b>Total - Telecommunication</b>	<b>\$ 155,000</b>	<b>\$ -</b>	<b>\$ 155,000</b>
<b>Owner Costs</b>			
Proposal to Provide Service	\$ 157,000	\$ -	\$ 157,000
Facility Applications	\$ 12,135,000	\$ -	\$ 12,135,000
Land Rights - Easements	\$ 1,740,000	\$ -	\$ 1,740,000
Land - Damage Claims	\$ 463,000	\$ -	\$ 463,000
Land - Acquisitions	\$ -	\$ -	\$ -
<b>Total - Owner Costs</b>	<b>\$ 14,495,000</b>	<b>\$ -</b>	<b>\$ 14,495,000</b>
<b>Distributed Costs</b>			
Procurement	\$ 691,000	\$ -	\$ 691,000
Project Management	\$ 4,773,000	\$ -	\$ 4,773,000
Construction Management	\$ 4,689,000	\$ -	\$ 4,689,000
Escalation	\$ 4,048,000	\$ -	\$ 4,048,000
Contingency	\$ 15,817,000	\$ -	\$ 15,817,000
<b>Total - Distributed Costs</b>	<b>\$ 30,018,000</b>	<b>\$ -</b>	<b>\$ 30,018,000</b>
<b>Total - Direct Costs</b>	<b>\$ 124,639,000</b>	<b>\$ -</b>	<b>\$ 124,639,000</b>
<b>Salvage</b>			
Transmission Line Labour	\$ 647,000	\$ -	\$ 647,000
Substation Labour	\$ 23,000	\$ -	\$ 23,000
Land Remediation and Reclamation	\$ -	\$ -	\$ -
<b>Total - Salvage</b>	<b>\$ 670,000</b>	<b>\$ -</b>	<b>\$ 670,000</b>
<b>Other Costs</b>			
E&S	\$ 6,063,000	\$ -	\$ 6,063,000
<b>Total - Other Costs</b>	<b>\$ 6,063,000</b>	<b>\$ -</b>	<b>\$ 6,063,000</b>
<b>Total In-Direct Costs</b>	<b>\$ 6,733,000</b>	<b>\$ -</b>	<b>\$ 6,733,000</b>
<b>Total Project Costs</b>	<b>\$ 131,372,000</b>	<b>\$ -</b>	<b>\$ 131,372,000</b>
AFUDC	\$ 8,600,000	\$ -	\$ 8,600,000
<b>Total Project Costs (w/ AFUDC)</b>	<b>\$ 139,972,000</b>	<b>\$ -</b>	<b>\$ 139,972,000</b>

**APPENDIX B**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Transmission Lines**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>892L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 3,115,000	\$ -	\$ 3,115,000
Hardware	\$ 468,000	\$ -	\$ 468,000
Conductor	\$ 231,000	\$ -	\$ 231,000
<b>Subtotal - Materials</b>	<b>\$ 3,814,000</b>	<b>\$ -</b>	<b>\$ 3,814,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 300,000	\$ -	\$ 300,000
Survey	\$ 157,000	\$ -	\$ 157,000
R/W Preparation & Brushing	\$ 338,000	\$ -	\$ 338,000
Construction	\$ 2,515,000	\$ -	\$ 2,515,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 3,310,000</b>	<b>\$ -</b>	<b>\$ 3,310,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 7,124,000</b>	<b>\$ -</b>	<b>\$ 7,124,000</b>
<b>879L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 7,403,000	\$ -	\$ 7,403,000
Hardware	\$ 1,021,000	\$ -	\$ 1,021,000
Conductor	\$ 601,000	\$ -	\$ 601,000
<b>Subtotal - Materials</b>	<b>\$ 9,025,000</b>	<b>\$ -</b>	<b>\$ 9,025,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 475,000	\$ -	\$ 475,000
Survey	\$ 283,000	\$ -	\$ 283,000
R/W Preparation & Brushing	\$ 603,000	\$ -	\$ 603,000
Construction	\$ 10,336,000	\$ -	\$ 10,336,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 11,697,000</b>	<b>\$ -</b>	<b>\$ 11,697,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 20,722,000</b>	<b>\$ -</b>	<b>\$ 20,722,000</b>
<b>676L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 7,533,000	\$ -	\$ 7,533,000
Hardware	\$ 1,070,000	\$ -	\$ 1,070,000
Conductor	\$ 1,896,000	\$ -	\$ 1,896,000
<b>Subtotal - Materials</b>	<b>\$ 10,499,000</b>	<b>\$ -</b>	<b>\$ 10,499,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 474,000	\$ -	\$ 474,000
Survey	\$ 294,000	\$ -	\$ 294,000
R/W Preparation & Brushing	\$ 621,000	\$ -	\$ 621,000
Construction	\$ 11,068,000	\$ -	\$ 11,068,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 12,457,000</b>	<b>\$ -</b>	<b>\$ 12,457,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 22,956,000</b>	<b>\$ -</b>	<b>\$ 22,956,000</b>
<b>675L</b>			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 4,123,000	\$ -	\$ 4,123,000
Hardware	\$ 580,000	\$ -	\$ 580,000
Conductor	\$ 1,121,000	\$ -	\$ 1,121,000
<b>Subtotal - Materials</b>	<b>\$ 5,824,000</b>	<b>\$ -</b>	<b>\$ 5,824,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 398,000	\$ -	\$ 398,000
Survey	\$ 170,000	\$ -	\$ 170,000
R/W Preparation & Brushing	\$ 338,000	\$ -	\$ 338,000
Construction	\$ 6,000,000	\$ -	\$ 6,000,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 6,906,000</b>	<b>\$ -</b>	<b>\$ 6,906,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 12,730,000</b>	<b>\$ -</b>	<b>\$ 12,730,000</b>

