June 1, 2018

VIA COURIER, RESS and EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto, ON
M4P 1E4

Dear Ms. Walli:

Re: Upper Canada Transmission, Inc. ("UTC" or "NextBridge")
Ontario Energy Board ("OEB" or "Board") File EB-2017-0182/EB-2017-0194
New East-West Tie Line Project
Undertaking Responses of NextBridge

Attached please find undertaking responses from NextBridge taken during the Technical Conference on May 7, 2018 in the above noted proceeding.

Undertaking responses related to JT1.7, JT1.11 and JT1.14 are not yet finalized and will be submitted at a later date.

Responses to undertakings given in the in camera portion of the technical conference have been submitted confidentially under separate cover.

Yours truly,

(Original Signed)

Krista Hughes
Senior Legal Counsel
Enbridge Employee Services Canada Inc.

UNDERTAKING JT1.1

UNDERTAKING

TC TR 1, page 19

To provide the calculation of carrying costs.

RESPONSE

Please see below showing the calculation for the carrying charge (or carrying costs) during the development period from August 2013 through July 2017. The amount of $854,916 calculated below correlates to the amount of $855,474 presented in the Leave to Construct application evidence at Exhibit B, Tab 16, Schedule 1, Attachment 11. The difference of $557.00 has been subsequently recorded and reflected in the deferral account.

Next Bridge Infrastructure LP

Carrying Charge - Deferral Account (CAD)

Line No.	Phase	Year	Month	Monthly Project Cost (CAD) (Cash Basis)	Cumulative Project Cost: Def Acct 1508.001	Avg. Cum. Project Cost	Monthly Carrying Charge	Cumulative Carrying Charge: Def Acct 1508.002	Total Deferral Amount	Rate *		
1	Development	2013	Aug * 25 Days	53,737	53,737	26,869	27	27	53,764	2013	Q3	1.47%
2	Development	2013	Sept	46,892	100,629	77,183	95	121	100,750	2013	Q3	1.47%
3	Development	2013	Oct	(17,488)	83,141	91,885	113	234	83,374	2013	Q4	1.47%
4	Development	2013	Nov	56,305	139,446	111,293	136	370	139,816	2013	Q4	1.47%
5	Development	2013	Dec	212,719	352,165	245,805	301	671	352,836	2013	Q4	1.47%
6	Development	2014	Jan	137,332	489,497	420,831	516	1,187	490,684	2014	Q1	1.47%
7	Development	2014	Feb	996,882	1,486,379	987,938	1,210	2,397	1,488,776	2014	Q1	1.47%
8	Development	2014	Mar	799,059	2,285,438	1,885,909	2,310	4,707	2,290,145	2014	Q1	1.47%
9	Development	2014	Apr	293,369	2,578,807	2,432,123	2,979	7,686	2,586,494	2014	Q2	1.47%
10	Development	2014	May	1,127,141	3,705,948	3,142,378	3,849	11,536	3,717,484	2014	Q2	1.47%
11	Development	2014	Jun	749,854	4,455,803	4,080,875	4,999	16,535	4,472,337	2014	Q2	1.47%
12	Development	2014	Jul	617,372	5,073,175	4,764,489	5,836	22,371	5,095,546	2014	Q3	1.47%
13	Development	2014	Aug	1,703,035	6,776,210	5,924,692	7,258	29,629	6,805,839	2014	Q3	1.47%
14	Development	2014	Sep	1,042,935	7,819,145	7,297,677	8,940	38,569	7,857,714	2014	Q3	1.47%
15	Development	2014	Oct	993,420	8,812,565	8,315,855	10,187	48,756	8,861,321	2014	Q4	1.47%
16	Development	2014	Nov	1,135,838	9,948,403	9,380,484	11,491	60,247	10,008,650	2014	Q4	1.47%
17	Development	2014	Dec	998,021	10,946,424	10,447,413	12,798	73,045	11,019,469	2014	Q4	1.47%
18	Development	2015	Jan	585,975	11,532,398	11,239,411	13,768	86,813	11,619,211	2015	Q1	1.47%
19	Development	2015	Feb	1,261,697	12,794,096	12,163,247	14,900	101,713	12,895,809	2015	Q1	1.47%
20	Development	2015	Mar	320,454	13,114,549	12,954,322	15,869	117,582	13,232,131	2015	Q1	1.47%
21	Development	2015	Apr	424,488	13,539,037	13,326,793	12,216	129,798	13,668,836	2015	Q2	1.10%
22	Development	2015	May	160,085	13,699,123	13,619,080	12,484	142,283	13,841,405	2015	Q2	1.10%
23	Development	2015	Jun	2,398,977	16,098,099	14,898,611	13,657	155,940	16,254,039	2015	Q2	1.10%
24	Development	2015	Jul	8,045,557	24,143,656	20,120,878	18,444	174,384	24,318,040	2015	Q3	1.10%
25	Development	2015	Aug	169,703	24,313,359	24,228,507	22,209	196,593	24,509,952	2015	Q3	1.10%
26	Development	2015	Sep	214,206	24,527,564	24,420,461	22,385	218,979	24,746,543	2015	Q3	1.10%
27	Development	2015	Oct	157,228	24,684,793	24,606,178	22,556	241,534	24,926,327	2015	Q4	1.10%
28	Development	2015	Nov	416,062	25,100,855	24,892,824	22,818	264,353	25,365,208	2015	Q4	1.10%
29	Development	2015	Dec	1,196,894	26,297,749	25,699,302	23,558	287,910	26,585,660	2015	Q4	1.10%
30	Development	2016	Jan	367,905	26,665,654	26,481,702	24,275	312,185	26,977,839	2016	Q1	1.10%
31	Development	2016	Feb	764,600	27,430,254	27,047,954	24,794	336,979	27,767,234	2016	Q1	1.10%
32	Development	2016	Mar	295,455	27,725,709	27,577,982	25,280	362,259	28,087,969	2016	Q1	1.10%
33	Development	2016	Apr	507,169	28,232,878	27,979,294	25,648	387,907	28,620,785	2016	Q2	1.10%
34	Development	2016	May	228,250	28,461,129	28,347,003	25,985	413,892	28,875,020	2016	Q2	1.10%
35	Development	2016	Jun	740,487	29,201,615	28,831,372	26,429	440,320	29,641,935	2016	Q2	1.10%
36	Development	2016	Jul	1,068,736	30,270,351	29,735,983	27,258	467,578	30,737,929	2016	Q3	1.10%
37	Development	2016	Aug	352,442	30,622,792	30,446,572	27,909	495,488	31,118,280	2016	Q3	1.10%
38	Development	2016	Sep	501,709	31,124,501	30,873,647	28,301	523,789	31,648,290	2016	Q3	1.10%
39	Development	2016	Oct	1,052,405	32,176,907	31,650,704	29,013	552,802	32,729,708	2016	Q4	1.10%
40	Development	2016	Nov	855,105	33,032,012	32,604,459	29,887	582,689	33,614,701	2016	Q4	1.10%
41	Development	2016	Dec	1,229,311	34,261,323	33,646,667	30,843	613,532	34,874,855	2016	Q4	1.10%
42	Development	2017	Jan	1,071,721	35,333,044	34,797,184	31,897	645,429	35,978,473	2017	Q1	1.10%
43	Development	2017	Feb	707,125	36,040,169	35,686,607	32,713	678,142	36,718,311	2017	Q1	1.10%
44	Development	2017	Mar	1,458,408	37,498,577	36,769,373	33,705	711,847	38,210,424	2017	Q1	1.10%
45	Development	2017	Apr	790,881	38,289,458	37,894,017	34,736	746,583	39,036,041	2017	Q2	1.10%
46	Development	2017	May	418,958	38,708,416	38,498,937	35,291	781,874	39,490,290	2017	Q2	1.10%
47	Development	2017	Jun	1,300,326	40,008,742	39,358,579	36,079	817,953	40,826,695	2017	Q2	1.10%
48	Development	2017	Jul	629,983	40,638,726	40,323,734	36,963	854,916	41,493,642	2017	Q3	1.10%

*Prescribed Interest Rate (per the Bankers' Acceptances-3 months Plus 0.25 Spread) - Development

https://www.oeb.ca/industry/rules-codes-and-requirements/prescribed-interest-rates

In accordance with Board staff request at page 54 of the Technical Conference transcript, below is the calculation for the estimated interest during construction carrying charge during the construction period from August 2017 to December 31, 2020 in the amount of $31MM.

Next Bridge Infrastructure LP

Estimated Carrying Charge

Line No.	Phase	Account	Year	Quarter	Quarterly Estimated Project Cost	Cumulative Project Cost	Monthly Carrying Charge	Cumulative Carrying Charge	Total Project Cost inclusive of Carrying Charge	Rate *
1	Development	Deferral	2017	Life To Date		40,210,586	110,579	110,579	40,321,165	1.10%
2	Construction	Deferral	2017	Q2	295,321	40,616,487	111,695	222,274	40,728,182	1.10%
3	Construction	Deferral	2017	Q3	685,016	41,413,198	113,886	336,161	41,527,085	1.10%
4	Construction	Deferral	2017	Q4	748,951	42,276,036	116,259	452,420	42,392,295	1.10%
5	Construction	Deferral	2018	Q1	11,700,213	54,092,508	148,754	601,174	54,241,263	1.10%
6	Construction	CWIP	2018	Q2	27,502,101	81,743,364	574,247	1,175,421	82,317,611	2.81%
7	Construction	CWIP	2018	Q3	10,231,392	92,549,003	650,157	1,825,578	93,199,160	2.81%
8	Construction	CWIP	2018	Q4	39,612,393	132,811,552	933,001	2,758,579	133,744,554	2.81%
9	Construction	CWIP	2019	Q1	53,500,333	187,244,887	1,315,395	4,073,975	188,560,282	2.81%
10	Construction	CWIP	2019	Q2	88,116,629	276,676,911	1,943,655	6,017,630	278,620,567	2.81%
11	Construction	CWIP	2019	Q3	94,190,789	372,811,356	2,619,000	8,636,630	375,430,356	2.81%
12	Construction	CWIP	2019	Q4	97,197,814	472,628,169	3,320,213	11,956,843	475,948,382	2.81%
13	Construction	CWIP	2020	Q1	92,878,101	568,826,483	3,996,006	15,952,849	572,822,489	2.81%
14	Construction	CWIP	2020	Q2	76,959,754	649,782,243	4,564,720	20,517,569	654,346,963	2.81%
15	Construction	CWIP	2020	Q3	66,481,600	720,828,563	5,063,821	25,581,390	725,892,384	2.81%
16	Construction	CWIP	2020	Q4	45,867,425	771,759,809	5,421,613	31,003,002	777,181,422	2.81%
17					705,967,522		31,003,002			

*Prescribed Interest Rates reference as of 2nd Q 2017

https://www.oeb.ca/industry/rules-codes-and-requirements/prescribed-interest-rates

UNDERTAKING JT1.2

UNDERTAKING

TC TR 1, page 20

To provide costs for the Pic River appeal, and at what stage the appeal was abandoned.

RESPONSE

The total costs related to the Ojibways of Pic River First Nation ("Pic River") appeal of the Ontario Energy Board's (OEB) EB-2011-0140 designation decision were $230,159.94, and are broken down as follows:

1. External legal fees and disbursements - $218,788.38, plus
2. Internal labour charges - $11,371.56.

The relief claimed by Pic River in the Notice of Appeal was that the decision be set aside, that the matter be remitted back to the OEB for reconsideration with directions, or in the alternative that the Court declare that the OEB make a decision about which applicant is entitled to recovery of development costs at the conclusion of the Leave to Construct proceeding. Over 30 parties were named as Respondents in Appeal.

In response to a motion by the Respondent OEB for an order providing for the participation of certain named Respondents as Intervenors in the appeal, setting the schedule for the perfection and other proceedings leading to the hearing of the appeal, and for related relief, on October 29, 2013 the Court issued an order outlining (among other things) the procedural steps to be completed in relation to the appeal (the "Order"). A copy of the Order is attached for the convenience of the Board.

The costs incurred by NextBridge as a Respondent relate to NextBridge's participation in the appeal proceeding in accordance with the procedural steps outlined in the Order, including the following:

- Engagement and correspondence with other named respondents and the applicant in relation to the OEB motion and all other steps in the proceeding;
- Consideration of evidence (and the submissions of other parties related to evidence) required for the appeal;
- Research, preparation and distribution of NextBridge written argument (Factum) which was served and filed in February 2014 on the appeal;
- Review and consideration of Factums served and filed by other parties to the

appeal; and
- Preparation for oral argument in the appeal.

The appeal was scheduled to be heard on Wednesday April 2, 2014 and Thursday April 3, 2014. The Ontario Divisional Court, however, ordered the appeal abandoned on April 2, 2014.

~~SCHEDULE "A"~~

Court File No. 408/13

ONTARIO
SUPERIOR COURT OF JUSTICE
(DIVISIONAL COURT)

THE HONOURABLE MADAM JUSTICE HIMEL) TUESDAY, THE 29th DAY OF OCTOBER, 2013

BETWEEN:

OJIBWAYS OF PIC RIVER FIRST NATION

Appellant

- and -

THE ONTARIO ENERGY BOARD; THE ATTORNEY GENERAL OF ONTARIO; ALTALINK ONTARIO LP; CANADIAN NIAGARA POWER INC.; EWT LP; ICCON/TPT; RES CANADA TRANSMISSION LP; UPPER CANADA TRANSMISSION INC.; ASSOCIATION OF MAJOR POWER CONSUMERS OF ONTARIO; BAYNICHE CONSERVANCY; BUILDING OWNERS AND MANAGERS ASSOCIATION TORONTO; CANADIAN MANUFACTURERS & EXPORTERS; CITY OF THUNDER BAY AND NORTHWESTERN ONTARIO ASSOCIATED CHAMBERS OF COMMERCE AND NORTHWESTERN ONTARIO MUNICIPAL ASSOCIATION ENERGY TASK FORCE; CONSUMERS COUNCIL OF CANADA; ENBRIDGE INC.; ENERGY PROBE RESEARCH FOUNDATION; GREAT LAKES POWER TRANSMISSION EWT LP; GREAT LAKES POWER TRANSMISSION LP; HYDRO ONE INC.; HYDRO ONE NETWORKS INC.; INDEPENDENT ELECTRICITY SYSTEM OPERATOR; LAKE SUPERIOR-ACTION-RESEARCH CONSERVATION; MÉTIS NATION OF ONTARIO; NISHNAWBE-ASKI NATION; NORTHWATCH; ONTARIO POWER AUTHORITY; POWER WORKERS' UNION; SCHOOL ENERGY COALITION; THE CORPORATION OF THE MUNICIPALITY OF WAWA and ROD TAYLOR

Respondents

ORDER

THIS MOTION, made by the Respondent, the Ontario Energy Board, with the consent of the Appellant and all other participating parties, for an order providing for the participation of

certain named Respondents as Intervenors in this appeal, setting the schedule for the perfection and other proceedings leading to the hearing of this appeal, and for related relief, was read this day at Toronto.

ON READING the Notice of Motion, the Amended Amended Notice of Appeal, the correspondence, and the Consent filed:

1. THIS COURT ORDERS that service of all further documents relating to this Appeal on the named Respondents, Altalink Ontario LP; Canadian Niagara Power Inc.; Association of Major Power Consumers of Ontario; Bayniche Conservancy; Building Owners and Managers Association Toronto; Canadian Manufacturers & Exporters; City of Thunder Bay and Northwestern Ontario Associated Chambers of Commerce and Northwestern Ontario Municipal Association Energy Task Force; Consumers Council of Canada; Enbridge Inc.; Energy Probe Research Foundation; Great Lakes Power Transmission EWT LP; Great Lakes Power Transmission LP; Hydro One Inc.; Hydro One Networks Inc.; Independent Electricity System Operator; Lake Superior-Action-Research Conservation; Nishnawbe-Aski Nation; Northwatch; The Corporation of The Municipality of Wawa and Rod Taylor, be and it is hereby dispensed with.

2. THIS COURT ORDERS that the named Respondents, (i) the Attorney General of Ontario (for the Minister of Energy), (ii) EWT LP, (iii) Iccon/TPT (properly identified as Iccon Transmission Inc. and TransCanada Power Transmission (Ontario) LP), (iv) RES Canada Transmission LP, (v) Métis Nation of Ontario, (vi) Ontario Power Authority, (vii) Power Workers' Union, and (viii) School Energy Coalition, shall, if they wish to do so, participate in this Appeal from and after the date of this Order as Intervenors, and not as Respondents, on the following terms:

(a) they shall neither seek costs nor be subject to an order for costs in respect of their participation in this Appeal;

(b) they shall each be permitted to prepare and file in this Appeal a single Factum, not more than fifteen (15) pages in length; and

(c) they shall each be permitted to present oral argument at the hearing of this Appeal not to exceed fifteen (15) minutes in length, unless otherwise ordered by the panel of this Court that hears the Appeal.

3. THIS COURT ORDERS that the Appellant shall, on or before November 29, 2013, file an Amended Certificate Respecting Evidence setting out only the portions of the evidence that, in the Appellant's opinion, are required for this Appeal.

4. The Respondents, the Ontario Energy Board and Upper Canada Transmission Inc., and any of the Intervenors referred to in paragraph 2 of this Order who wish to do so may, on or before December 13, 2013, file a Certificate Respecting Evidence setting out any additions to the evidence set out in the Appellant's Amended Certificate Respecting Evidence, that in their opinion are required for this Appeal,

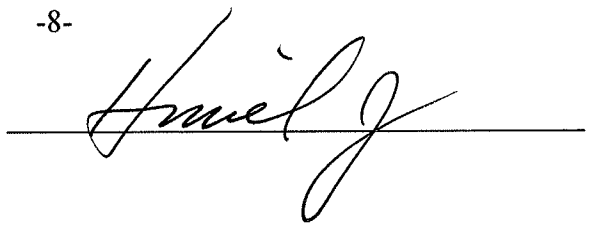
5. THIS COURT ORDERS that the time for perfecting this Appeal be, and it is hereby extended to, January 13, 2014.

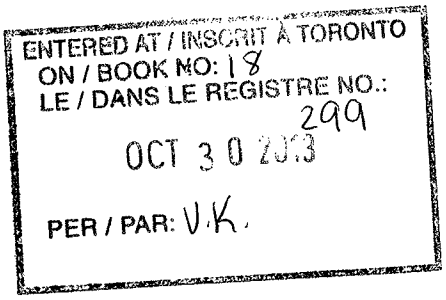
6. THIS COURT ORDERS that the Factum of any Intervenor referred to in paragraph 2 of this Order who wishes to support this Appeal shall be served and filed on or before January 27, 2014.

7. THIS COURT ORDERS that the Factum of the Ontario Energy Board and of Upper Canada Transmission Inc. shall be served and filed on or before February 17, 2014.

8. THIS COURT ORDERS that the Factum of any Intervenor referred to in paragraph 2 of this Order who does not wish to support the position of the Appellant in this Appeal shall be served and filed on or before March 3, 2014.

9. THIS COURT ORDERS that this Appeal shall be heard on April 2 and 3, 2014, or such other date as may be fixed by the Registrar with the consent of counsel for the Appellant, and counsel for the Respondents, the Ontario Energy Board and Upper Canada Transmission Inc., and counsel for all participating Intervenors referred to in paragraph 2 of this Order.

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ON / BOOK NO: 18
LE / DANS LE REGISTRE NO.:
299
OCT 30 2013
PER / PAR: V.K.

Ojibways of Pic River First Nation
Appellant

and

Ontario Energy Board
Respondent

Court File No: 408/13

ONTARIO
SUPERIOR COURT OF JUSTICE

Proceeding commenced at Toronto

ORDER

Stockwoods LLP
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TD North Tower
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Lawyers for the Respondent,
Ontario Energy Board

Served by Email:

UNDERTAKING JT1.3

UNDERTAKING

TR 1, page 21

To provide an update to Exhibit B, Tab 16, Schedule 1, Attachment 12 showing billing by month.

RESPONSE

The amounts below represent the EWT Line Project Extended Development Period actual monthly spend amounts, i.e., "billings", for the data points from the line graph at Exhibit B, Tab 16, Schedule 1, Attachment 12.

2013		2014		2015		2016		2017	
Date	**Total - $CAD**	**Date**	**Total - $CAD**	**Date**	**Total - $CAD**	**Date**	**Total - $CAD**	**Date**	**Total - $CAD**
Aug-13	61,067	**Jan-14**	984,504	**Jan-15**	1,103,097	**Jan-16**	416,288	**Jan-16**	968,941
Sep-13	341,872	**Feb-14**	915,923	**Feb-15**	-418,674	**Feb-16**	538,877	**Feb-16**	677,891
Oct-13	143,430	**Mar-14**	960,718	**Mar-15**	269,467	**Mar-16**	785,128	**Mar-16**	924,861
Nov-13	1,446,418	**Apr-14**	919,169	**Apr-15**	705,491	**Apr-16**	742,683	**Apr-16**	1,056,304
Dec-13	816,079	**May-14**	1,888,321	**May-15**	594,079	**May-16**	621,783	**May-16**	1,102,451
		Jun-14	1,023,831	**Jun-15**	413,193	**Jun-16**	774,495	**Jun-16**	1,875,319
		Jul-14	1,415,895	**Jul-15**	508,584	**Jul-16**	648,069	**Jul-16**	1,024,721
		Aug-14	1,543,382	**Aug-15**	375,834	**Aug-16**	877,664	**Aug-16**	
		Sep-14	1,414,026	**Sep-15**	348,789	**Sep-16**	1,183,512	**Sep-16**	
		Oct-14	1,751,129	**Oct-15**	527,731	**Oct-16**	813,081	**Oct-16**	
		Nov-14	1,426,087	**Nov-15**	447,262	**Nov-16**	1,116,500	**Nov-16**	
		Dec-14	732,888	**Dec-15**	442,485	**Dec-16**	998,856	**Dec-16**	

UNDERTAKING JT1.4

UNDERTAKING

TR 1, page 22

To confirm spending on development work by August 2014.

RESPONSE

As of August 31, 2014, NextBridge Infrastructure LP had spent $11,165,561 under the budgeted costs and $1,295,046 under the unbudgeted costs for a total of $12,460,607. Both these amounts were reported in Upper Canada Transmission, Inc.'s September 22, 2014 OEB Monthly Report at Tables 1 and Table 2 (pages 6 and 8 respectively).

UNDERTAKING JT1.5

UNDERTAKING

TC TR 1, page 23

To describe the progress of the development work to end of February 2015.

RESPONSE

NextBridge Infrastructure LP submitted a report to the Ontario Energy Report ("OEB") on January 22, 2015 summarizing overall East West Tie ("EWT") Project progress. Included in that report at Table 3, starting on p.10, is a table specifically summarizing milestone progress and status. The milestone progress and status table from the January 22, 2015 report is reproduced below.

Each of the originally identified project development milestones related to engineering, route selection, land / ROW acquisition and community/municipal consultation, Aboriginal engagement, consultation and participation were completed on or before January 22, 2015. Milestones related to completion of the Environmental Assessment and Submission of the Leave to Construct application were the only original project development milestones that remained outstanding. The EWT Line Project development Milestones were updated in January 2016 to reflect OEB approval of the updated development schedule submitted by NextBridge in June 2015 reflecting an extended development period.

The January 22, 2015 Report represents the most accurate snapshot of EWT Line Project development work progress for the point in time requested. The next OEB Report submitted by NextBridge Infrastructure was on April 22, 2015. Complete copies of the January 22, 2015 and April 22, 2015 Reports are available at NextBridge's response to SEC Interrogatory #2, found at Exhibit I.NextBridge.SEC.2.

OEB Report – January 22, 2015: Table 3: Milestone Progress and Status

Engineering Milestones

	Milestone	Board Approved Date	Status	Revised Forecast Date
1	Initiate engineering	13 Sep 2013	Completed	
2	Sign contract for engineering	31 Oct 2013	Completed	
3	Finalize design criteria for conductor and structure	31 Jan 2014	Completed	
4	Complete conductor optimization study	7 Mar 2014	Completed	
5	File request for a System Impact Assessment (SIA) with the IESO	12 Mar 2014	Completed	
6	Status report on progress toward finalization of structure choice	31 Mar 2014	Completed	
7	Obtain senior management approval of the structure configuration proposal	1 July 2014	Completed	
8	Complete aerial surveys	14 Oct 2014	Completed	
9	Receive final SIA from the IESO	21 Nov 2014	Completed	

Route Selection, Land/ROW Acquisition and Community/Municipal Consultation Milestones

	Milestone	Board Approved Date	Status	Revised Forecast Date
10	Prepare list of landowners along the ROW	10 Oct 2013	Completed	
11	Complete design of Landowner, Community and Municipal Consultation Plan	1 Nov 2013	Completed	
12	Commence negotiations or discussions with all landowners and permitting agencies	25 Nov 2013	Completed	May 30, 2014 as per EWT Project April 22, 2014 Monthly Report
13	Finalize proposed route and obtain senior management approval	1 Jul 2014	Completed	

Aboriginal Engagement, Consultation and Participation Milestones

	Milestone	Board Approved Date	Status	Revised Forecast Date
14	Send introductory correspondence to aboriginal communities	30 Aug 2013	Completed	
15	Initial meeting with Ministry of Energy regarding the MOU for delegation	15 Sept 2013	Completed	
16	Complete initial/introductory contact with all aboriginal communities identified by the Ministry of Energy	30 Sept 2013	Completed	
17	Sign MOU with Ministry of Energy regarding the delegation	5 Nov 2013	Completed	
18	Complete design of First Nations and Métis Participation Plan with community input	2 Jan 2014	Completed	
19	Complete design of First Nations and Métis Consultation Plan with community input	2 Jan 2014	Completed	

Environmental Assessment (Provincial) Milestones

	Milestone	Board Approved Date	Status	Revised Forecast Date
20	Consult with environmental agencies (Ministry of Environment, Ministry of Natural Resources, Parks Canada and Ontario Parks)	10 Oct 2013	Completed	
21	Issue notice of draft Terms of Reference (ToR) available for review	16 Jan 2014	Completed	
22	File Environmental Assessment ToR	28 Feb 2014	Completed	
23	Initiate wildlife, aquatics and early season vegetation assessments	1 May 2014	Completed	May 20, 2014 - as per EWT Project April 22, 2014 Monthly Report
24	Approval of Environmental Assessment ToR	3 Jul 2014	Completed	August 28, 2014
25	Complete Environmental Assessment Consultation Report	27 Jan 2015	Delayed	To be determined
26	Submit Environmental Assessment to Ministry of Environment	27 Jan 2015	Delayed	To be determined

Leave to Construct Milestone

	Milestone	Board Approved Date	Status	Revised Forecast Date
27	Submit Leave to Construct (LTC) application	28 Jan 2015	Delayed	To be determined

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To describe the milestones NextBridge had expected to have completed at the end of the 18-month period.

RESPONSE

NextBridge Infrastructure LP expected to complete all of the original development milestones identified in the NextBridge August 28, 2013 Compliance Filing in the designation proceeding (EB-2011-0140) at the end of the original 18-month development period, i.e., August 2013 through January 2015. The development schedule including the original development milestones and corresponding target completion dates is reproduced below for the convenience of the Board. A copy of the complete Compliance Filing is available at SEC Interrogatory #1, found at Exhibit I.NextBridge.SEC.1.

Engineering

	Milestone	**Proof of Completion**	**Target Date**
1	Initiate engineering	Request for Proposal for engineering	13 Sep 2013
2	Sign contract for engineering	Executed contract	31 Oct 2013
3	Finalize design criteria for conductor and structure	Design criteria report	31 Jan 2014
4	Complete conductor optimization study	Completed study	7 Mar 2014
5	File request for a System Impact Assessment (SIA) with the IESO	Confirming correspondence	12 Mar 2014
6	Status report on progress toward finalization of structure choice	Status Report	31 Mar 2014
7	Obtain senior management approval of the structure configuration proposal	Structure Selection Report	1 July 2014
8	Complete aerial surveys	Aerial surveys report	14 Oct 2014
9	Receive final SIA from the IESO	Confirming correspondence	21 Nov 2014

Route Selection, Land/ROW Acquisition and Community/Municipal Consultation

	Milestone	Proof of Completion	Target Date
10	Prepare list of landowners along the ROW	Line list	10 Oct 2013
11	Complete design of Landowner, Community and Municipal Consultation Plan	Consultation plan	1 Nov 2013
12	Commence negotiations or discussions with all landowners and permitting agencies	Confirming correspondence	25 Nov 2013
13	Finalize proposed route and obtain senior management approval	Final route report	1 Jul 2014

Aboriginal Engagement, Consultation and Participation

	Milestone	Proof of Completion	Target Date
14	Send introductory correspondence to aboriginal communities	Confirming correspondence	30 Aug 2013
15	Initial meeting with Ministry of Energy regarding the MOU for delegation	Confirming correspondence	15 Sep 2013
16	Complete initial/introductory contact with all aboriginal communities identified by the Ministry of Energy	Confirming correspondence	30 Sep 2013
17	Sign MOU with Ministry of Energy regarding the delegation	Executed MOU	5 Nov 2013
18	Complete design of First Nations and Metis Participation Plan with community input	Participation plan	2 Jan 2014
19	Complete design of First Nations and Metis Consultation Plan with community input	Consultation plan	2 Jan 2014

Environmental Assessment (Provincial)

	Milestone	Proof of Completion	Target Date
20	Consult with environmental agencies (Ministry of Environment, Ministry of Natural Resources, Parks Canada and Ontario Parks)	Confirming correspondence	10 Oct 2013
21	Issue notice of draft Terms of Reference (ToR) available for review	Public advertisement of draft ToR	16 Jan 2014
22	File Environmental Assessment ToR	Confirming correspondence	28 Feb 2014
23	Initiate wildlife, aquatics and early season vegetation assessments	Plan outlining summer programs	1 May 2014
24	Approval of Environmental Assessment ToR	Confirming correspondence	3 Jul 2014
25	Complete Environmental Assessment Consultation Report	Environmental Assessment	27 Jan 2015
26	Submit Environmental Assessment to Ministry of Environment	Confirming correspondence	27 Jan 2015

LTC

	Milestone	Proof of Completion	Target Date
27	Submit Leave to Construct (LTC) application	Confirming correspondence	28 Jan 2015

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To provide a list of all internal employees who worked on the project by job title; (2) the number of hours each employee billed on the EWT project; (3) the total cost of those hours; (4) a detailed description of what they did; (5) an understanding as to which -- into which of the cost categories their kind of billings or their hours were put, for example, were their billings ultimately put into the engineering category or the regulatory or project management.

RESPONSE

Please see the attachment to this response.

Engineering & Constructability

Titles	Number of Hours	Total cost	Detailed description of work
Senior attorney	1.5		Engineering-related activities to progress development of the EWT Line Project, including:
Director, Aboriginal relations	2.0		(a) Team lead meetings,
Scheduling	4.0		(b) Team lead calls,
Senior project director engineering & construction	6.0		(c) Attend open houses,
Director, aboriginal relations	8.0		(d) Prepare leave to construct application,
Sourcing manager	14.0		(e) Input to and review of the Draft and Final Environmental Assessment Report,
Managing attorney	15.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Professional construction	30.0		(g) Team scheduling calls and discussions,
Associate accountant	33.0		(h) Consultant/Vendor management, including RFP and procurement process,
Staff engineer	37.0		(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
Senior director construction	46.0		(j) Travel expenses for EWT Line Project meetings,
Accounting technician	60.8		(k) Provide on-going advice and support to project development work and activities from all other work streams,
			(l) Scope development for all engineering and construction studies required for project development including transmission line engineering, tower design, preliminary construction and access plan, weather studies, grounding studies,
Assistant general counsel & senior attorney	144.8		preliminary desktop and field geotechnical among others,
Administrative specialist	204.5		(m) Oversight, review and vetting of all the EWT Line Project development engineering and construction work and studies report,
Technical services manager	235.0		(n) Tower prototype testing coordination and witnessing,
Director project engineering	280.0		(o) Preparation of transmission line crossings packages including meetings and discussion with Hydro One Networks Inc.,
Lead professional - construction	1,223.0		(p) Input and review of Alternative assessment, Terms of Reference, Environmental Protection Plan, and
Project manager	2,033.3		(q) Preparation of safety guidelines and safety coordination for all field work during development.
Senior sourcing specialist	2,283.0		
Project engineer	2,393.0		
Manager construction	2,800.5		
Director construction	3,934.0		
TOTALS	15,788.3	2,310,788	

Environmental

Titles	Number of Hours	Total cost	Detailed description of work
Senior environmental counsel	1.8		Environment-related activities to progress development of the EWT Line Project, including:
Land & right of way specialist	4.5		(a) Team lead meetings,
Advisor, regulatory law & affairs	62.0		(b) Team lead calls,
Senior environmental analyst/project coordinator	85.0		(c) Attend open houses,
Environmental advisor	117.3		(d) Prepare leave to construct application,
Senior manager	283.5		(e) Complete environmental assessment (EA),
Supervisor, major projects environment	872.6		(i) Managed and participated in the development and consultation of the Draft and Final Terms of Reference (ToR),
Senior environmental analyst	5,926.3		(ii) Managed, developed and participated in the consultation with regulators, stakeholders, including open houses, of the draft and final environmental assessments,
TOTALS	7,352.9	1,130,315	(iii) Coordination and submission of draft comment responses,
			(iv) Managed the development and review of the Alternatives Assessment,
			(v) Participation in the access and construction footprint change process,
			(vi) Participation in route review and route change process,
			(vii) Coordination and management for field programs occurring in 2014, 2016, 2017 for geotechnical study, geomatics survey, environmental surveys and studies, and archaeological testing,
			(viii) Consultation with regulators, stakeholders, including open houses, regarding EA comments and methodology,
			(ix) Completion of record of consultation,
			(x) Managed the development of the Construction Environmental Protection Plan, Alignment Sheets and Mapping,
			(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
			(g) Team scheduling calls and discussions,
			(h) Consultant/Vendor management, including RFP and procurement process,
			(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
			(j) Ongoing advice and support in relation to other work stream project development activity,
			(k) Travel expenses for EWT Line Project meetings, including First Nation and Métis Communities meetings, and
			(l) Manage comments submitted to the EWT Line Project including entry into database.

Land

Titles	Number of Hours	Total cost	Detailed description of work
Administrative Assistant	0.5		Land-related activities to progress development of the EWT Line Project, including:
Senior land & right of way specialist	2.0		(a) Team lead meetings,
Senior manager, Canadian projects, land services	3.0		(b) Team lead calls,
Senior regulatory counsel	8.0		(c) Attending open houses, public meetings, and other stakeholder meetings including regulatory agencies, municipalities, other utilities,
Director, land services Canada	12.0		(d) Prepare leave to construct application,
Department administration	32.7		(e) Input to and review of the Draft and Final Environmental Assessment Report,
Crossing coordinator	56.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Land & right of way specialist	3,191.1		(g) Team scheduling calls and discussions,
TOTALS	3,305.2	497,072	(h) Consultant/Vendor management, including RFP and procurement process,
			(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
			(j) Travel expenses for EWT Line Project meetings,
			(k) Designation application review including a review of scope, budget and commitments made with respect to the land acquisition program,
			(l) Ongoing advice and support in relation to other work stream project development activity,
			(m) Scope development for third party services specific to the land acquisition program including:
			(i) Land Contract,
			(ii) Appraisal Contract,
			(iii) Land Survey Contract,
			(iv) Timber Valuation Contract,
			(v) Aggregate and Mining Valuation Contract,
			(n) Supporting the drafting and development of Project communication tools (update letters, open house materials, land agent orientation),
			(o) Input to and review of the Draft and Final Terms of Reference (ToR),
			(p) Input to and review of the Alternatives Assessment,
			(q) Managing the land acquisition and permitting program in support of EWT Line Project development including:
			(i) Development of, and change management of the line list,
			(ii) Development and implementation of land compensation principles,
			(iii) Supporting the drafting and finalization of the forms of agreement for property owner land acquisition,
			(iv) Working with land contractor for the development and implementation of Crown interest compensation policies,
			(vi) Developing standard templates for landowner documents,
			(vii) Coordination of access for field programs occurring in 2014, 2016, 2017 for geotechnical study, geomatics survey, environmental surveys and studies, and archaeological testing,
			(viii) Land agent orientation and option acquisition kick off,
			(ix) Establishment of issue resolution process for property owner and crown interest holder acquisition,
			(x) Participation in route review and route change process,
			(xi) Oversight of access and construction footprint change process,
			(xii) Land permitting program kick off, and
			(xiii) Third party crossing program kick off.

First Nation Métis (consultation and participation)

Titles	Number of Hours	Total cost	Detailed description of work
Senior administrative assistant, stakeholder & Aboriginal	2.0		First Nations and Métis related activities to progress development of the EWT Line Project, including:
Manager community & Indigenous	4.0		(a) Team lead meetings,
Supervisor, stakeholder relations	13.5		(b) Team lead calls,
Senior strategist - eastern Canada	16.0		(c) Attend open houses,
Aboriginal affairs	16.0		(d) Prepare leave to construct application,
Aboriginal affairs advisory	18.0		(e) Input to and review of the Draft and Final Environmental Assessment Report,
Manager of government affairs	48.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Director, Aboriginal & stakeholder relations	86.0		(g) Team scheduling calls and discussions,
Manager, Aboriginal & stakeholder relations	159.0		(h) Consultant/Vendor management, including RFP and procurement process,
Manager, Aboriginal affairs, national policies & programs	412.5		(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
Technical director, commercial development east	492.0		(j) Ongoing advice and support in relation to other work stream project development activity,
Director, Aboriginal relations	626.9		(k) Travel expenses for EWT Line Project meetings, including First Nation and Métis Communities meetings,
Project director community engagement	3,554.0		(l) Negotiations of Capacity Funding Agreements and coordinating with internal and external legal counsel,
TOTALS	5,447.9	1,076,855	(m) Coordination and attendance at Indigenous community meetings, and
			(n) Coordination and attendance at Indigenous leadership meetings to present EWT Line Project updates and discuss future activities.