## APPENDIX B

674L			
<b>Materials</b>			
Foundations	\$ -	\$ -	\$ -
Structures	\$ 120,000	\$ -	\$ 120,000
Hardware	\$ 57,000	\$ -	\$ 57,000
Conductor	\$ 17,000	\$ -	\$ 17,000
<b>Subtotal - Materials</b>	<b>\$ 194,000</b>	<b>\$ -</b>	<b>\$ 194,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 67,000	\$ -	\$ 67,000
Survey	\$ 12,000	\$ -	\$ 12,000
R/W Preparation & Brushing	\$ 17,000	\$ -	\$ 17,000
Construction	\$ 257,000	\$ -	\$ 257,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 353,000</b>	<b>\$ -</b>	<b>\$ 353,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 547,000</b>	<b>\$ -</b>	<b>\$ 547,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 29,356,000</b>	<b>\$ -</b>	<b>\$ 29,356,000</b>
<b>Total - Labour Costs</b>	<b>\$ 34,723,000</b>	<b>\$ -</b>	<b>\$ 34,723,000</b>
<b>Total - Transmission Line Costs</b>	<b>\$ 64,079,000</b>	<b>\$ -</b>	<b>\$ 64,079,000</b>

**APPENDIX B**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Substations**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>895S Suffield</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 62,000	\$ -	\$ 62,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 7,000	\$ -	\$ 7,000
Commissioning	\$ 4,000	\$ -	\$ 4,000
<b>Subtotal - Labour</b>	<b>\$ 73,000</b>	<b>\$ -</b>	<b>\$ 73,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 73,000</b>	<b>\$ -</b>	<b>\$ 73,000</b>
<b>649S Chapice Lake</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 64,000	\$ -	\$ 64,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 7,000	\$ -	\$ 7,000
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 71,000</b>	<b>\$ -</b>	<b>\$ 71,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 71,000</b>	<b>\$ -</b>	<b>\$ 71,000</b>
<b>523S Bullshead</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ 44,000	\$ -	\$ 44,000
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ 16,000	\$ -	\$ 16,000
<misc>	\$ 1,000	\$ -	\$ 1,000
<b>Subtotal - Materials</b>	<b>\$ 61,000</b>	<b>\$ -</b>	<b>\$ 61,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 117,000	\$ -	\$ 117,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 32,000	\$ -	\$ 32,000
Commissioning	\$ 15,000	\$ -	\$ 15,000
<b>Subtotal - Labour</b>	<b>\$ 164,000</b>	<b>\$ -</b>	<b>\$ 164,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 225,000</b>	<b>\$ -</b>	<b>\$ 225,000</b>

**APPENDIX B**

<b>368S Burdett</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ 40,000	\$ -	\$ 40,000
SCADA	\$ 19,000	\$ -	\$ 19,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 59,000</b>	<b>\$ -</b>	<b>\$ 59,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 133,000	\$ -	\$ 133,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 19,000	\$ -	\$ 19,000
Commissioning	\$ 12,000	\$ -	\$ 12,000
<b>Subtotal - Labour</b>	<b>\$ 164,000</b>	<b>\$ -</b>	<b>\$ 164,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 223,000</b>	<b>\$ -</b>	<b>\$ 223,000</b>
<b>244S Bowmanton</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ 4,961,000	\$ -	\$ 4,961,000
Circuit Breakers <Voltage 1>	\$ 1,088,000	\$ -	\$ 1,088,000
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ 609,000	\$ -	\$ 609,000
Switchyard buswork, switches, structures, foundations, grounding	\$ 1,640,000	\$ -	\$ 1,640,000
Control Building	\$ 382,000	\$ -	\$ 382,000
Protection, Control, Metering	\$ 753,000	\$ -	\$ 753,000
SCADA	\$ 106,000	\$ -	\$ 106,000
<misc>	\$ 17,000	\$ -	\$ 17,000
<b>Subtotal - Materials</b>	<b>\$ 9,556,000</b>	<b>\$ -</b>	<b>\$ 9,556,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 1,012,000	\$ -	\$ 1,012,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 3,749,000	\$ -	\$ 3,749,000
Commissioning	\$ 659,000	\$ -	\$ 659,000
<b>Subtotal - Labour</b>	<b>\$ 5,420,000</b>	<b>\$ -</b>	<b>\$ 5,420,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 14,976,000</b>	<b>\$ -</b>	<b>\$ 14,976,000</b>
<b>41S Medicine Hat</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ 64,000	\$ -	\$ 64,000
Switchyard buswork, switches, structures, foundations, grounding	\$ 16,000	\$ -	\$ 16,000
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 80,000</b>	<b>\$ -</b>	<b>\$ 80,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 198,000	\$ -	\$ 198,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -
Commissioning	\$ 4,000	\$ -	\$ 4,000
<b>Subtotal - Labour</b>	<b>\$ 202,000</b>	<b>\$ -</b>	<b>\$ 202,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 282,000</b>	<b>\$ -</b>	<b>\$ 282,000</b>