Stakeholder Relations

Titles	Number of Hours	Total cost	Detailed description of work
Senior regulatory counsel	1.0		Stakeholder consultation-related activities to progress development of the EWT Line Project, including:
Aboriginal & community inclusion	3.8		(a) Team lead meetings,
Senior analyst budget & forecast	7.0		(b) Team lead calls,
Manager, Aboriginal affairs, national policies & programs	7.0		(c) Coordinating and attend open houses,
Aboriginal affairs	8.0		(d) Prepare leave to construct application,
Senior communication advisor	12.0		(e) Input to and review of the Draft and Final Environmental Assessment Report and EA notifications,
Administrative assistant	14.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Communication support	19.0		(g) Team scheduling calls and discussions,
Senior manager, stakeholder & Aboriginal engagement, eastern region	35.0		(h) Consultant/Vendor management, including RFP and procurement process,
Corporate communications strategist	48.0		(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
Manager of government affairs	56.0		(j) Travel expenses for EWT Line Project meetings,
Manager, strategy & planning	98.0		(k) Ongoing advice and support in relation to other work stream project development activity,
Project controls analyst	146.0		(l) Compile mailing lists and coordinating EWT Line Project mailings,
Senior project planning specialist	172.0		(m) Manage comments submitted through the EWT Line Project hotline, open houses and general enquires including entry into database and distribution to leads for a response,
Stakeholder & Aboriginal engagement advisor	468.3		(n) Website building and maintenance,
Senior strategist - eastern Canada	3,745.1		(o) Preparation of EWT Line Project newsletters and update letters, and
TOTALS	4,840.1	746,340	(p) Meetings with community representatives

Regulatory

Titles	Number of Hours	Total cost	Detailed description of work
Supervisor, regulatory proceedings	1.5		Regulatory-related activities to progress development of the EWT Line Project, including:
Principal regulatory affairs analyst	2.0		(a) Team lead meetings,
Manager - regulatory policy & strategy	3.3		(b) Team lead calls,
Legal counsel, privacy officer & manager	6.4		(c) Attend open houses,
Senior environmental counsel	9.0		(d) Prepare leave to construct application,
Senior regulatory affairs analyst	10.0		(e) Input to and review of the Draft and Final Environmental Assessment Report,
Paralegal	15.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Senior counsel/Attorney	32.6		(g) Team scheduling calls and discussions,
Senior director, business management	38.0		(h) Consultant/Vendor management, including RFP and procurement process,
Regulatory specialist	44.0		(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
Manager, regulatory affairs	54.5		(j) Travel expenses for EWT Line Project meetings,
Senior manager regulatory affairs	63.5		(k) Ongoing advice and support in relation to other work stream project development activity,
Managing legal counsel	77.0		(l) Consider and prepare as needed other Ontario Energy Board applications (US GAAP, early access, cost recording),
Regulatory issues manager	84.5		(m) Ongoing advice and support in relation to other work stream project development activity (EA preparation and review, licence reporting, route selection, stakeholder engagement, scheduling activity), and
Regulatory analyst	110.0		(n) Engagement with regulators and stakeholders (OEB, IESO, HONI, PBR consultation).
Assistant general counsel & senior attorney	108.8		
Senior legal counsel	275.4		
Senior paralegal	170.0		
Executive director regulatory management	184.0		
Specialist regulatory affairs	383.0		
Advisor, regulatory law & affairs	417.0		
Senior attorney	895.3		
Technical manager - regulatory applications	1,029.8		
Senior regulatory counsel	2,667.1		
TOTALS	6,681.5	1,278,047	

Project Controls/Project Management Office

Titles	Number of Hours	Total cost	Detailed description of work
			Overall project management including task/schedule management, internal/external reporting including Ontario Energy Board reports and requests, management communication and directives, overall cost management including team lead
Director transmission business management	1.0		variance discussions, back office functions including accounting, financial reporting, accounts payable, vendor management/supply chain, cash management, tax, audit management, regulatory support, and financial modeling, in addition to:
Executive administrative assistant	2.0		(a) Team lead meetings,
President NextEra Energy Transmission	2.0		(b) Team lead calls,
Marketing & proposal coordinator	3.0		(c) Attend open houses,
Senior corporate real estate representative	4.0		(d) Prepare leave to construct application,
Business management analyst	9.5		(e) Input to and review of the Draft and Final Environmental Assessment Report,
Assistant general counsel	15.0		(f) Complete financial requirements, including budgets, assisting in monthly financial reporting,
Executive director - NEET	40.0		(g) Team scheduling calls and discussions,
Director transmission business management	40.0		(h) Consultant/Vendor management, including RFP and procurement process,
Senior director business services - NEET	48.0		(i) EWT Line Project reporting including OEB milestone tracking and content for monthly and quarterly reporting,
Administrative technician	49.5		(j) Travel expenses for EWT Line Project meetings,
Associate business analyst	51.5		(k) Ongoing advice and support in relation to other work stream project development activity, and
Principal regulatory accountant	62.0		(l) Operatings & maintenance cooordination and planning, including resolving rights of way access matters.
Tax project manager	79.0		
Principal financial analyst	81.0		
Tax project manager regulatory	81.0		
Senior director business management	102.0		
Senior sourcing specialist	117.0		
Paralegal	121.8		
Technical services manager - T/S	130.0		
Leader project controls & scheduling	136.0		
Project manager development/GIS analyst	141.0		
Administrative specialist II	180.0		
Senior regulatory counsel	242.0		
Director operations - T/S	319.5		
Manager, product development	311.7		
Director, green power and transmission	322.0		
Principal regulatory accountant	354.0		
Project manager development	435.5		
Vice president development	483.5		
Regulatory accounting manager	564.0		
Associate accountant	637.0		
Executive director development	647.5		
Director business management	902.3		
Accounting technician	1,241.5		
Executive director development - CAD	1,245.3		
GIS analyst	1,529.5		
Project director	2,108.0		
Business management analyst	2,819.5		
Project management - CAD	3,269.0		
TOTALS	18,928.0	3,517,013	
Other (Pic River)		11,375	
TOTALS	62,343.9	10,567,804	

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To provide copies of the reports from the lead level to the project managers about cost variances.

RESPONSE

The process for reporting cost variances to project management begins with the preparation of monthly project financial information from the Project Management Office, which is then circulated to the team leads for their review. Where a material variance from budget arises in relation to a work stream, the relevant team lead is requested to provide an explanation. The variances, including team lead explanations for the variances, are summarized as part of the Board of Directors materials. Attached are variance materials provided to the Board of Directors in the following years:

- 2015 (Attachment 1)
- 2016 (Attachment 2)
- 2017 (Attachment 3)
- 2018 (Attachment 4)

Financial Update – Actuals to Date

- Revised format for tracking financials – Actuals vs Budget, plus Balance of Project

Cost Category	Actuals at July 31, 2015 project to-date ("PTD")	August Estimates	August Actuals	August variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Low Spend Committed (bridge costs post July 31 to re-start)	Balance of Project Forecast	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
Budgetted											
Engineering, Design and Procurement Activity	7,270,211	129,000	99,620	29,380	7,369,830	200,000	4,761,059	12,330,889	12,322,998	(7,891)	59.8%
Permitting and Licensing	84,781	-	-	-	84,781		-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,557,470	89,000	14,208	74,792	3,571,678		4,911,000	8,482,678	8,482,680	2	42.1%
Land Acquisition (Excludes Aboriginal)	1,578,854	9,000	10,860	(1,860)	1,589,713		2,991,000	4,580,713	4,571,000	(9,713)	34.7%
First Nation and Metis Consultation	1,593,084	55,000	51,836	3,164	1,644,920	515,000	3,330,000	5,489,920	5,474,000	(15,920)	30.0%
Other Consultation	868,468	37,000	4,901	32,099	873,370		1,663,000	2,536,370	2,516,000	(20,370)	34.4%
Regulatory	1,144,689	12,000	24,403	(12,403)	1,169,092	452,500	945,500	2,567,092	2,495,000	(72,092)	45.5%
Interconnection Studies	83,878	-	-	-	83,878		60,000	143,878	239,000	95,122	58.3%
Project Management	2,388,456	77,000	191,577	(114,577)	2,580,033		2,854,582	5,434,615	4,630,000	(804,615)	47.5%
Contingency and Escalation (Eng, Design & Procurement)							1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgetted	**18,569,891**	**408,000**	**397,404**	**10,596**	**18,967,296**	**1,167,500**	**23,476,141**	**43,610,937**	**42,768,000**	**(842,937)**	**43.5%**
Unbudgetted											
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908		21,815				
First Nation and Metis Participation	1,977,435	353,000	(37,056)	390,056	1,940,379		3,917,814				
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163		460,326				
Carrying Charges	171,579	-	15,485	(15,485)	187,064		358,643				
Taxes and Duties	-			-			-				
Total Unbudgetted	**2,390,085**	**353,000**	**(21,570)**	**374,570**	**2,368,514**		**4,758,599**	**-**			
Grand Total	**20,959,976**	**761,000**	**375,834**	**385,166**	**21,335,810**		**28,234,740**	**43,610,937**			

Financial Update – Key Variance Drivers

- Most disciplines were under estimate in August due to pushing activities until we have funding certainty from the OEB; this can not continue past September
- Primary August variance was PMO:
  - 2015 audit accrual true up, $10k
  - NEE labour methodology updated in 2015, $95k
    - $50k overhead loader (incentives, corporate overhead, general office expenses)– 2 months charged in August
    - $45k common cost allocation (2x year true-up)
  - DRM Consulting – revising allocation to a flat monthly charge, $5k
  - Travel costs higher than budgeted, $5k
- We are reviewing the PMO budget vs actuals in-detail for YTD results – findings presented at October Board meeting

Financial Update – September

- Continuing to use a reduced forecast of 95% for the Team Leads

Cost Category	Actuals at August 31, 2015 project to-date ("PTD")	September Estimates	September Actuals	September variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE			
							Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	7,369,830	410,000	56,221	353,779	7,426,052	4,313,006	11,739,058	12,322,998	583,940	60.3%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,571,678	109,000	15,164	93,836	3,586,842	3,802,000	7,388,842	8,482,680	1,093,838	43.5%
Land Acquisition (Excludes Aboriginal)	1,589,713	21,000	14,545	6,455	1,604,258	2,820,450	4,424,708	4,571,000	146,292	34.8%
First Nation and Metis Consultation	1,644,920	61,000	35,866	25,134	1,680,785	3,617,500	5,298,285	5,474,000	175,715	30.7%
Other Consultation	873,370	37,000	8,332	28,668	881,702	1,542,850	2,424,552	2,516,000	91,448	34.7%
Regulatory	1,169,092	13,000	5,087	7,913	1,174,179	1,337,725	2,511,904	2,495,000	(16,904)	46.7%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	2,580,033	89,000	141,425	(52,425)	2,721,458	2,622,853	5,344,311	4,630,000	(714,311)	57.9%
Contingency						1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**18,967,296**	**740,000**	**276,639**	**463,361**	**19,243,935**	**22,073,384**	**41,317,319**	**42,768,000**	**1,450,681**	**46.6%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908		10,908			
First Nation and Metis Participation	1,940,379	353,000	56,488	296,512	1,996,867		1,996,867			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163		230,163			
Carrying Charges	187,064	-	15,661	(15,661)	202,726		202,726			
Taxes and Duties	-			-						
Total Unbudgeted	**2,368,514**	**353,000**	**72,149**	**280,851**	**2,440,663**	**-**	**2,440,663**			
Grand Total	**21,335,810**	**1,093,000**	**348,789**	**744,211**	**21,684,598**	**22,073,384**	**43,757,982**			

NOTE: Will be reforecast every 6 months by the Team Leads, start TBD

Financial Update – Key Variance Drivers

- Prior month financial results are typically finalized and distributed on the 4th business day of the new month – usually the same week as the Board of Directors meeting
- Most disciplines were under Budget in September due to pushing activities until we have funding certainty from the OEB; ramp-up activities for most disciplines started October 1
- Primary September variance was PMO:
  - Both September and October office rent was paid in September at the start of the new lease (net of ENB re-charge) - $5k
  - On-going issue of not properly capturing the loader rates with using annual salaries - combined impact is approximately $45k/ month ($34k for salaries, $8k for foreign exchange rate)

Financial Update – October

- October spend increased slightly with the resumption of Env and E&C work; current $2.7M balance should last 3-5 more months (Jan – Mar)

Cost Category	Actuals at September 30, 2015 project to-date ("PTD")	October Estimates	October Actuals	October variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	7,426,052	471,000	208,069	262,931	7,634,120	3,842,006	11,476,126	12,322,998	846,872	60.2%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,586,842	102,000	112,726	(10,726)	3,699,567	3,700,000	7,399,567	8,482,680	1,083,113	50.0%
Land Acquisition (Excludes Aboriginal)	1,604,258	22,000	18,941	3,059	1,623,199	2,798,450	4,421,649	4,571,000	149,351	36.7%
First Nation and Metis Consultation	1,680,785	155,000	49,808	105,192	1,730,593	3,462,500	5,193,093	5,474,000	280,907	34.4%
Other Consultation	881,702	39,000	1,819	37,181	883,521	1,503,850	2,387,371	2,516,000	128,629	37.6%
Regulatory	1,174,179	66,000	5,122	60,878	1,179,301	1,271,725	2,451,026	2,495,000	43,974	48.1%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.6%
Project Management	2,721,458	106,000	102,459	3,541	2,823,917	2,516,853	5,340,770	4,630,000	(710,770)	52.9%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**19,243,935**	**961,000**	**498,943**	**462,057**	**19,742,878**	**21,112,384**	**40,855,262**	**42,768,000**	**1,912,738**	**48.3%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908		10,908			
First Nation and Metis Participation	1,996,867	353,000	12,957	340,043	2,009,824		2,009,824			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163		230,163			
Carrying Charges	202,726	-	15,831	(15,831)	218,557		218,557			
Taxes and Duties	-			-						
Total Unbudgeted	**2,440,663**	**353,000**	**28,788**	**324,212**	**2,469,451**	**-**	**2,469,451**			
Grand Total	**21,684,598**	**1,314,000**	**527,731**	**786,269**	**22,212,329**	**21,112,384**	**43,324,713**			

Financial Update – Key Variance Drivers

- No significant variances for the month of October
- Actual expenses continue to be under Budget based on delay of full ramp up pending direction from the OEB
- E&C and Environmental increased in October as planned (geotechnical work and environmental vendor RFP)
- Environmental, Land, Regulatory and Aboriginal should increase in January supporting the route refinement work before the next Open House

Financial Update – November

- November spend increased slightly with the conclusion of E&C and ENV work; current $2.3M balance should last 3-5 more months (Feb– Apr)

Cost Category	Actuals at October 31, 2015 project to-date ("PTD")	November Estimates	November Actuals	November variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
Engineering, Design and Procurement Activity	7,634,120	325,000	123,110	201,890	7,757,230	3,517,006	11,274,236	12,322,998	1,048,762	62.8%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	110.0%
Environmental and Regulatory Approvals	3,699,567	95,000	25,428	69,572	3,724,995	3,605,000	7,329,995	8,482,680	1,152,685	57.8%
Land Acquisition (Excludes Aboriginal)	1,623,199	21,000	29,901	(8,901)	1,653,100	2,777,450	4,430,550	4,571,000	140,450	36.3%
First Nation and Metis Consultation	1,730,593	147,000	29,887	117,113	1,760,480	3,315,500	5,075,980	5,474,000	398,020	34.7%
Other Consultation	883,521	37,000	11,373	25,627	894,894	1,466,850	2,361,744	2,516,000	154,256	37.9%
Regulatory	1,179,301	66,000	(5,753)	71,753	1,173,548	1,205,725	2,379,273	2,495,000	115,727	47.3%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	2,823,917	89,000	103,518	(14,518)	2,927,435	2,427,853	5,355,288	4,630,000	(725,288)	115.7%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**19,742,878**	**780,000**	**317,464**	**462,536**	**20,060,342**	**20,332,384**	**40,392,726**	**42,768,000**	**2,375,274**	**94.7%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,009,824	353,000	113,704	239,296	2,123,528	-	2,123,528			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	218,557	-	16,094	(16,094)	234,651	-	234,651			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**2,469,451**	**353,000**	**129,798**	**223,202**	**2,599,250**	**-**	**2,599,250**			
Grand Total	**22,212,329**	**1,133,000**	**447,262**	**685,738**	**22,659,591**	**20,332,384**	**42,991,975**			

Financial Update – Key Variance Drivers

- Actual expenses continue to be under Budget based on the delay of full ramp up work, except for
  - Land ramp-up activities with CanAcre to re-engage with its team and support geotechnical work
  - PMO's internal labour charges were higher than budget (as previously noted)
  - Regulatory was negative due to low spend and a labour true-up
- November's Environmental accruals were understated - December will reflect current month plus the remaining November accruals
- Environmental, Land, Regulatory and Aboriginal should increase in January supporting the route refinement work before the next Open House

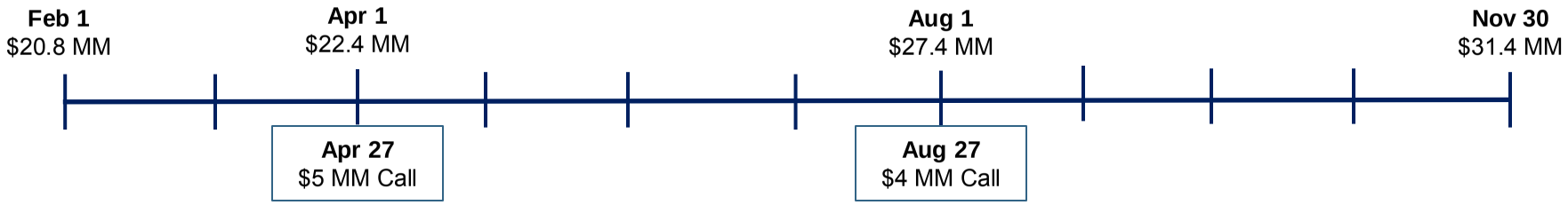
Financial Update – January

- January spend was inline with recent months at about $400 k; current $1.6 MM balance should last through the end of March

Cost Category	Actuals at December 31, 2015 project to-date ("PTD")	January Estimates	January Actuals	January variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
Engineering, Design and Procurement Activity	7,850,146	149,000	179,464	(30,464)	8,029,610	3,193,006	11,222,616	12,322,998	1,100,382	71.5%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,791,932	157,000	8,106	148,894	3,800,038	3,311,000	7,111,038	8,482,680	1,371,642	53.4%
Land Acquisition (Excludes Aboriginal)	1,634,725	134,000	20,129	113,871	1,654,854	2,622,450	4,277,304	4,571,000	293,696	38.7%
First Nation and Metis Consultation	1,801,683	155,000	34,528	120,472	1,836,211	3,013,500	4,849,711	5,474,000	624,289	37.9%
Other Consultation	905,769	39,000	28,027	10,973	933,795	1,390,850	2,324,645	2,516,000	191,355	40.2%
Regulatory	1,191,180	65,000	20,683	44,317	1,211,863	1,076,725	2,288,588	2,495,000	206,412	53.0%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,073,365	106,000	97,451	8,549	3,170,816	2,232,853	5,403,669	4,630,000	(773,669)	58.7%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**20,417,459**	**805,000**	**388,388**	**416,612**	**20,805,847**	**18,857,384**	**39,663,231**	**42,768,000**	**3,104,769**	**52.5%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,155,079	353,000	3,625	349,375	2,158,704	-	2,158,704			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	288,468	-	24,275	(24,275)	312,743	-	312,743			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**2,684,617**	**353,000**	**27,900**	**325,100**	**2,712,517**	**-**	**2,712,517**			
Grand Total	**23,102,076**	**1,158,000**	**416,288**	**741,712**	**23,518,365**	**18,857,384**	**42,375,749**			

Financial Update – Key Variance Drivers

- All disciplines were under budget, with the exception of E&C by $30 k; E&C remains under budget Project-to-Date
- T-Line, Foundation Design and Geotech expenses posted in January, but were budgeted in previous months
- All leads, including E&C, have been running below budget in recent months
- Next capital call is scheduled to be discussed on April 13th with funding due on April 27th; estimated $5.0 MM



Financial Update – February

- February budgeted spend was inline with recent months at about $400k; current $1.2 MM balance should last through the end of April

	Actuals at January 31, 2016 project to-date ("PTD")	February Estimates	February Actuals	February variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,029,610	149,000	133,972	15,028	8,163,582	3,044,006	11,207,588	12,322,998	1,115,410	72.8%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,800,038	174,000	87,502	86,498	3,887,540	3,137,000	7,024,540	8,482,680	1,458,140	55.3%
Land Acquisition (Excludes Aboriginal)	1,654,854	135,000	7,296	127,704	1,662,151	2,487,450	4,149,601	4,571,000	421,399	40.1%
First Nation and Metis Consultation	1,836,211	155,000	28,845	126,155	1,865,056	2,858,500	4,723,556	5,474,000	750,444	39.5%
Other Consultation	933,795	40,000	18,016	21,984	951,811	1,350,850	2,302,661	2,516,000	213,339	41.3%
Regulatory	1,211,863	63,000	19,752	43,248	1,231,615	1,013,725	2,245,340	2,495,000	249,660	54.9%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,170,816	89,000	86,444	2,556	3,257,260	2,143,853	5,401,113	4,630,000	(771,113)	60.3%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**20,805,847**	**805,000**	**381,826**	**423,174**	**21,187,673**	**18,052,384**	**39,240,058**	**42,768,000**	**3,527,942**	**54.0%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,158,704	353,000	132,257	220,743	2,290,960	-	2,290,960			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	312,743	-	24,794	(24,794)	337,537	-	337,537			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**2,712,517**	**353,000**	**157,050**	**195,950**	**2,869,568**	**-**	**2,869,568**			
Grand Total	**23,518,365**	**1,158,000**	**538,877**	**619,123**	**24,057,241**	**18,052,384**	**42,109,625**			