**APPENDIX B**

<b>562S Cypress</b>			
<b>Materials</b>			
Transformers<1 - 240kV/138kV - 400MVA>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 1>	\$ -	\$ -	\$ -
Circuit Breakers <Voltage 2>	\$ -	\$ -	\$ -
Capacitor Bank <voltage, rating>	\$ -	\$ -	\$ -
Reactor bank	\$ -	\$ -	\$ -
CTs & PTs <quantity, voltage>	\$ -	\$ -	\$ -
Switchyard buswork, switches, structures, foundations, grounding	\$ -	\$ -	\$ -
Control Building	\$ -	\$ -	\$ -
Protection, Control, Metering	\$ -	\$ -	\$ -
SCADA	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 38,000	\$ -	\$ 38,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -
Commissioning	\$ 4,000	\$ -	\$ 4,000
<b>Subtotal - Labour</b>	<b>\$ 42,000</b>	<b>\$ -</b>	<b>\$ 42,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 42,000</b>	<b>\$ -</b>	<b>\$ 42,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 9,756,000</b>	<b>\$ -</b>	<b>\$ 9,756,000</b>
<b>Total - Labour Costs</b>	<b>\$ 6,136,000</b>	<b>\$ -</b>	<b>\$ 6,136,000</b>
<b>Total - Substation Costs</b>	<b>\$ 15,892,000</b>	<b>\$ -</b>	<b>\$ 15,892,000</b>

**APPENDIX B**  
**Proposal to Provide Services (PPS) - Combined Summary**  
**Telecommunications**

Project Name: Medicine Hat 138kV TL Development - Preferred  
Estimate Prepared by: Altalink Management Ltd  
Estimate Date: September 9, 2010  
Estimate Accuracy: +20 / -10 %  
Revision: Revision Date: 23-Oct-2015

	System Portion	Customer Portion	TOTAL
<b>523T Bullshead</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ 1,000	\$ -	\$ 1,000
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ 7,000	\$ -	\$ 7,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 8,000</b>	<b>\$ -</b>	<b>\$ 8,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 26,000	\$ -	\$ 26,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 15,000	\$ -	\$ 15,000
Commissioning	\$ 7,000	\$ -	\$ 7,000
<b>Subtotal - Labour</b>	<b>\$ 48,000</b>	<b>\$ -</b>	<b>\$ 48,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 56,000</b>	<b>\$ -</b>	<b>\$ 56,000</b>
<b>244T Bowmanton</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ 2,000	\$ -	\$ 2,000
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ 15,000	\$ -	\$ 15,000
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ 17,000</b>	<b>\$ -</b>	<b>\$ 17,000</b>
<b>Labour</b>			
Detailed Engineering	\$ 37,000	\$ -	\$ 37,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ 28,000	\$ -	\$ 28,000
Commissioning	\$ 14,000	\$ -	\$ 14,000
<b>Subtotal - Labour</b>	<b>\$ 79,000</b>	<b>\$ -</b>	<b>\$ 79,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 96,000</b>	<b>\$ -</b>	<b>\$ 96,000</b>
<b>41T Medicine Hat</b>			
<b>Materials</b>			
Tower/Antennae	\$ -	\$ -	\$ -
Radio Equipment	\$ -	\$ -	\$ -
Building (If substation building not utilized)	\$ -	\$ -	\$ -
Fibre (km,type)	\$ -	\$ -	\$ -
<misc>	\$ -	\$ -	\$ -
<b>Subtotal - Materials</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Labour</b>			
Detailed Engineering	\$ 3,000	\$ -	\$ 3,000
Site preparation & survey	\$ -	\$ -	\$ -
Construction	\$ -	\$ -	\$ -
Commissioning	\$ -	\$ -	\$ -
<b>Subtotal - Labour</b>	<b>\$ 3,000</b>	<b>\$ -</b>	<b>\$ 3,000</b>
<b>Subtotal - Materials and Labour</b>	<b>\$ 3,000</b>	<b>\$ -</b>	<b>\$ 3,000</b>
<b>Summary</b>			
<b>Total - Material Costs</b>	<b>\$ 25,000</b>	<b>\$ -</b>	<b>\$ 25,000</b>
<b>Total - Labour Costs</b>	<b>\$ 130,000</b>	<b>\$ -</b>	<b>\$ 130,000</b>
<b>Total - Telecommunication Costs</b>	<b>\$ 155,000</b>	<b>\$ -</b>	<b>\$ 155,000</b>