Financial Update – Key Variance Drivers

- All disciplines were under budget in February
- Enbridge's actual invoices for Oct, Nov, and Dec 2015 were processed in Feb 2016, which clears the labour accrual and adjusts for any differences
- January labour for Land was over accrued; the reversal posted in February resulting in no Land labour expense
- All leads have been running below budget in recent months
- Next capital call is scheduled to be discussed on April 13th with funding due on April 27th; estimated $5.0 MM
  - Currently excludes 'below the line' costs
  - Any adjustments (not expected to be significant) will be accounted for in the August capital call

Financial Update – March

- March spend was reflective of increased activities with land, environmental, stakeholder and E&C; should reach $22.4 MM this month

	Actuals at February 29, 2016 project to-date ("PTD")	March Estimates	March Actuals	February variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE			
							Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,163,582	149,000	148,047	953	8,311,629	2,895,006	11,206,635	12,322,998	1,116,363	74.2%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	3,887,540	214,000	209,040	4,960	4,096,579	2,923,000	7,019,579	8,482,680	1,463,101	58.4%
Land Acquisition (Excludes Aboriginal)	1,662,151	153,000	119,355	33,645	1,781,506	2,334,450	4,115,956	4,571,000	455,044	43.3%
First Nation and Metis Consultation	1,865,056	149,000	61,290	87,710	1,926,346	2,709,500	4,635,846	5,474,000	838,154	41.6%
Other Consultation	951,811	147,000	43,807	103,193	995,618	1,203,850	2,199,468	2,516,000	316,532	45.3%
Regulatory	1,231,615	64,000	8,384	55,616	1,239,998	949,725	2,189,723	2,495,000	305,277	56.6%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,257,260	89,000	104,421	(15,421)	3,361,681	2,054,853	5,416,534	4,630,000	(786,534)	62.1%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**21,187,673**	**965,000**	**694,344**	**270,656**	**21,882,017**	**17,087,384**	**38,969,401**	**42,768,000**	**3,798,599**	**56.2%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,290,960	353,000	65,504	287,496	2,356,465	-	2,356,465			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	337,537	-	25,280	(25,280)	362,817	-	362,817			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**2,869,568**	**353,000**	**90,784**	**262,216**	**2,960,352**	**-**	**2,960,352**			
Grand Total	**24,057,241**	**1,318,000**	**785,128**	**532,872**	**24,842,369**	**17,087,384**	**41,929,753**			

Financial Update – Key Variance Drivers

- All disciplines were under budget for March with the exception of the previously noted PMO
  - Although under for Jan and Feb, PMO was over in March
  - PMO budget was calculated as a total and flat-lined for each month
- The next capital call **funding is due April 27th**
- Total due $5 MM
    - NEE $2.5 MM
    - BOR / ENB $1.25 MM
- Currently excludes 'below the line' costs
- Any adjustments (not expected to be significant) would be accounted for in the August capital call

Financial Update – April

- April spend was approximately $600 k bringing the Budgeted spend to $22.5 MM

Cost Category	Actuals at March 31, 2016 project to-date ("PTD")	April Estimates	April Actuals	April variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,311,629	149,000	65,005	83,995	8,376,634	2,746,006	11,122,640	12,322,998	1,200,358	75.3%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,096,579	280,000	110,809	169,191	4,207,388	2,643,000	6,850,388	8,482,680	1,632,292	61.4%
Land Acquisition (Excludes Aboriginal)	1,781,506	192,000	247,860	(55,860)	2,029,367	2,142,450	4,171,817	4,571,000	399,183	48.6%
First Nation and Metis Consultation	1,926,346	149,000	33,472	115,528	1,959,818	2,560,500	4,520,318	5,474,000	953,682	43.4%
Other Consultation	995,618	148,000	41,370	106,630	1,036,988	1,055,850	2,092,838	2,516,000	423,162	49.5%
Regulatory	1,239,998	14,000	19,328	(5,328)	1,259,326	935,725	2,195,051	2,495,000	299,949	57.4%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,361,681	106,000	80,073	25,927	3,441,754	1,948,853	5,390,607	4,630,000	(760,607)	63.8%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**21,882,017**	**1,038,000**	**597,917**	**440,083**	**22,479,935**	**16,049,384**	**38,529,319**	**42,768,000**	**4,238,681**	**58.3%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,356,465	353,000	119,118	233,882	2,475,582	-	2,475,582			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	362,817	-	25,648	(25,648)	388,464	-	388,464			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**2,960,352**	**353,000**	**144,766**	**208,235**	**3,105,117**	**-**	**3,105,117**			
Grand Total	**24,842,369**	**1,391,000**	**742,683**	**648,317**	**25,585,052**	**16,049,384**	**41,634,436**			

Financial Update – Key Variance Drivers

- All disciplines were under budget for April with the exception of Land and Regulatory
  - Land variance
    - Timber Valuation occurred in April 2016 instead of planned timing of February to April 2017
    - CanACRE being utilized more because of additional parcel count and GIS support for the construction access plan
  - Regulatory variance
    - Acceleration of the submission of the LTC caused work to start in April 2016 instead of April 2017
- Capital call was successfully funded on April 27th

Financial Update – May

- May spend was just under $500 k, bringing the total Budgeted spend to just under $23 MM

Cost Category	Actuals at April 30, 2016 project to-date ("PTD")	May Estimates	May Actuals	May variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE			
							Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,376,634	149,000	154,544	(5,544)	8,531,178	2,597,006	11,128,184	12,322,998	1,194,814	76.7%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,207,388	236,000	86,948	149,052	4,294,336	2,407,000	6,701,336	8,482,680	1,781,344	64.1%
Land Acquisition (Excludes Aboriginal)	2,029,367	188,000	132,741	55,259	2,162,107	1,954,450	4,116,557	4,571,000	454,443	52.5%
First Nation and Metis Consultation	1,959,818	156,000	8,916	147,085	1,968,733	2,404,500	4,373,233	5,474,000	1,100,767	45.0%
Other Consultation	1,036,988	38,000	17,015	20,985	1,054,003	1,017,850	2,071,853	2,516,000	444,147	50.9%
Regulatory	1,259,326	12,000	21,425	(9,425)	1,280,752	923,725	2,204,477	2,495,000	290,524	58.1%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,441,754	89,000	74,438	14,562	3,516,192	1,859,853	5,376,045	4,630,000	(746,045)	65.4%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**22,479,935**	**868,000**	**496,026**	**371,974**	**22,975,960**	**15,181,384**	**38,157,344**	**42,768,000**	**4,610,656**	**60.2%**
First Nation and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nation and Metis Participation	2,475,582	353,000	99,773	253,227	2,575,355	-	2,575,355			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	388,464	-	25,985	(25,985)	414,449	-	414,449			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,105,117**	**353,000**	**125,757**	**227,243**	**3,230,875**	**-**	**3,230,875**			
Grand Total	**25,585,052**	**1,221,000**	**621,783**	**599,217**	**26,206,835**	**15,181,384**	**41,388,219**			

Financial Update – Key Variance Drivers

- All disciplines were under budget for May, with the exception of Engineering and Regulatory (slight overages)
- Engineering
  - Additional T-line design and land survey/LIDAR - work was pulled forward
  - Somewhat offset by actual costs related to E&C studies (i.e. soil testing, HONI crossing studies, legal contract support, etc.) not incurred in May
- Regulatory
  - Acceleration of the submission of the LTC caused work to start in April 2016 instead of April 2017, which has continued (and will continue) for balance of the year

Financial Update – June

- June spend was approximately $700k, bringing the budgeted total to $23.6 MM

Cost Category	Actuals at May 31, 2016 project to-date ("PTD")	May Estimates	May Actuals	May variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,531,178	149,000	122,060	26,940	8,653,238	2,448,006	11,101,244	12,322,998	1,221,754	77.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,294,336	236,000	174,465	61,535	4,468,802	2,171,000	6,639,802	8,482,680	1,842,878	67.3%
Land Acquisition (Excludes Aboriginal)	2,162,107	187,000	170,212	16,788	2,332,319	1,767,450	4,099,769	4,571,000	471,231	56.9%
First Nations and Metis Consultation	1,968,733	156,000	40,787	115,213	2,009,520	2,248,500	4,258,020	5,474,000	1,215,980	47.2%
Other Consultation	1,054,003	38,000	13,464	24,536	1,067,467	979,850	2,047,317	2,516,000	468,683	52.1%
Regulatory	1,280,752	12,000	45,293	(33,293)	1,326,045	911,725	2,237,770	2,495,000	257,230	59.3%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,516,192	89,000	155,086	(66,086)	3,671,279	1,770,853	5,442,132	4,630,000	(812,132)	67.5%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**22,975,960**	**867,000**	**721,368**	**145,632**	**23,697,328**	**14,314,384**	**38,011,712**	**42,768,000**	**4,756,288**	**62.3%**
First Nations and Metis Land Acquisition	10,908	-	-	-	10,908	-	10,908			
First Nations and Metis Participation	2,575,355	353,000	26,699	326,301	2,602,054	-	2,602,054			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	414,449	-	26,429	(26,429)	440,878	-	440,878			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,230,875**	**353,000**	**53,128**	**299,872**	**3,284,002**	**-**	**3,284,002**			
Grand Total	**26,206,835**	**1,220,000**	**774,495**	**445,505**	**26,981,331**	**14,314,384**	**41,295,715**			

Financial Update – Key Variance Drivers

- No unexpected variances
- Capital call for July has been postponed to September

Financial Update – July

- July spend was approximately $600k, bringing the budgeted total to $24.3 MM

	Actuals at June 30, 2016 project to-date ("PTD")	July Estimates	July Actuals	July variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,653,238	149,000	115,240	33,760	8,768,478	2,299,006	11,067,484	12,322,998	1,255,514	79.2%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,468,802	215,000	144,761	70,239	4,613,563	1,956,000	6,569,563	8,482,680	1,913,117	70.2%
Land Acquisition (Excludes Aboriginal)	2,332,319	187,000	181,859	5,141	2,514,178	1,580,450	4,094,628	4,571,000	476,372	61.4%
First Nations and Métis Consultation	2,009,520	148,000	17,649	130,351	2,027,169	2,100,500	4,127,669	5,474,000	1,346,331	49.1%
Other Consultation	1,067,467	39,000	17,432	21,568	1,084,899	940,850	2,025,749	2,516,000	490,251	53.6%
Regulatory	1,326,045	13,000	29,061	(16,061)	1,355,106	898,725	2,253,831	2,495,000	241,169	60.1%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,671,279	106,000	92,787	13,213	3,764,065	1,664,853	5,428,918	4,630,000	(798,918)	69.3%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**23,697,328**	**857,000**	**598,789**	**258,211**	**24,296,118**	**13,457,384**	**37,753,502**	**42,768,000**	**5,014,498**	**64.4%**
First Nations and Métis Land Acquisition	10,908	-	1,725	(1,725)	12,633	-	12,633			
First Nations and Métis Participation	2,602,054	353,000	20,296	332,704	2,622,350	-	2,622,350			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	440,878	-	27,258	(27,258)	468,136	-	468,136			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,284,002**	**353,000**	**49,279**	**303,721**	**3,333,282**	**-**	**3,333,282**			
Grand Total	**26,981,331**	**1,210,000**	**648,069**	**561,931**	**27,629,399**	**13,457,384**	**41,086,783**			

Financial Update – Key Variance Drivers

- No unexpected variances

Financial Update – August

- August spend was just under $700k, bringing the budgeted total to approximately $25 MM; and the total spend to $28.5 MM

Cost Category	Actuals at July 31, 2016 project to-date ("PTD")	August Estimates	August Actuals	August variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,768,478	149,000	93,001	55,999	8,861,479	2,150,006	11,011,485	12,322,998	1,311,513	80.5%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,613,563	214,000	171,027	42,973	4,784,590	1,742,000	6,526,590	8,482,680	1,956,090	73.3%
Land Acquisition (Excludes Aboriginal)	2,514,178	183,000	210,984	(27,984)	2,725,162	1,397,450	4,122,612	4,571,000	448,388	66.1%
First Nations and Métis Consultation	2,027,169	148,000	17,144	130,856	2,044,312	1,952,500	3,996,812	5,474,000	1,477,188	51.1%
Other Consultation	1,084,899	38,000	28,261	9,739	1,113,160	902,850	2,016,010	2,516,000	499,990	55.2%
Regulatory	1,355,106	12,000	21,036	(9,036)	1,376,142	886,725	2,262,867	2,495,000	232,133	60.8%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,764,065	89,000	145,998	(56,998)	3,910,063	1,575,853	5,485,916	4,630,000	(855,916)	71.3%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**24,296,118**	**833,000**	**687,450**	**145,550**	**24,983,568**	**12,624,384**	**37,607,952**	**42,768,000**	**5,160,048**	**66.4%**
First Nations and Métis Land Acquisition	12,633	-	1,225	(1,225)	13,858	-	13,858			
First Nations and Métis Participation	2,622,350	353,000	161,080	191,920	2,783,430	-	2,783,430			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	468,136	-	27,909	(27,909)	496,045	-	496,045			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,333,282**	**353,000**	**190,214**	**162,786**	**3,523,496**	**-**	**3,523,496**			
Grand Total	**27,629,399**	**1,186,000**	**877,664**	**308,336**	**28,507,063**	**12,624,384**	**41,131,447**			

Financial Update – Key Variance Drivers

- PMO was the main variance for the month
  - Budget of $74k / month
  - Previous months were under budget
  - Jan – Aug average $76k / month
  - Minor increase in costs related to embedded Enbridge employee

Financial Update – September

- September spend was just over $1 M, bringing the budgeted total to just over $26 M; and the total spend to $29.6 M

Cost Category	Actuals at August 31, 2016 project to-date ("PTD")	September Estimates	September Actuals	September variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
Engineering, Design and Procurement Activity	8,861,479	149,000	171,066	(22,066)	9,032,544	2,001,006	11,033,550	12,322,998	1,289,448	81.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	4,784,590	235,000	335,953	(100,953)	5,120,543	1,507,000	6,627,543	8,482,680	1,855,137	77.3%
Land Acquisition (Excludes Aboriginal)	2,725,162	201,000	261,138	(60,138)	2,986,301	1,196,450	4,182,751	4,571,000	388,249	71.4%
First Nations and Métis Consultation	2,044,312	156,000	32,472	123,528	2,076,785	1,796,500	3,873,285	5,474,000	1,600,715	53.6%
Other Consultation	1,113,160	144,000	50,979	93,021	1,164,139	758,850	1,922,989	2,516,000	593,011	60.5%
Regulatory	1,376,142	12,000	47,772	(35,772)	1,423,913	874,725	2,298,638	2,495,000	196,362	61.9%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	3,910,063	89,000	124,447	(35,447)	4,034,511	1,486,853	5,521,364	4,630,000	(891,364)	73.1%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**24,983,568**	**986,000**	**1,023,827**	**(37,827)**	**26,007,395**	**11,638,384**	**37,645,779**	**42,768,000**	**5,122,221**	**69.1%**
First Nations and Métis Land Acquisition	13,858	-	-	-	13,858	-	13,858			
First Nations and Métis Participation	2,783,430	353,000	131,384	221,616	2,914,814	-	2,914,814			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	496,045	-	28,301	(28,301)	524,346	-	524,346			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,523,496**	**353,000**	**159,685**	**193,315**	**3,683,181**	**-**	**3,683,181**			
Grand Total	**28,507,063**	**1,339,000**	**1,183,512**	**155,488**	**29,690,576**	**11,638,384**	**41,328,960**			

Financial Update – Key Variance Drivers

- Engineering – driven by Loon Lake revision
  - Land surveying & LIDAR
  - Geotech
- Environment – big spend was in regulatory applications, which was not budgeted for this month and significantly more than prior month
  - In addition, over $600 k in Golder Change Orders issued in last 60 days
- Land – aggressive land acquisition with CanACRE as compared to prior months and budget
- Regulatory – spending time on the EA (applicable to all disciplines) plus continued LTC prep
- Quarterly Capital Call scheduled for October 26 has been postponed

Financial Update – October

- October spend was close to $700 k, bringing the total budgeted spend to $26.7 MM

Cost Category	Actuals at September 30, 2016 project to-date ("PTD")	October Estimates	October Actuals	September variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	9,032,544	149,000	58,332	90,668	9,090,876	1,852,006	10,942,882	12,322,998	1,380,116	83.1%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,120,543	246,000	162,595	83,405	5,283,138	1,261,000	6,544,138	8,482,680	1,938,542	80.7%
Land Acquisition (Excludes Aboriginal)	2,986,301	201,000	268,258	(67,258)	3,254,559	995,450	4,250,009	4,571,000	320,991	76.6%
First Nations and Métis Consultation	2,076,785	157,000	118,774	38,226	2,195,558	1,639,500	3,835,058	5,474,000	1,638,942	57.2%
Other Consultation	1,164,139	145,000	29,235	115,766	1,193,374	613,850	1,807,224	2,516,000	708,776	66.0%
Regulatory	1,423,913	14,000	38,854	(24,854)	1,462,767	860,725	2,323,492	2,495,000	171,508	63.0%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	4,034,511	106,000	11,944	94,056	4,046,454	1,380,853	5,427,307	4,630,000	(797,307)	74.6%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**26,007,395**	**1,018,000**	**687,991**	**330,009**	**26,695,386**	**10,620,384**	**37,315,770**	**42,768,000**	**5,452,230**	**71.5%**
First Nations and Métis Land Acquisition	13,858	-	(296)	296	13,562	-	13,562			
First Nations and Métis Participation	2,914,814	353,000	96,372	256,628	3,011,187	-	3,011,187			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	524,346	-	29,013	(29,013)	553,359	-	553,359			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,683,181**	**353,000**	**125,090**	**227,910**	**3,808,270**	**-**	**3,808,270**			
Grand Total	**29,690,576**	**1,371,000**	**813,081**	**557,919**	**30,503,657**	**10,620,384**	**41,124,041**			

Financial Update – Key Variance Drivers

- $160 K of salary costs from NextEra were not captured in the October monthly close
  - Will be in November's report, likely pushing next month over budget
- Variances in land and regulatory continue as we advance the work compared to scheduled budget
- Quarterly Capital Call scheduled for December 1
  - $3.0 MM total
  - $1.5 MM NEE; $750 K for ENB and BOR ea

Financial Update – November

- November spend was over $1MM, bringing the total budgeted spend to $27.7 MM

Cost Category	Actuals at October 31, 2016 project to-date ("PTD")	November Estimates	November Actuals	November variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
				All amounts are in Canadian dollars)						
Engineering, Design and Procurement Activity	9,090,876	149,000	224,320	(75,320)	9,315,196	1,703,006	11,018,202	12,322,998	1,304,796	84.5%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,283,138	185,000	158,828	26,172	5,441,966	1,076,000	6,517,966	8,482,680	1,964,714	83.5%
Land Acquisition (Excludes Aboriginal)	3,254,559	163,000	324,113	(161,113)	3,578,672	832,450	4,411,122	4,571,000	159,878	81.1%
First Nations and Métis Consultation	2,195,558	149,000	1,845	147,155	2,197,403	1,490,500	3,687,903	5,474,000	1,786,097	59.6%
Other Consultation	1,193,374	53,000	60,832	(7,832)	1,254,206	560,850	1,815,056	2,516,000	700,944	69.1%
Regulatory	1,462,767	14,000	26,250	(12,250)	1,489,017	846,725	2,335,742	2,495,000	159,258	63.7%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	4,046,454	89,000	244,836	(155,836)	4,291,290	1,291,853	5,583,143	4,630,000	(953,143)	76.9%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**26,695,386**	**802,000**	**1,041,024**	**(239,024)**	**27,736,410**	**9,818,384**	**37,554,794**	**42,768,000**	**5,213,206**	**73.9%**
First Nations and Métis Land Acquisition	13,562	-	3,300	(3,300)	16,862	-	16,862			
First Nations and Métis Participation	3,011,187	353,000	42,289	310,711	3,053,475	-	3,053,475			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	553,359	-	29,887	(29,887)	583,246	-	583,246			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,808,270**	**353,000**	**75,476**	**277,524**	**3,883,747**	**-**	**3,883,747**			
Grand Total	**30,503,657**	**1,155,000**	**1,116,500**	**38,500**	**31,620,156**	**9,818,384**	**41,438,541**			

Financial Update – Key Variance Drivers

- $160 K of salary costs from NextEra were not captured in the October monthly close
  - This is captured in November results
- Variances in land and regulatory continue as we advance the work compared to scheduled budget and work on the EA by these disciplines
- EA work also accounted for overages with Other Consultation (timing issues) and E&C
- Quarterly capital call completed December 1
  - $3.0 MM total
  - $1.5 MM NEE; $750 K for ENB and BOR ea

Financial Update – December

- December spend was over $1MM, bringing the total budgeted spend to $28.7 MM

	Actuals at November 30, 2016 project to-date ("PTD")	December Estimates	December Actuals	December variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
				All amounts are in Canadian dollars)						
Engineering, Design and Procurement Activity	9,315,196	149,000	140,309	8,691	9,455,505	1,554,006	11,009,511	12,322,998	1,313,487	85.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,441,966	150,000	113,763	36,237	5,555,729	926,000	6,481,729	8,482,680	2,000,951	85.7%
Land Acquisition (Excludes Aboriginal)	3,578,672	164,000	405,554	(241,554)	3,984,226	668,450	4,652,676	4,571,000	(81,676)	85.6%
First Nations and Métis Consultation	2,197,403	169,000	104,942	64,058	2,302,345	1,321,500	3,623,845	5,474,000	1,850,155	63.5%
Other Consultation	1,254,206	53,000	126,950	(73,950)	1,381,156	507,850	1,889,006	2,516,000	626,994	73.1%
Regulatory	1,489,017	12,000	35,258	(23,258)	1,524,275	834,725	2,359,000	2,495,000	136,000	64.6%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	4,291,290	89,000	84,492	4,508	4,375,782	1,202,853	5,578,635	4,630,000	(948,635)	78.4%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**27,736,410**	**786,000**	**1,011,268**	**(225,268)**	**28,747,678**	**9,032,384**	**37,780,062**	**42,768,000**	**4,987,938**	**76.1%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,053,475	353,000	(43,255)	396,255	3,010,221	-	3,010,221			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	583,246	-	30,843	(30,843)	614,089	-	614,089			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,883,747**	**353,000**	**(12,412)**	**365,412**	**3,871,335**	**-**	**3,871,335**			
Grand Total	**31,620,156**	**1,139,000**	**998,856**	**140,144**	**32,619,013**	**9,032,384**	**41,651,397**			

Financial Update – Key Variance Drivers

- Variances
  - Regulatory
    - Acceleration of LTC activities
    - Actual costs for the EA review were higher than estimates
    - NextEra oversight time that was charged and will be removed this month
  - Land
    - Acceleration of land program activities
    - May 2015 budget as compared to 2016 actual work performed has expanded and as a result, the respective costs are higher
  - Stakeholder Relations
    - Shift in activities on a monthly basis
    - Out of scope and budget EA costs

Financial Update – January

- January spend was $830K, bringing the total budgeted spend to $29.5 MM

Cost Category	Actuals at December 31, 2016 project to-date ("PTD")	January Estimates	January Actuals	January variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
All amounts are in Canadian dollars)										
Engineering, Design and Procurement Activity	9,455,505	149,000	55,920	93,080	9,511,425	1,405,006	10,916,431	12,322,998	1,406,567	87.1%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,555,729	135,000	56,428	78,572	5,612,157	791,000	6,403,157	8,482,680	2,079,523	87.6%
Land Acquisition (Excludes Aboriginal)	3,984,226	136,000	374,616	(238,616)	4,358,842	532,450	4,891,292	4,571,000	(320,292)	89.1%
First Nations and Métis Consultation	2,302,345	176,000	127,673	48,327	2,430,018	1,145,500	3,575,518	5,474,000	1,898,482	68.0%
Other Consultation	1,381,156	55,000	122,816	(67,816)	1,503,971	452,850	1,956,821	2,516,000	559,179	76.9%
Regulatory	1,524,275	13,000	19,265	(6,265)	1,543,540	821,725	2,365,265	2,495,000	129,735	65.3%
Interconnection Studies	83,878	-	-	-	83,878	57,000	140,878	239,000	98,122	59.5%
Project Management	4,375,782	106,000	71,936	34,064	4,447,718	1,096,853	5,544,571	4,630,000	(914,571)	80.2%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**28,747,678**	**770,000**	**828,653**	**(58,653)**	**29,576,331**	**8,262,384**	**37,838,715**	**42,768,000**	**4,929,285**	**78.2%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,010,221	353,000	108,390	244,610	3,118,611	-	3,118,611			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	614,089	-	31,897	(31,897)	645,987	-	645,987			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**3,871,335**	**353,000**	**140,288**	**212,712**	**4,011,622**	**-**	**4,011,622**			
Grand Total	**32,619,013**	**1,123,000**	**968,941**	**154,059**	**33,587,954**	**8,262,384**	**41,850,338**			

Financial Update – Key Variance Drivers

- Variances
  - Regulatory
    - Originally projected January 2017 as supporting on-going development only
    - LTC has been pulled forward
    - Spending in line with the estimated expenditure for the Q3 2017 time period of the old budget
  - Land
    - Continue as we advance the work compared to scheduled budget
  - Stakeholder Relations
    - Original budget was averaged out monthly
    - Open House work in January

Financial Update – February

- February spend was $631K, bringing the total budgeted spend to $30.2 MM

	Cost Category	Actuals at January 31, 2017 project to-date ("PTD")	February Estimates	February Actuals	February variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
Budgeted					All amounts are in Canadian dollars)						
P-2156-001	Engineering, Design and Procurement Activity	9,511,425	149,000	121,187	27,813	9,632,611	1,256,006	10,888,617	12,322,998	1,434,381	88.5%
P-2156-002	Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
P-2156-003	Environmental and Regulatory Approvals	5,612,157	63,000	65,841	(2,841)	5,677,998	728,000	6,405,998	8,482,680	2,076,682	88.6%
P-2156-004	Land Acquisition (Excludes Aboriginal)	4,358,842	188,000	210,816	(22,816)	4,569,658	344,450	4,914,108	4,571,000	(343,108)	93.0%
P-2156-005	First Nations and Métis Consultation	2,430,018	176,000	46,153	129,847	2,476,171	969,500	3,445,671	5,474,000	2,028,329	71.9%
P-2156-006	Other Consultation	1,503,971	53,000	36,663	16,337	1,540,635	399,850	1,940,485	2,516,000	575,515	79.4%
P-2156-007	Regulatory	1,543,540	12,000	70,470	(58,470)	1,614,010	809,725	2,423,735	2,495,000	71,265	66.6%
P-2156-008	Interconnection Studies	83,878	-	(19)	19	83,859	57,000	140,859	239,000	98,141	59.5%
P-2156-009	Project Management	4,447,718	151,000	80,078	70,922	4,527,796	945,853	5,473,649	4,630,000	(843,649)	82.7%
	Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
	Total Budgeted	**29,576,331**	**792,000**	**631,188**	**160,812**	**30,207,519**	**7,470,384**	**37,677,903**	**42,768,000**	**5,090,097**	**80.2%**
Unbudgeted											
P-2156-011	First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
P-2156-012	First Nations and Métis Participation	3,118,611	353,000	13,990	339,010	3,132,601	-	3,132,601			
P-2156-013	Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
P-2156-014	Carrying Charges	645,987	-	32,713	(32,713)	678,699	-	678,699			
	Taxes and Duties	-	-	-	-	-	-	-			
	Total Unbudgeted	**4,011,622**	**353,000**	**46,703**	**306,297**	**4,058,325**	**-**	**4,058,325**			
	Grand Total	**33,587,954**	**1,145,000**	**677,891**	**467,109**	**34,265,845**	**7,470,384**	**41,736,229**			

Financial Update – Key Variance Drivers

- Variances
  - Regulatory
    - LTC has been pulled forward
    - Regulatory participated (2 people) in the open house, which was never contemplated in previous budget
  - Land
    - Continue as we advance the work compared to scheduled budget
    - Scope changes
      - GIS work and added land agent to complete work given a shortened timeline

Financial Update – March

- March spend was $862K, bringing the total budgeted spend to $31 MM

Cost Category	Actuals at February 28, 2017 project to-date ("PTD")	March Estimates	March Actuals	March variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	9,632,611	149,000	171,578	(22,578)	9,804,189	1,107,006	10,911,195	12,322,998	1,411,803	89.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,677,998	59,000	97,023	(38,023)	5,775,021	669,000	6,444,021	8,482,680	2,038,659	89.6%
Land Acquisition (Excludes Aboriginal)	4,569,658	188,000	252,937	(64,937)	4,822,595	156,450	4,979,045	4,571,000	(408,045)	96.9%
First Nations and Métis Consultation	2,476,171	169,000	255,923	(86,923)	2,732,094	800,500	3,532,594	5,474,000	1,941,406	77.3%
Other Consultation	1,540,635	53,000	(82,894)	135,894	1,457,740	346,850	1,804,590	2,516,000	711,410	80.8%
Regulatory	1,614,010	22,000	44,479	(22,479)	1,658,489	787,725	2,446,214	2,495,000	48,786	67.8%
Interconnection Studies	83,859	-	-	-	83,859	57,000	140,859	239,000	98,141	59.5%
Project Management	4,527,796	151,000	123,745	27,255	4,651,541	794,853	5,446,394	4,630,000	(816,394)	85.4%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**30,207,519**	**791,000**	**862,791**	**(71,791)**	**31,070,310**	**6,679,384**	**37,749,694**	**42,768,000**	**5,018,306**	**82.3%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,132,601	353,000	28,365	324,635	3,160,967	-	3,160,967			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	678,699	-	33,705	(33,705)	712,405	-	712,405			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,058,325**	**353,000**	**62,070**	**290,930**	**4,120,396**	**-**	**4,120,396**			
Grand Total	**34,265,845**	**1,144,000**	**924,861**	**219,139**	**35,190,706**	**6,679,384**	**41,870,090**			

Financial Update

- Variances
  - Land
    - Continue as we advance the work compared to scheduled budget
    - Scope changes
      - GIS work and added land agent to complete work given a shortened timeline
  - Environment and E&C
    - Continued work on the Environmental Assessment and LTC
  - Regulatory
    - As previously noted, the LTC submission has been pulled forward by 7 months
  - Stakeholder
    - Bookkeeping matter is being reviewed

Financial Update – April

- April spend was $1M, bringing the total budgeted spend to $32 MM

Cost Category	Actuals at March 31, 2017 project to-date ("PTD")	April Estimates	April Actuals	April variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Budget
All amounts are in Canadian dollars)										
Engineering, Design and Procurement Activity	9,804,189	149,000	120,992	28,008	9,925,181	958,006	10,883,187	12,322,998	1,439,811	91.2%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,775,021	61,000	176,163	(115,163)	5,951,184	608,000	6,559,184	8,482,680	1,923,496	90.7%
Land Acquisition (Excludes Aboriginal)	4,822,595	172,000	291,160	(119,160)	5,113,755	(15,550)	5,098,205	4,571,000	(527,205)	100.3%
First Nations and Métis Consultation	2,732,094	168,000	253,884	(85,884)	2,985,978	632,500	3,618,478	5,474,000	1,855,522	82.5%
Other Consultation	1,457,740	54,000	9,991	44,009	1,467,732	292,850	1,760,582	2,516,000	755,418	83.4%
Regulatory	1,658,489	23,000	72,072	(49,072)	1,730,561	764,725	2,495,286	2,495,000	(286)	69.4%
Interconnection Studies	83,859	-	-	-	83,859	57,000	140,859	239,000	98,141	59.5%
Project Management	4,651,541	168,000	85,937	82,063	4,737,478	626,853	5,364,331	4,630,000	(734,331)	88.3%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**31,070,310**	**795,000**	**1,010,199**	**(215,199)**	**32,080,509**	**5,884,384**	**37,964,893**	**42,768,000**	**4,803,107**	**84.5%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,160,967	353,000	11,369	341,631	3,172,335	-	3,172,335			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	712,405	-	34,736	(34,736)	747,141	-	747,141			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,120,396**	**353,000**	**46,105**	**306,895**	**4,166,501**	**-**	**4,166,501**			
Grand Total	**35,190,706**	**1,148,000**	**1,056,304**	**91,697**	**36,247,010**	**5,884,384**	**42,131,394**			

Financial Update

- Variances
  - Land
    - Continue as we advance the work compared to scheduled budget
    - Scope changes
      - GIS work and added land agent to complete work given a shortened timeline
  - Environment and E&C
    - Continued work on the Environmental Assessment and LTC
  - Regulatory
    - As previously noted, the LTC submission has been pulled forward by 7 months
  - Aboriginal
    - Capacity funding payments coming in for increased consultation activity for the Environmental Assessment

Financial Update – May

- May spend was $ 965K, bringing the total budgeted spend to $33 MM

Cost Category	Actuals at April 30, 2017 project to-date ("PTD")	May Estimates	May Actuals	May variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Forecast
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	9,925,181	149,000	211,933	(62,933)	10,137,114	809,006	10,946,120	12,322,998	1,376,878	92.6%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,951,184	373,000	289,700	83,300	6,240,884	235,000	6,475,884	8,482,680	2,006,796	96.4%
Land Acquisition (Excludes Aboriginal)	5,113,755	103,000	204,440	(101,440)	5,318,195	(118,550)	5,199,645	4,571,000	(628,645)	102.3%
First Nations and Métis Consultation	2,985,978	175,000	51,491	123,509	3,037,469	457,500	3,494,969	5,474,000	1,979,031	86.9%
Other Consultation	1,467,732	37,000	12,553	24,447	1,480,284	255,850	1,736,134	2,516,000	779,866	85.3%
Regulatory	1,730,561	87,000	84,404	2,596	1,814,965	677,725	2,492,690	2,495,000	2,310	72.8%
Interconnection Studies	83,859	-	-	-	83,859	57,000	140,859	239,000	98,141	59.5%
Project Management	4,737,478	151,000	110,755	40,245	4,848,233	475,853	5,324,086	4,630,000	(694,086)	91.1%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**32,080,509**	**1,075,000**	**965,276**	**109,724**	**33,045,785**	**4,809,384**	**37,855,169**	**42,768,000**	**4,912,831**	**87.3%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,172,335	353,000	101,885	251,115	3,274,220	-	3,274,220			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	747,141	-	35,291	(35,291)	782,432	-	782,432			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,166,501**	**353,000**	**137,176**	**215,824**	**4,303,676**	**-**	**4,303,676**			
Grand Total	**36,247,010**	**1,428,000**	**1,102,451**	**325,549**	**37,349,461**	**4,809,384**	**42,158,845**			

Financial Update

- Variances
  - Land
    - Acquisition continues and additional field survey requirements are being provided that require access outside of planned acquisition
  - Engineering and Construction
    - Additional internal resource hours on LTC cost and managing Issue for Bids documents
    - Additional External consultants hours on refreshing IFB documents (B&M, Tulloch, Kleinfelder)

Financial Update – June

- June spend was $1.8 MM, bringing the total budgeted spend to $34.8 MM

Cost Category	Actuals at May 31, 2017 project to-date ("PTD")	June Estimates	June Actuals	June variance $ better/positive - (worse/negative)	PTD actuals at June 30, 2017	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE			
							Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Forecast
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	10,137,114	149,000	79,372	69,628	10,216,486	660,006	10,876,492	12,322,998	1,446,506	93.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	6,240,884	235,000	840,014	(605,014)	7,080,898	-	7,080,898	8,482,680	1,401,782	100.0%
Land Acquisition (Excludes Aboriginal)	5,318,195	105,000	657,960	(552,960)	5,976,155	-	5,976,155	4,571,000	(1,405,155)	100.0%
First Nations and Métis Consultation	3,037,469	155,000	54,077	100,923	3,091,546	302,500	3,394,046	5,474,000	2,079,954	91.1%
Other Consultation	1,480,284	40,000	31,485	8,515	1,511,769	215,850	1,727,619	2,516,000	788,381	87.5%
Regulatory	1,814,965	77,000	32,210	44,790	1,847,175	600,725	2,447,900	2,495,000	47,100	75.5%
Interconnection Studies	83,859	-	-	-	83,859	57,000	140,859	239,000	98,141	59.5%
Project Management	4,848,233	89,000	59,206	29,794	4,907,439	386,853	5,294,292	4,630,000	(664,292)	92.7%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**33,045,785**	**850,000**	**1,754,323**	**(904,323)**	**34,800,108**	**4,182,934**	**38,983,042**	**42,768,000**	**3,784,958**	**89.3%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,274,220	353,000	84,917	268,083	3,359,138	-	3,359,138			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	782,432	-	36,079	(36,079)	818,510	-	818,510			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,303,676**	**353,000**	**120,996**	**232,004**	**4,424,672**	**-**	**4,424,672**			
Grand Total	**37,349,461**	**1,203,000**	**1,875,319**	**(672,319)**	**39,224,780**	**4,182,934**	**43,407,714**			

Financial Update

- Variances
  - Land
    - Originally the land acquisition program would be wrapping-up at this time compared to the May 2015 budget that established the baseline budget for the Development Period
    - Each dollar spent pre-LTC filing will increase Land Development project-to-date actuals and will reduce the Construction Period Land budget
    - *Note – this adjustment may need to be made for other disciplines
  - Environment
    - Has used up Development Period budget – current spend is being absorbed by underspend in other disciplines

Financial Update – July

- July spend was $1MM, bringing the total budgeted spend to $35.7 MM

	Actuals at June 30, 2017 project to-date ("PTD")	July Estimates	July Actuals	July variance $ better/positive - (worse/negative)	PTD actuals at July 31, 2017	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE Total Forecast (actuals + forecast)	Budget - May 2015	Variance $ better/positive - (worse/negative)	% Spent of Total Forecast
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	10,216,486	149,000	46,978	102,022	10,263,464	-	10,263,464	12,322,998	2,059,534	100.0%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	7,080,898	369,000	736,782	(367,782)	7,817,680	-	7,817,680	8,482,680	665,000	100.0%
Land Acquisition (Excludes Aboriginal)	5,976,155	106,000	(175,623)	281,623	5,800,532	-	5,800,532	4,571,000	(1,229,532)	100.0%
First Nations and Métis Consultation	3,091,546	164,000	162,456	1,544	3,254,002	-	3,254,002	5,474,000	2,219,998	100.0%
Other Consultation	1,511,769	81,000	75,246	5,754	1,587,015	-	1,587,015	2,516,000	928,985	100.0%
Regulatory	1,847,175	83,000	26,324	56,676	1,873,499	-	1,873,499	2,495,000	621,501	100.0%
Interconnection Studies	83,859	-	-	-	83,859	-	83,859	239,000	155,141	100.0%
Project Management	4,907,439	106,000	59,345	46,655	4,966,784	-	4,966,784	4,630,000	(336,784)	100.0%
Contingency	-	-	-	-	-	-	-	1,960,002	1,960,002	
Total Budgeted	**34,800,108**	**1,058,000**	**931,508**	**126,492**	**35,731,616**	**-**	**35,731,616**	**42,768,000**	**7,036,384**	**100.0%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,359,138	353,000	56,250	296,750	3,415,388	-	3,415,388			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	818,510	-	36,963	(36,963)	855,474	-	855,474			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,424,672**	**353,000**	**93,213**	**259,787**	**4,517,886**	**-**	**4,517,886**			
Grand Total	**39,224,780**	**1,411,000**	**1,024,721**	**386,279**	**40,249,501**	**-**	**40,249,501**			

Financial Update

- Variances
  - Environment
    - Delay in submitting the final EA, this work was planned to be completed before July 2017 (based on the May 2015 plan) and at this time Arch 2 was to be ½ way completed in July 2017
    - Delay in getting access, which resulted in being delayed in getting into the field, which pushed back the timing of the work to a later month
    - Increase in costs associated with the actual work that was completed on the final EA

Financial Update – October

- October spend was $500K, bringing the total budgeted spend to $2.4 MM
- November 24th Capital Call

Cost Category	Development Actual at July 31, 2017	Construction Actual at October 1, 2017	October Construction Estimates	October Construction Actual	October variance $ better/positive - (worse/negative)	Project-to-date (PTD) Construction Actual at October 31, 2017	Balance of Project Forecast through in-service	TOTAL PROJECT ESTIMATE: Total Construction Forecast (Actual + forecast)	Development Actual - July 31, 2017	Total Development (Actual) + Construction (forecast)	Development Actual - July 31, 2017	Construction Budget - July 2017	Total Development (Actual) + Construction (budget)	Construction Variance $ better/positive - (worse/negative)	% Spent of Total forecast
All amounts are in Canadian dollars)															
Engineering, Design and Procurement Activity	10,263,464	83,440	145,230	193,975	(48,745)	277,415	635,656,199	635,933,614	10,263,464	646,197,078	10,263,464	630,831,373	641,094,837	(5,102,241)	0.04%
Permitting and Licensing	84,781	-	-	-	-	-	-	-	84,781	84,781	84,781	-	84,781	-	#DIV/0!
Environmental and Regulatory Approvals	7,817,680	1,220,504	639,267	(298,898)	938,165	921,606	10,830,003	11,751,609	7,817,680	19,569,289	7,817,680	13,030,561	20,848,241	1,278,952	7.84%
Land Acquisition (Excludes Aboriginal)	5,800,532	365,830	446,316	217,617	228,700	583,446	22,139,331	22,722,778	5,800,532	28,523,310	5,800,532	23,830,513	29,631,044	1,107,735	2.57%
First Nations and Métis Consultation	3,254,002	215,760	710,000	191,762	518,238	407,522	11,081,000	11,488,522	3,254,002	14,742,524	3,254,002	13,211,000	16,465,002	1,722,478	3.55%
Other Consultation	1,587,015	98,604	38,358	(66,313)	104,671	32,291	2,363,108	2,395,399	1,587,015	3,982,414	1,587,015	2,530,194	4,117,209	134,795	1.35%
Regulatory	1,873,499	39,127	33,958	49,023	(15,065)	88,150	5,324,402	5,412,552	1,873,499	7,286,051	1,873,499	5,405,078	7,278,577	(7,473)	1.63%
Interconnection Studies	83,859	-	-	4,350	(4,350)	4,350	-	4,350	83,859	88,209	83,859	-	83,859	(4,350)	100.00%
Project Management	4,966,784	230,316	85,998	70,006	15,992	300,322	4,641,317	4,941,639	4,966,784	9,908,422	4,966,784	4,900,644	9,867,427	(40,995)	6.08%
First Nations and Métis Land Acquisition	16,862	-	-	-	-	-	-	-	16,862	16,862	16,862	-	16,862	-	#DIV/0!
First Nations and Métis Participation	3,415,388	106,025	470,000	108,066	361,934	214,091	4,090,000	4,304,091	3,415,388	7,719,479	3,415,388	5,500,000	8,915,388	1,195,909	4.97%
ALGP	-	-	-	-	-	-	1,500,000	1,500,000	-	1,500,000		1,500,000	1,500,000	-	0.00%
Other Costs Not Included In Above Categories	230,163	-	-	-	-	-	-	-	230,163	230,163	230,163	-	230,163	-	#DIV/0!
Site remediation	-	-	-	-	-	-	4,309,360	4,309,360	-	4,309,360	-	4,309,360	4,309,360	-	0.00%
Contingency	-	-	-	-	-	-	918,799	918,799	-	918,799	-	918,799	918,799	0	0.00%
Carrying Charges	855,474	78,014	38,202	55,947	(17,745)	133,961	30,889,498	31,023,459	855,474	31,878,933	855,474	31,003,000	31,858,474	(20,459)	0.43%
										-					
Total Budgeted	**40,249,501**	**2,437,619**	**2,607,330**	**525,535**	**2,081,795**	**2,963,154**	**733,743,017**	**736,706,171**	**40,249,501**	**776,955,673**	**40,249,501**	**736,970,522**	**777,220,024**	**264,351**	**0.40%**

Financial Update

- Variances
- Stakeholder relations
  - A full program was assumed for each month and therefore, variance is timing at this time.
- Environment
  - Golder change orders have not been approved/processed. Therefore, timing and November/December actuals will likely catch-up when the change order is approved/processed.
- Land
  - Timing issue relating to surveying schedule

Financial Update – November

- October spend was $617K, bringing the total budgeted spend to $2.9 MM

Cost Category	Development Actual at July 31, 2017	Construction Phase Actual at October 1, 2017	November Construction Phase Estimates	November Construction Phase Actual	November variance $ better/positive - (worse/negative)	Project-to-date (PTD) Construction Phase Actual at November 30, 2017	Project-to-date (PTD) Actual at November 30, 2017	Balance of Construction Phase Project Forecast through in-service
All amounts are in Canadian dollars)								
Engineering, Design and Procurement Activity	10,263,464	277,415	147,920	84,721	63,199	362,136	10,625,599	635,508,279
Permitting and Licensing	84,781	-	-	-	-	-	84,781	-
Environmental and Regulatory Approvals	7,817,680	921,606	539,064	249,385	289,679	1,170,991	8,988,671	10,290,939
Land Acquisition (Excludes Aboriginal)	5,800,532	583,446	477,316	32,621	444,696	616,067	6,416,599	21,730,351
First Nations and Métis Consultation	3,254,002	407,522	710,000	21,122	688,878	428,644	3,682,646	10,371,000
Other Consultation	1,587,015	32,291	38,354	(1,746)	40,100	30,545	1,617,560	2,324,754
Regulatory	1,873,499	88,150	54,081	48,997	5,084	137,147	2,010,646	5,270,320
Interconnection Studies	83,859	4,350	-	-	-	4,350	88,209	-
Project Management	4,966,784	300,322	85,998	71,894	14,104	372,216	5,338,999	4,555,319
First Nations and Métis Land Acquisition	16,862	-	-	-	-	-	16,862	-
First Nations and Métis Participation	3,415,388	214,091	470,000	52,919	417,081	267,010	3,682,398	3,620,000
ALGP	-	-	-	-	-	-	-	1,500,000
Other Costs Not Included In Above Categories	230,163	-	-	-	-	-	230,163	-
Site remediation	-	-	-	-	-	-	-	4,309,360
Contingency	-	-	-	-	-	-	-	918,799
Carrying Charges	855,474	133,961	38,202	56,901	(18,699)	190,862	1,046,336	30,851,296
Total Budgeted	**40,249,501**	**2,963,154**	**2,560,935**	**616,813**	**1,944,122**	**3,579,967**	**43,829,469**	**731,250,418**

Financial Update

- Variances – none
  - Changes to purchase orders mean delayed billing for Environment and Land
- Capital Call - January 24
  - Approach for 2018 capital calls
  - Projected spend versus average

Financial Update – March

- March spend was $1.2M, bringing the total budgeted spend to $9.1MM
- Capital call on April 27 of $7M

NextBridge Infrastructure LP
Monthly financial summary
March 31, 2018

Cost Category	MONTH: March 2018 Actual A	Plan B	Variance $ better/(worse) C = (B-A)	PROJECT TO DATE: March 31, 2018 Actual D	Plan E	Variance $ better/(worse) F = (E-D)	TOTAL PROJECT TO DATE: August 2013 to March 2018 Plan - July 2017 G	Forecast (Actual + Forecast) H	% Spent of Forecast I = D/H
Construction & Materials	319,491	391,789	72,298	1,086,330	3,200,361	2,114,032	630,831,373	630,831,373	0.17%
Environmental and Regulatory Approvals, Permitting & Site remediation	100,811	69,175	(31,636)	2,686,489	3,565,141	878,652	17,339,921	17,339,921	15.49%
Land Acquisition (Excludes Aboriginal)	229,750	212,376	(17,374)	1,335,960	2,180,251	844,291	23,830,513	23,830,513	5.61%
First Nations and Métis (consultation, participation, land acq & ALGP)	337,702	414,083	76,382	1,742,347	7,142,250	5,399,903	20,211,000	20,211,000	8.62%
Other Consultation	22,681	75,759	53,078	121,489	466,445	344,956	2,530,194	2,530,194	4.80%
Regulatory	212,855	252,629	39,773	656,497	782,560	126,062	5,405,078	5,405,078	12.15%
Interconnection Studies	-	-	-	4,350	-	(4,350)	-	-	
Project Management	(47,959)	110,399	158,358	1,056,800	376,698	(680,102)	4,900,644	4,900,644	21.56%
IDC	62,482	49,104	(13,377)	432,078	337,219	(94,859)	31,003,000	31,003,000	1.39%
Other (including non-E&C contingency)	-	-	-	-	-	-	918,799	918,799	0.00%
Total Construction Phase	1,237,814	1,575,315	337,501	9,122,338	18,050,925	8,928,587	736,970,522	736,970,522	1.24%
Development Phase (1)				40,249,501	40,210,000	(39,501)	40,210,000	40,249,501	100.00%
TOTAL PROJECT COST				49,371,840	58,260,925	8,889,085	777,180,522	777,220,024	101.24%

NOTE:
(1) In the leave to construct application, NextBridge estimated that its July 31, 2017 Development Phase Actuals would be $40,210,000 (exhibit B, Tab 9, Schedule 1, Table 4), whereas the final amount was $40,249,501.

Financial Update

Variance Analysis

- **E&C** – all timing differences – expected that Valard would be ramping up its work, which has not been pushed out.
- **Environment** – permanent differences due to amended EA that was unplanned at time of LTC budget preparation.
- **Land** – mainly timing differences with small dollar permanent (unplanned) work that is not expected to increase overall land budget.
- **Stakeholder Relations** – timing differences (for both internal and external costs) re: change in timing of the open house from winter to fall 2018.
- **Regulatory** – timing differences (for both internal and external costs) re: change in timing of technical conference/LTC process.
- **Project Management** – mainly permanent differences re: planner, external GIS support, McCarthy and Sussex, netted against (positive) coding error in January.

UNDERTAKING JT1.10

UNDERTAKING

TC TR 1, page 33

(1) To provide copies of the variance analysis that were prepared by the project management office during the development period, (2) to provide any copies of any management approvals for the budget variances (3) to provide any details of any steps that were taken as a result of these variances either trying to contain costs or use alternate kind of means.

RESPONSE

Part 1

Variance analyses that were prepared by the project management office during the development phase are included in NextBridge's response to JT1.9.

Part 2

Management's approval of the budget variance was within its discretion; there are no documents responsive to this request.

Part 3

Below are examples of steps taken and measures implemented to contain costs or use alternate kind of means. NextBridge, including its partner organizations, follow the following processes:

1. During the extended development period, work was completed only for critical activities;
2. Staff can only charge up to a maximum of 40 hours a week to the EWT Line Project. Team leads were responsible to ensure that internal resources did not charge more than the time allotted to these resources during this phase;
3. Staff work on other projects for their respective organizations and charge time to those projects accordingly;
4. There are no fulltime staff assigned to the EWT Line Project;
5. Team lead meetings, when necessary, were scheduled based on EWT Line Project requirements;
6. Minimize travel to necessary business trips, coordinate with EWT Line Project team and attend meetings via conference call/Skype where available rather than in-person

attendance;
7. Enbridge Inc. (“Enbridge”) and NextEra Energy, Inc. (“NextEra”) have comprehensive travel policies and agreements with travel providers to realize reduced airfare, accommodations and vehicle rental costs;
8. Travel and related expenses were limited to those planned and budgeted; and
9. Bidding of contracts and aggressive contract negotiations.

In addition to the overall organization processes, each discipline reviewed its tasks and took the following steps during the development period:

1. Engineering, design, and procurement:
    a. Most engineering services during development were contracted through competitive sourcing and under fixed priced contracts and not on an hourly rate basis;
    b. Internal engineering resources, other than project manager and project engineer, were rigorously engaged in on an as needed basis; and
    c. Variances were a result of timing of expenses rather than increase of costs, so upcoming expenses were forecasted to ensure no overall cost overrun.

2. Environmental and regulatory:
    a. Request for proposal was completed for the environmental assessment (EA) balance of work after the low spend period;
    b. RFPs were completed for (a) the permitting phase scope of services, and (b) the archaeological work; and
    c. NextBridge worked with its consultants to find efficiencies where possible.

3. Land rights:
    a. Limit and monitor the specific land employees working on project to reduce # of personnel charging to the project.

4. First Nation and Métis:
    a. Individual First Nation and Métis meetings were grouped together to be efficient with time and travel expenses; and
    b. Used internal labour to minimize consultants.

5. Other consultation:
    a. A half time contract position was re-worked with another contractor, where cost saving was realized through a new agreement through an employee agency for the same staff member;
    b. Website hosting was internalized (within Enbridge) and therefore, it eliminated hosting, updating and domain costs;
    c. Format and timing of open houses was modified to compress the time in the field

and avoid straddling weekends, which reduced airfare and accommodation costs;

d. Security costs were reduced after the first rounds of open houses by eliminating some security measures based on results of this open house;
e. When permitted by Ministry of Environment and Climate Change, laptops were loaded with EA documentation for review at public viewing locations to reduce significant printing and shipping costs associated with EA documentation; and
f. Some stakeholder relations' roles on the EWT Line Project have been eliminated based on attrition and not backfilled.

6. Regulatory:
    a. Regulatory analyst transitioned to non-EWT Line project work in early 2015, and was not replaced until leave to construct application preparation resumed in 2016;
    b. Legal regulatory work was completed internally as much as possible to minimize external legal counsel costs; and
    c. RFP for modelling consultant was completed under a fixed fee arrangement.

7. Project management:
    a. NextBridge currently shares office space with one of the project partners at no charge to NextBridge.

UNDERTAKING JT1.12

UNDERTAKING

TC TR 1, page 53

(1) to update the table at Staff 16 part a to break down the $2 million cost by category; (2) to explain increases beyond 5 percent; (3) to provide actual and budget for January 2018 to April 2018; (4) to provide any documentation around the variance analysis.

RESPONSE

Parts 1& 2

The table prepared in response to Board Staff Interrogatory #16(a), found at Exhibit I.B.NextBridge.STAFF.16, has been updated below to include the corresponding budgeted amounts by category with respect to the $2.0 million budgeted cost (rounded to the nearest million) that was provided in response to Board Staff Interrogatory #16(c), as well as variance information:

	August 1 to December 31, 2017			
	Budget in $000	Actuals in $000	Variance Budget against Actual	
			in $000s	%
Engineering, Design & Procurement	$ 1,545	$473	$1,072	69%
Materials & Equipment	-	-		-
Permitting & Licensing	-	-		-
Environmental and Regulatory	32	1,663	(1,631)	-5109%
Land Rights	58	837	(779)	-1334%
First Nation and Métis Participation	18	491	(473)	-2627%
First Nation and Metis Consultation	32	486	(454)	-1402%
Other Consultation	6	37	(31)	-497%
Site Clearing and Preparation	-	-		-
Construction	-	-		-
Site Remediation	11	-	11	100%
IDC	-	249	(249)	-100%

	August 1 to December 31, 2017			
	Budget in $000	Actuals in $000	Variance Budget against Actual	
			in $000s	%
Contingency	2	-	2	100%
Regulatory	13	251	(238)	-1791%
Project Management	12	433	(421)	-3510%
Interconnection Studies	0	4	(4)	100%
Total Construction Cost	**$1,729**	**$4,924**	**(3,195)**	

All disciplines had an increase beyond 5% (as compared to budget) in the period of August 1 to December 31, 2017 except for Engineering, Design & Procurement. Overall, there was an increase in spend over most disciplines due to the unanticipated filing of an Amendment to the Environmental Assessment ("EA") and another party filing a competing Leave to Construct. Also, the budget during this period was based on a cash flow analysis completed in the spring of 2017 for the purposes of calculating IDC, and not indicative of potential discipline spend. During the fall of 2017, the team leads underwent an in depth review to evaluate more realistic monthly budget forecasts based on timing of expected activities and related costs.

Any permanent differences noted in a particular discipline that exist at this time are not currently anticipated to result in a total construction budget permanent difference when the EWT Line Project is completed and goes into service.

Part 3

	January 1 to April 30, 2018			
	Budget in $000s	Actuals in $000s	Variance Budget against Actual	
			in $000s	%
Engineering, Design & Procurement	3,845	5,488	(1,643)	-43%
Materials & Equipment	-	-	-	-
Permitting & Licensing	-	-	-	-
Environmental and Regulatory	360	1,235	(875)	-243%
Land Rights	828	689	139	17%
First Nation and Métis Participation	530	326	204	38%
First Nation and Métis Consultation	1,126	595	531	47%
Other Consultation	306	97	209	68%
Site Clearing and Preparation	-	-	-	-
Construction	-	-	-	-
Site Remediation	-	-	-	-
IDC	337	263	74	22%
Regulatory	681	464	217	32%
Project Management	442	938	(497)	-112%
Interconnection Studies	-	-	-	-
Contingency	-	-	-	-
Total Construction Cost	**8,455**	**10,096**	**(1,641)**	

After the team lead in depth review, the budget was revised to reflect the specific project work plan and the variances were much lower and comparable to the budget. There are three disciplines where there was a variance in excess of 5% (as compared to budget) in the period of January 1 to April 30, 2018; Engineering, Design and Procurement, Environmental and Regulatory, and Project Management. Explanations for these variances are below.

Any permanent differences noted in a particular discipline that exist at this time are not currently anticipated to result in a total construction budget permanent difference when the EWT Line Project is completed and goes into service.

Engineering, Design and Procurement - The preliminary forecast curve assumed major construction expenses to be incurred after LTC approval. This monthly variation on the spend

curve is only due to timing of some expenses incurred earlier to support a construction ramp up of November 2018. This variation is not indicative of project cost increases. It is expected that over the next few months the monthly variation will be "trending positive."

Environmental and Regulatory - Preparation of amended EA based on feedback and discussions with the Ministry of Environment and Climate Change ("MOECC"). This includes staff and consultant time for follow-up meetings with the MOECC, Ministry of Natural Resources and Forestry, other Ontario government bodies, Indigenous communities and other stakeholders regarding the amended EA.

Project Management - Result of (a) costs incurred with respect to the Hydro One Networks Inc. Lake Superior Link Leave to Construct ("LTC") application that was not budgeted as part of the NextBridge EWT Line Project costs; and (b) unplanned external technical support for mapping to support such items as crossing applications.

Part 4

Attached to this undertaking are the variance analysis slides from the NextBridge Board of Directors presentations for the periods of August 1 to December 31, 2017 and January 1 to April 30, 2018. In cases where there were no significant variances in the month, a report was not made to the Board of Directors. Variances were reported to the Board in:

- August 2017 (Attachment 1)
- November 2017 (Attachment 2)
- December 2017 (Attachment 3)
- April 2018 (Attachment 4)

Financial Update

- Variances
  - Environment
    - Delay in submitting the final EA, this work was planned to be completed before July 2017 (based on the May 2015 plan) and at this time Arch 2 was to be ½ way completed in July 2017
    - Delay in getting access, which resulted in being delayed in getting into the field, which pushed back the timing of the work to a later month
    - Increase in costs associated with the actual work that was completed on the final EA

Financial Update

- Variances
- Stakeholder relations
  - A full program was assumed for each month and therefore, variance is timing at this time.
- Environment
  - Golder change orders have not been approved/processed. Therefore, timing and November/December actuals will likely catch-up when the change order is approved/processed.
- Land
  - Timing issue relating to surveying schedule

Financial Update

- Variances – none
  - Changes to purchase orders mean delayed billing for Environment and Land
- Capital Call - January 24
  - Approach for 2018 capital calls
  - Projected spend versus average

Financial Update

Variance Analysis

- **E&C** – all timing differences – expected that Valard would be ramping up its work, which has not been pushed out.
- **Environment** – permanent differences due to amended EA that was unplanned at time of LTC budget preparation.
- **Land** – mainly timing differences with small dollar permanent (unplanned) work that is not expected to increase overall land budget.
- **Stakeholder Relations** – timing differences (for both internal and external costs) re: change in timing of the open house from winter to fall 2018.
- **Regulatory** – timing differences (for both internal and external costs) re: change in timing of technical conference/LTC process.
- **Project Management** – mainly permanent differences re: planner, external GIS support, McCarthy and Sussex, netted against (positive) coding error in January.

UNDERTAKING JT1.13

UNDERTAKING

TC TR 1, page 55

To clarify and/or break down the increased development and construction costs in Staff IR 26 part b.

RESPONSE

In Board Staff IR #26 part b, found at I.B.NextBridge.STAFF.26, NextBridge quantifies the cost increases driven by the delay of the in-service date. The total cost of this delay is estimated to be $70.5 million, of which $13.4 million is attributable to the development phase and $57.2 million is attributable to the construction phase.[1]

The project delay cost of $57.2 million for the construction phase is estimated on a base cost of the total cost of the project, excluding the Development Costs and any Interest During Construction ("IDC" or "AFUDC"), resulting in an approximately adjusted base costs of $706 million, then applying an annual escalation rate of 2.86% for 3 years (2017 to 2020).

The project delay cost of $13.4 million for the development phase was determined as follows:

Actuals for the period August 2013 through June 2017 (excluding unbudgeted amounts)	$34,800,108
Estimated expenditures for July 2017	$954,805
Total Budgeted Development Phase costs	$35,754,913
Designation development costs	$22,398,084
Delta	**$13,356,829**

[1] The numbers do not total $70.5 million exactly due to rounding.

UNDERTAKING JT1.15

UNDERTAKING

TC TR 1, page 61

To provide the cost estimate for the community investment fund and as a percentage of the total project cost.

RESPONSE

NextBridge's Landowner, Community and Municipal Consultation Plan, which was developed for the East-West Tie Line Transmission (the "EWT Line Project") and updated in January 2016, noted that, "NextBridge will seek out and support community investment opportunities and initiatives with various organizations to assist in building and maintaining long-term collaborative relationships."

The purpose of the Community Investment program is to improve the communities in which NextBridge expects to operate. NextBridge has researched community events that may benefit from funding support and directly received requests for funds from event organizers and local organizations. In some cases, First Nation and Métis communities have identified events for sponsorship.

The total amount budgeted for community investment during the construction phase is $129,000 and the amount for sponsorship/membership is $88,000, for a total of $217,000. The total budgeted amount of $217,000 equates to approximately 0.03% of the total project cost estimate.

UNDERTAKING JT1.16

UNDERTAKING

TC TR 1, page 66

To provide examples of experience in other provinces that NextBridge used to compare the cost for the indigenous participation.

RESPONSE

NextBridge draws on the contributions and experience of the affiliates from NextEra Energy Resources, LLC, Enbridge and OMERS in working with Indigenous communities across Canada. The cumulative effect is a significant knowledge base about, and experience with, Indigenous concerns and interests. Every project undertaken provides an opportunity to expand this knowledge and understanding.

NextBridge has been asked to provide examples of experience with Indigenous communities used to compare the cost for Indigenous participation. However, the costs of these initiatives remain commercially sensitive and confidential.

The following are examples of Indigenous community engagement success stories:

Greenwich Wind Project (Enbridge): In November of 2011, Enbridge and partner Renewable Energy Systems Canada (RES) completed construction of the 99 MW Greenwich Wind Energy Project, on Crown lands near Thunder Bay, Ontario, and began commercial operation. In May 2012, Enbridge acquired the remaining RES interest and is now the 100% owner of the project.

- Throughout the earlier regulatory process, two local First Nations, the Red Rock Indian Band and the Fort William First Nation, had been engaged, culminating in agreements that provide sustainable benefits flowing from the project to each of the First Nations;
- The project hired community members during construction in 2011, and First Nation members provided almost 7,500 hours of labour to the project during that year;
- As well, in 2011 Greenwich Wind contracted with a First Nation owned company to provide road maintenance services to the project in 2011 to 2012. These services were provided to the project on an ongoing basis by First Nation contractors;
- The Greenwich Limited Partnership had also concluded agreements with local Métis organizations in relation to the project. In 2011, the Project provided financial support to facilitate communication regarding the project between three local Métis Community

Councils and their members, and to support Métis community development, as deemed appropriate by each of the Community Councils;
- In addition, Greenwich LP agreed to completely restrict the use of chemical herbicide sprays in vegetation clearing activities during the operation of Project transmission line corridors, access roads, and turbine tower sites, in response to concerns expressed by the Métis Nation of Ontario.

Alberta Clipper Pipeline Project (Enbridge): The Enbridge Alberta Clipper Pipeline Project, undertaken between the years 2008 and 2010, is notable for its success in both training and employment of Indigenous people.

- Demonstrated ability to be flexible in consultation and negotiation with affected Indigenous groups using a variety of approaches and techniques, ultimately resulting in mutually beneficial outcomes;
- Improved and addressed issues and concerns raised and provided sustainable benefits to Indigenous communities. Agreements were negotiated providing training and making sure contractors fulfilled commitments to maximize Indigenous participation;
- Provided $1 million worth of training for 100 Indigenous people. Employed 645 Indigenous people during construction, which accounted for 22% of the total construction workforce on the project and resulted in $24 million of wages paid to Indigenous employees across Alberta, Saskatchewan, and Manitoba (inclusive of both Enbridge's own employees and the prime contractors' local work force);
- In 2008, awarded the Aboriginal Relations-Best Practice Award of Distinction from INAC and the Aboriginal Workforce Participation Initiation for its achievements in this area.

Woodland Pipeline Project (Enbridge): The Woodland Pipeline is a 140 km pipeline to transport blended bitumen between the Kearl oil sands project and an existing Cheecham Terminal which connects with existing pipeline transportation systems. The Cheecham Terminal is approximately 70 km South of Fort McMurray, Alberta.

- Between 2010 and 2011 the Woodland Pipeline team successfully executed over $15 million worth of business with Indigenous companies. This level of engagement of Indigenous goods and service providers was the direct result of pro-active efforts in the identification and pre-qualification of new First Nation and Métis businesses in the region.

Ontario Feed-in-Tariff Wind Projects (affiliates of NextEra Energy Resources, LLC): Affiliates of NextEra Energy Resources, LLC ("NEER")have developed over 600 MW of renewable wind energy in South Western Ontario.

- Affiliates of NEER engaged with 14 First Nation and three Métis communities to support project development over the last six years;
- Affiliates of NEER staff undertook a well-defined engagement and consultation process attuned to the protocols and interests of each community;

- Affiliates of NEER helped train and retained more than 50 Indigenous professionals to monitor its archeological and environmental assessment program and has committed to a substantial twenty year post-secondary scholarship/ bursary program for Indigenous students;

Affiliates of NEER entered into a number of capacity funding agreements, and 20 year benefits agreements with various First Nation communities in southern Ontario.

UNDERTAKING JT1.17

UNDERTAKING

TC TR 1, page 67

To provide an update to the table filed in the CRA report which was provided in response to Interrogatory 9c of Board Staff.

RESPONSE

After review of the transcript, NextBridge understands this undertaking to be asking for an update to tables on pages 4 and 5 of the attachment to Board Staff Interrogatory #9, found at Exhibit I.B.NextBridge.STAFF.9 of any projects that are over 100km and built in the past 10 years that were used in the construction cost estimate. NextBridge, its partners, shareholders, affiliates, or any other related entities have not constructed a project that meets these criteria since that time, and, therefore, has no updates.

UNDERTAKING JT1.18

UNDERTAKING

TC TR 1, page 73

To confirm whether NextBridge is contemplating a live line crossing versus requiring and outage, and how the outage will impact the schedule.

RESPONSE

During construction, NextBridge will request outages from the owners of lines it will cross, including Hydro One in relation to crossing the T1M lines. In those instances where outages cannot be obtained consistent with schedule needs, NextBridge will construct and cross the lines live. Based on the current plan, there should be no schedule impact due to line crossings.

UNDERTAKING JT1.19

UNDERTAKING

TC TR 1, page 78

To provide examples of where guyed y towers have been used since 2013.

RESPONSE

Below are Canadian examples of where guyed y towers have been used since 2013.

1) Project Name: Muskrat Falls
   Project Developer: NALCOR
   Project Constructor: Valard Construction LP

   - 490.4 km in length from Muskrat Falls Hydroelectric Generating Facility to the electricity infrastructure at Churchill Falls
   - 1,271 towers installed - including 1,001 guyed structures & 270 self-supporting structures
   - http://www.valard.com/projects/muskrat-falls-to-churchill-falls-transmission-line/

2) Project Name: Ft. McMurray West
   Project Developer: Alberta Powerline (an ATCO company)
   Project Constructor: Valard Construction LP

   - About 500 km of new transmission line
     - Two 500 kilovolt (kV) AC single-circuit transmission lines, approximately 100 km in length and 400km in length running from different substations
   - Construction began in November 2017
   - http://www.albertapowerline.com/resources/

3) Project Name: Island Falls to Key Lake in northern Saskatchewan
   Project Developer: SaskPower
   Project Constructor: Valard Construction LP

   - About 300 km of new transmission line
   - The finished project includes 760 towers
   - http://thestarphoenix.com/business/energy/saskpower-completes-massive-330-million-northern-transmission-project

UNDERTAKING JT1.20

UNDERTAKING

TC TR 1, page 97

To provide a cost estimate of the construction costs that Valard will incur up until the point of the expected date of the leave-to-construct decision.

RESPONSE

The estimated cost that would be incurred by Valard Construction LP under their engineering, procurement and construction agreement through the end of July 2018 (ie., the expected timing for approval of NextBridge's Leave-to-Construct application) is approximately $7.1MM.

UNDERTAKING JT1.21

UNDERTAKING

TC TR 1, page 99

To provide areas that were aggregated to arrived at the contingency amount provided in the evidence.

RESPONSE

The information included in this response is confidential financial information that if publicly disclosed could/would harm the competitive positions of NextBridge and its contractor in that it would give providers of similar competitive services information useful in making their own decisions, without expending the time and money necessary to gather and develop the data, and would allow providers of these competitive services to profit or otherwise derive benefits at the expense of NextBridge and its contractor.

The table below shows the breakdown of the risks assessed in NextBridge's estimate of engineering and construction contingency in support of the application for the NextBridge Leave to Construct. The Valard contract, subsequently negotiated, moves the risk from NextBridge to Valard for the Subsurface/Foundation and Access scope and therefore the associated contingency allowances have been incorporated into Valard's Contract Price.

UNDERTAKING JT1.22

UNDERTAKING

TC TR 1, page 101

To provide scope of work of short-term contract with Concentric for rate design.

RESPONSE

Concentric was engaged during the development phase in relation to new infrastructure investment incentive mechanism research. Specifically, Concentric was asked to summarize the regulatory environment in Ontario related to performance-based rate-making ("PBR") mechanisms, consider examples of incentives for developers of new transmission infrastructure projects to perform under various criteria in return for enhanced return potential, and develop potential PBR programs for NextBridge consideration.

UNDERTAKING JT1.23

UNDERTAKING

TC TR 1, page 105

To provide a breakdown of increase in the cost due to incremental field studies and access route assessment.

RESPONSE

Below is a breakdown of the budgeted incremental costs for the Extended Development Period related to incremental field studies and access route assessments.

Extended Development Period Incremental Cost	**Explanation**
$1,407,956	- Environment support for the geotechnical drilling program including environmental inspectors; - Field studies for the new route around Pukaskwa Park and through White River because the Pukaskwa Park route was no longer a viable option; - field studies of access roads to include in the environmental assessment that were not planned for; and - obtain land access for field studies and geotechnical drilling program for the new route around Pukaskwa Park and through White River because the Pukaskwa Park route was no longer a viable option.
$520,000	As a result of interaction with MNRF, additional environmental assessment and field study activity was determined to be required in relation to an expanded area, including access roads, laydown and difficult to access areas. The MNRF also requires significantly more detailed information on all aspects of the undertaking such as location of aggregate resources, detailed fisheries assessments, location of temporary laydown yards and man camps, typically associated with the permitting stage following approval of the EA.
$9,000	Desktop evaluation of additional alternate routes for the alternatives assessment in the EA.
$55,000	Incorporation of additional field studies in the EA report
$215,000	Additional stakeholder relations scope for consultation to support the EA
$2,206,956[1]	

(1) Rounded to $2,210,000 in NextBridge response to Board Staff Interrogatory #21, found at I.NextBridge.STAFF.21.

UNDERTAKING JT1.24

UNDERTAKING

TC TR 1, page 109

To provide reports Nextbridge provided to its board of directors as in Nextbridge's answer to CCC No. 10.

RESPONSE

Attached are copies of the following slides excerpted from NextBridge Infrastructure Meeting of the Board of Directors (MBD) slide decks relating to construction cost estimate information:

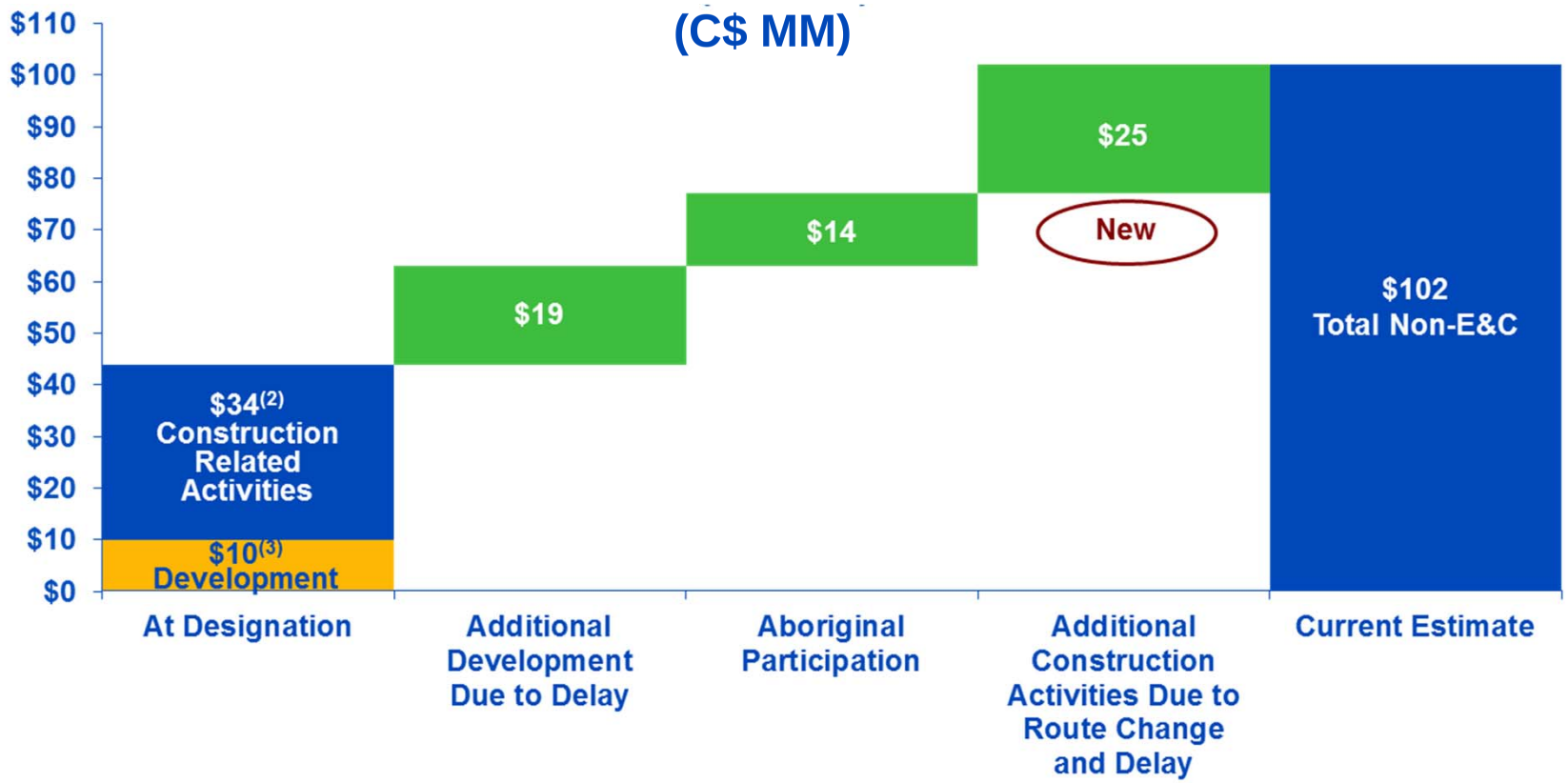
1. Slide 7 from the February 10, 2017 MBD slide deck (Attachment 1);
2. Slides 7 and 8 from the March 10, 2017 MBD slide deck (Attachment 2);
3. Slides 6, 7 and 8 from the April 14, 2017 MBD slide deck (Attachment 3);
4. Slide 5 from the May 12, 2017 MBD slide deck (Attachment 4);
5. Slides 5 and 6 from the June 9, 2017 MBD slide deck (Attachment 5);

Also attached is a redacted Unanimous Consent of Directors in Lieu of Meeting resolution dated July 31, 2017 (Attachment 6) approving a budget for the construction of the EWT Line Project.

Leave to Construct - Schedule

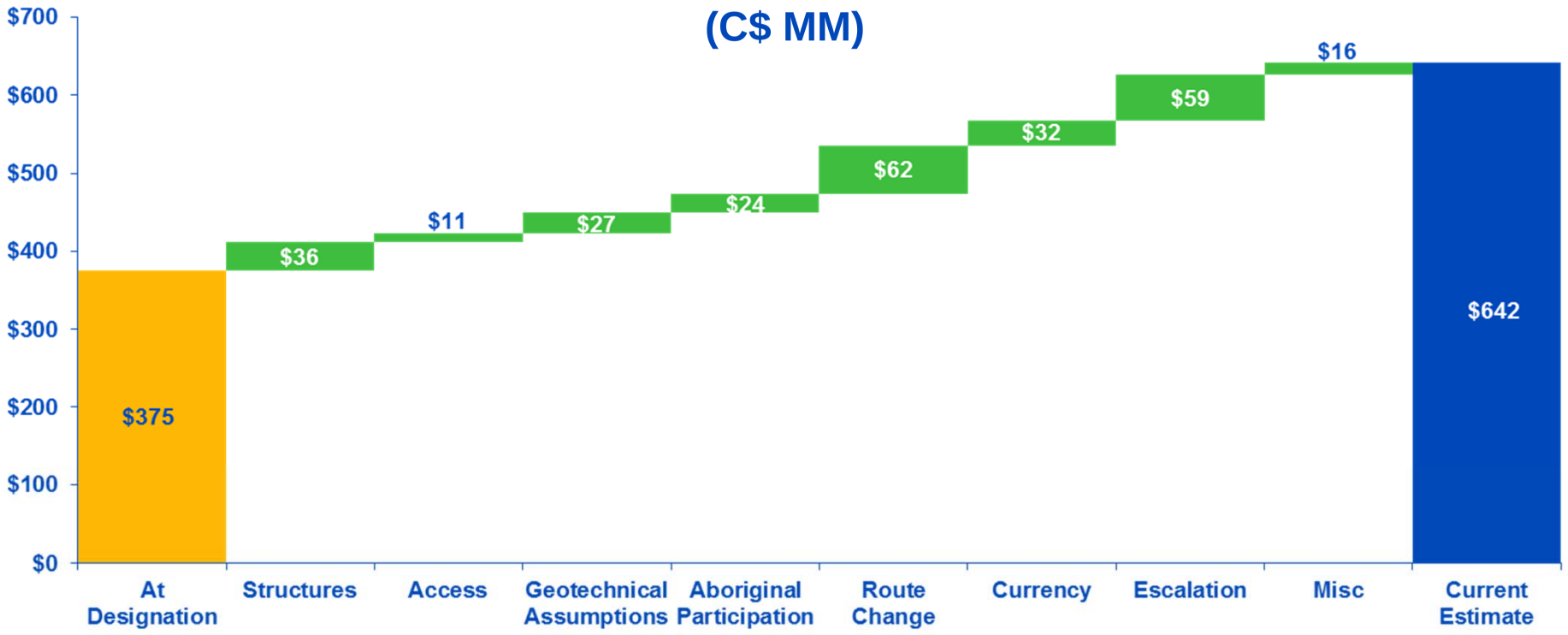
- Draft 4 is being reviewed
- Regulatory team in-person session February 15th in Toronto
  - Discussing strategy
- NextBridge Board Schedule:
  - March 10 – CapEx presentation and discussion
  - April 14 – Board confirmation of CapEx and strategy
  - May 12 – Board resolution to file the LTC
- April 14 should enable partner entities to proceed to confirmation from their respective boards

CapEx - Non-E&C Costs(1)



1) Excludes AFUDC
2) Environmental permitting and monitoring, exercise of land rights and compensation, regulatory support for expropriation
3) C$12 MM of original development expenses included in E&C budget

CapEx - E&C Costs(1,2)



1) Original OEB filing reflected 2017 COD. New estimate reflects 2020 COD.
2) Original OEB filing reflected a 5% Material and 10% Labor contingency. P50 was 10%Material and 15% Labor.

CapEx – Total Budget

DRAFT PRIVILEGED AND CONFIDENTIAL – PREPARED IN ANTICIPATION OF LITIGATION		PROJECTED CapEx SPEND
E&C		567,016,000
Environmental and Regulatory Approvals		12,703,000
Land Rights (acquisitions or options), including consultation and negotiation with landowners		23,831,000
First Nation and Metis participation (direct and indirect costs, including impact mitigation if applicable)		12,100,000
First Nation and Metis consultation		6,611,000
Other Consultation (community, stakeholder)		2,530,000
Regulatory (Legal Support, Rate Case Filing, LTC Filing)		5,405,000
Project Management		4,901,000
Contingency		52,744,000
Site remediation (Neutral Footprint)		15,412,000
EWT Line Project rating program		500,000
AFUDC - CURRENT ESTIMATE SUBJECT TO CHANGE		25,000,000
PROJECTED DEVELOPMENT DOLLRS - SUBJECT TO CHANGE - BASED ON FEBRUARY 28, 2017 BOARD DECK		37,678,000
UNBUDGETED PTD SPEND - BASED ON FEBRUARY 28, 2017 BOARD DECK		4,058,325
AGLP program - legal fees		1,500,000
TOTAL		771,989,325

CapEx – Construction Budget ONLY

DRAFT PRIVILEGED AND CONFIDENTIAL – PREPARED IN ANTICIPATION OF LITIGATION				
	Estimated costs at designation	TOTALS (rounded to nearest 000s)	Difference increase/ (decrease)	Percentage increase/- decrease
Engineering, Design, and Procurement Activity	13,235,907	17,601,000	4,365,000	1.3%
Materials and Equipment	52,168,975	83,178,000	31,009,000	9.4%
Site clearing and preparation (including Roads)	52,293,201	91,484,000	39,191,000	11.8%
Construction	180,234,437	318,767,000	138,533,000	41.8%
Permitting and Licensing	193,333	0	(193,000)	-0.1%
Environmental and Regulatory Approvals	3,027,770	12,703,000	9,675,000	2.9%
Land Rights (acquisitions or options), including consultation and negotiation with landowners	17,135,214	23,831,000	6,696,000	2.0%
First Nation and Metis participation (direct and indirect costs, including impact mitigation if applicable)	0	12,100,000	12,100,000	3.6%
First Nation and Metis consultation	5,526,345	6,611,000	1,085,000	0.3%
Other Consultation (community, stakeholder)	841,040	2,530,000	1,689,000	0.5%
Site remediation (Neutral Footprint)	10,307,996	15,412,000	5,104,000	1.5%
IDC or AFUDC	0	25,000,000	25,000,000	7.5%
Contingency	35,708,360	52,744,000	17,036,000	5.1%
Other (explain in detail):				
Regulatory (Legal Support, Rate Case Filing, LTC Filing)	3,642,806	5,405,000	1,762,000	0.5%
Project Management	3,197,888	4,901,000	1,703,000	0.5%
Project Financial Rating	0	500,000	500,000	0.2%
ALGP Fees	0	1,500,000	1,500,000	0.5%
Total (in 2012 dollars)	377,513,272	674,267,000	294,755,000	88.9%
Escalation (to bring back to 2012 Dollars)	19,148,348	55,986,000	36,838,000	11.1%
	396,661,620	730,253,000	331,593,000	100.0%

CapEx

- Key drivers to cost increases:
  - Environmental permitting and inspection costs were under scoped
  - Regulatory support for LTC filing was underestimated
  - Aboriginal participation was never budgeted
    - Included in both E&C costs and Aboriginal costs
  - Structures were increased from OEB 50-year specification to 100-year after study during development period
  - Increased number of structures needed after weather study showed a need to meet the more stringent local weather requirements on the east part of the line
  - Decrease in use of less expensive guyed Y towers due to environmental and terrain constraints
  - After geotechnical investigation frequent grounding and installation of grounding arresters to meet the OEB minimum criteria is needed
  - Route change around Pukaskwa Park – additional 50km
  - Currency impact on project materials sourced outside of Canada
  - Escalation has an estimated impact of 2% and 3% on material and labor respectively from 2017 to 2020 in-service date

CapEx

- Presented CapEx to the Ministry of Energy
  - Concerned by the number and impact on Order in Council
- Engaged the government relations team to work with the Minister's Office to explain the increase
- Meeting with the IESO on Monday May 15th to inform them of the number

CapEx

- Presented CapEx to the Minister's Office Chief of Staff
- Ministry staff also in attendance
- Encouraged NextBridge to file the LTC in June

Leave to Construct

- Continuing to refine cost section numbers to produce a comprehensive data book
- Anticipated week of June 12
- Data book will be presented to partners for review prior to filing of LTC

UPPER CANADA TRANSMISSION, INC.

UNANIMOUS CONSENT OF DIRECTORS IN LIEU OF MEETING

The undersigned, being all of the directors of Upper Canada Transmission, Inc., a New Brunswick corporation, and being entitled to vote on the resolutions hereinafter set forth as if the same had been submitted at a meeting of the directors duly called and held for the purpose of acting on such resolutions, do hereby consent to and adopt the following resolutions effective on the date hereof:

APPROVAL OF CONSTRUCTION PERIOD BUDGET

WHEREAS, the directors have determined that it is in the best interest of the Corporation to review and approve a budget for the construction of the EWT Project (the "Construction Period Budget").

NOW THEREFORE be it

RESOLVED, that the Construction Period Budget attached hereto as Exhibit B be, and the same hereby is, approved.

[SIGNATURES APPEAR ON NEXT PAGE]

The undersigned have executed this Unanimous Consent of Directors on July 31, 2017.

Matthew Liddle

Veenu Narula

Vincent Scrima

Michael Sheehan

The undersigned have executed this Unanimous Consent of Directors on July 31, 2017.

Matthew Liddle

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Vincent Scrima

Michael Sheehan

The undersigned have executed this Unanimous Consent of Directors on July 31, 2017.

Matthew Liddle

Veenu.Narula

Vincent Scrima

Michael Sheehan

The undersigned have executed this Unanimous Consent of Directors on July 31st, 2017.

Matthew Liddle

Veenu Narula

Vincent Scrima

Michael Sheehan

EXHIBIT B

CONSTRUCTION PERIOD BUDGET

Ontario East West Tie Project
Table 1: Total Project Budget

Line	Reference	Description		Total
(a)	(b)	(c)		(d)
1	B-2	Development Phase	$	40,210,585
2	C-1	Construction Phase		736,970,521
3		Total Project Cost	$	777,181,106

UNDERTAKING JT1.25

UNDERTAKING

TR 1, page 114

To provide sunk costs, assuming by the end of July 2018 under the scenario that the approval is not received.

RESPONSE

The below table summarizes NextBridge's estimated sunk costs at the end of July, 2018 related to the East-West Tie Line Project.

	$ (in 000s)
Development Phase costs (August 2013 through July 2017)	$40,250
Post-Leave to Construct Application costs (August 2017 through July 2018)	
1. Actuals to April 30, 2018	$15,020
2. Projected May to July 2018	$8,500
TOTAL	$63,786

In addition to the estimated costs identified in the above table, NextBridge anticipates that it would also incur various wind-up costs under a scenario that Leave to Construct approval for the East-West Tie Line Project is not received and that all work on the EWT project is terminated. Wind-up costs are expected to include such items as demobilization and close-out costs in the areas of engineering & construction ("E&C"), environment and land activity, financial reporting activity costs, and costs associated with an Ontario Energy Board application for recovery of outstanding EWT Line Project costs. NextBridge estimates that wind-up costs unrelated to the E&C work stream alone would be at minimum $1.0 million, but could be significantly higher. NextBridge cannot estimate the termination exposure beyond the forecasted spend for the E&C activities because there are likely other termination costs that are usually negotiated with suppliers in large project cancellation scenarios based on the damages claimed. For example, although a cost or payment for service may not have been completed and claimed, it is likely that the supplier has incurred a cost of progress to date that they would seek recovery in the event of a termination such as the training and resource

building efforts in the communities. Therefore, NextBridge is not in a position to comprehensively estimate termination or all-inclusive wind-up costs at this time

UNDERTAKING JT1.26

UNDERTAKING

TC TR 1, page 115

To provide project charter as mentioned in the scope management section of the Schedule C's scope of services which was provided in response to SEC 3 Attachment 3.

RESPONSE

Attached is a Project Charter that NextBridge produced for internal purposes and last updated in late 2015. NextBridge has implemented the Charter, although it was not executed by the partners. NextBridge anticipates updating the Project Charter in accordance with the terms of the Affiliate Services Agreement entered into between NextBridge and NextEra Energy Canadian Operating Services, Inc. later in 2018.

NEXTBRIDGE INFRASTRUCTURE

PROJECT CHARTER

Project Title: Ontario East-West Tie

Project Sponsor: NBI Board of Directors **Date Prepared:** September 23, 2015

Project Director: John Deese **Project Customer:** Ontario Energy Board

Project Purpose or Justification:

A report by the Independent Electricity System Operator concluded that a second transmission line connecting Northeast and Northwest Ontario would be economically beneficial to the ratepayers of Ontario. In addition, it would increase reliability and allow for the connection of additional generation resources and load in the Northwest. To that effect, the Ministry of Energy requested that the Ontario Energy Board initiate a competitive process to select the most qualified transmission developer to develop the project. NextBridge was selected.

Project Description:

NextBridge Infrastructure is a partnership between NextEra Energy, Enbridge and Borealis. NextBridge's current purpose is to develop the East-West Tie line to a point sufficient to bring a Leave to Construct (LTC) before the Ontario Energy Board (OEB) for approval. The East-West Tie is an approximately 430km, double circuit, 230kV power transmission line that joins the Lakehead Transmission Station (TS) near Thunder Bay, the Marathon TS near Marathon, and the Wawa TS near Wawa.

High-Level Requirements:

The development of the project should result in sufficient information such that the OEB can make a determination if proceeding with the project is in the interests of the ratepayers of Ontario, primarily with respect to cost. In order to reliably determine a cost, the project will require work to be completed such that NBI is relatively confident in the final form of the project, including the proposed route and design. The route largely relies on approvals (be they formal or informal) related to the social and natural environment, including rights holders, landowners, stakeholders, and public interests. The design is a function of engineering given the route and geography. Combined, a project execution plan can be developed that will allow the proponent to determine the project cost, schedule and scope with an accuracy that is acceptable to the OEB and the interveners.

NEXTBRIDGE INFRASTRUCTURE

High-Level Risks:

The project requires two primary approvals to move forward into construction. These are Leave to Construct and an approved Environmental Assessment. The primary risks in obtaining these approvals are:

1) Insufficient public and stakeholder consultation
2) Insufficient landowner and interest holder consultation and subsequent land control
3) Insufficient Aboriginal Consultation
4) Incomplete Environmental Assessment due to missing studies, incomplete analysis and/or proposed mitigation measures
5) A lack of determination of need from the IESO
6) Incomplete or indefensible project cost and project execution plan
7) Variances in budget and/or schedule sufficient to reexamine designation or cost recovery
8) Lack of control over total project cost due to HONI scope and associated cost

NEXTBRIDGE INFRASTRUCTURE

BASELINE OBJECTIVES

Project Objectives	Success Criteria	Person Approving
Scope:		
File Leave to Construct Application	Confirmation of receipt and completeness of the LTC	OEB
File for approval of the Environmental Assessment	Confirmation of receipt of the Environmental Assessment	Ministry of Environment and Climate Change
Time:		
File LTC Application by December 2017	File ahead of OEB Milestone	OEB
File EA by May 2017	File ahead of OEB Milestone	Minister of Environment and Climate Change
Cost:		
Complete LTC Filing within OEB approval funding limit	Approved recovery of all development expenditures	OEB
Other:		
N/A	N/A	N/A

NEXTBRIDGE INFRASTRUCTURE

BUDGET AND STAKEHOLDERS

Estimated Budget:

$22.4 Million CAD OEB Approved for Recovery + $20.3 Million CAD Extended Development Period Budget

Stakeholder(s)	Role
NextEra Energy	NextBridge Infrastructure partner
Enbridge	NextBridge Infrastructure partner
Borealis	NextBridge Infrastructure partner
Bamkushwada LP	Representative for Aboriginal participation
Metis Nation of Ontario	Representative for Aboriginal participation
Project Team	Complete project development
Ontario Energy Board	Approval of Leave to Construct
Independent Electricity System Operator	Provide determination of project need
Ministry of Environment and Climate Change	Approval of Environmental Assessment
Ministry of Natural Resources and Forestry	Custodian of Crown Lands ~70% of route
Aboriginal communities	Rights holders on project lands
Landowners	Rights holders on project lands
Land Interest Holders	Rights holders on project lands
Municipalities	
Crown	Delegation of Duty to Consult
Ministry of Energy	Lead Ministry on project
Hydro One Networks	Completing station work

NEXTBRIDGE INFRASTRUCTURE

APPROVALS AND INTERNAL AUTHORITIES

Project Manager Authority Level

Staffing Decisions:

Make staffing decisions regarding matrix employees on the team participating or not; make employment decisions on direct NextBridge staff

Cumulative Budget and Contingency Reallocation Authority:

<$100,000: Project Manager
<$250,000: Project Director
< $999,999: Operating Committee
>$1,000,000: NextBridge Board of Directors

Cumulative Budget Increase Authority:

<$50,000: Project Manager
<$100,000: Project Director
<$500,000: Operating Committee
>$500,000: NextBridge Board of Directors

NEXTBRIDGE INFRASTRUCTURE

Technical Decisions:

Handled by Project Management Office level – escalated to Operations Committee and Board of Directors as necessary

Conflict Resolution:

-same as above-

Approvals:

Project Manager Signature	Sponsor or Originator Signature
Project Manager Name	Sponsor or Originator Name
Date	Date

UNDERTAKING JT1.27

UNDERTAKING

TR 1, page 118

To provide a copy of Black & Veatch 2014 transmission expansion planning report mentioned in in CRA report of March 14, 2018.

RESPONSE

Please see attached the Black & Veatch 2014 transmission expansion planning report mentioned in in CRA report of March 14, 2018 titled "*Capital Costs for Transmission and Substations – Updated Recommendations for WECC Transmission Expansion Planning*".

CAPITAL COSTS FOR TRANSMISSION AND SUBSTATIONS

Updated Recommendations for WECC Transmission Expansion Planning

B&V PROJECT NO. 181374

PREPARED FOR

WECC

Western Electricity Coordinating Council

Under Subcontract to Energy + Environmental Economics

FEBRUARY 2014

BLACK & VEATCH
Building a world of difference.®

Principal Investigators:

Ryan Pletka, Project Manager

Jagmeet Khangura

Andy Rawlins

Elizabeth Waldren

Dan Wilson

Assumptions and Limitations Disclaimer

This report was prepared for the Western Electric Coordinating Council (WECC) by Black & Veatch Corporation (Black & Veatch) and is based on information not within the control of Black & Veatch. Black & Veatch has assumed that the information both verbal and written, provided by others is complete and correct; however, Black & Veatch does not guarantee the accuracy of the information, data, or opinions contained herein.

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LIST OF TABLES

LIST OF FIGURES

1.0 Introduction and Summary

As part of the Western Electricity Coordinating Council (WECC) transmission planning process, Black & Veatch, under subcontract to Energy + Environmental Economics, was asked to provide updated assumptions for transmission and substation capital costs. The effort was completed under the auspices of a peer review workgroup composed of regional transmission experts to ensure that the resulting cost updates were appropriate for WECC's current and future requirements.

The scope of this report is to document the updates to the original Black & Veatch report *Recommendations for WECC Transmission and Expansion Planning* released in October 2012. The original report contains detailed information regarding methodology and assumptions that were used to develop the transmission and substation capital costs provided to WECC in 2012. Readers should review that report for a full description of the methodology and assumptions. This report revisits those baseline assumptions as an addendum to the original report and documents changes based on the current recommendations.

1.1 RECOMMENDATIONS

The following recommended updates were accepted by stakeholders during a meeting on February 12, 2014 for implementation in the WECC transmission planning process:

- Update transmission and substation capital costs using annual inflation multipliers.
- Add capital costs for a 600 kV HVDC (High Voltage Direct Current) transmission voltage class.
- Include a line loss calculator.

Under these recommendations, transmission and substation equipment costs were inflated at 1.5 percent from 2012 to 2013, and at 2.0 percent from 2013 to 2014. Table 1-1 is included below to demonstrate the cost impact of this escalation, comparing the baseline capital costs from an example project using 2012, 2013, and 2014 capital cost assumptions.

Table 1-1 Multi-Year Comparison of Calculated Capital Costs per mile for a 230 kV Single Circuit Line

2012	2013	2014
$927,000	$940,900	$959,700
Assumptions: Aluminum Conductor Steel Reinforced (ACSR), Tubular (230 kV)/ Lattice (345 kV – 600 kV), > 10 miles		

In addition, Black & Veatch developed capital cost estimates for the 600 kV HVDC voltage class. Table 1-2 reflects the 600 kV HVDC major capital cost additions.

Table 1-2 600 kV HVDC Substation and Transmission Calculated Capital Costs

TRANSMISSION BASELINE COST/MILE	HVDC CONVERTER COST/UNIT
$1,613,200	$506,779,350

The body of this report documents the implementation of the changes identified above, while providing a more granular understanding of the impact on capital costs.

1.2 PEER REVIEW PROCESS

In 2012, WECC assembled a Peer Review Group to review and comment on the methodology and recommendations developed. The group provided valuable information about specific transmission line costs to assist in the validation of the methodology, and ensure the costs proposed were reasonable. The group provided valuable written input and discussion of assumptions during several conference calls between June and September of 2012.

In 2014, to ensure that the proposed costs and cost methodology updates were appropriate for the task, WECC reconvened a peer review group composed of regional transmission experts to review and provide recommendations on the costs and methodology. The WECC Technical Advisory Subcommittee (TAS) group met on December 15, 2013 to discuss initial recommendations regarding 2013 and 2014 annual inflation variables. Written input was accepted from the TAS in the weeks following the presentation.

During the open feedback period, Black & Veatch was asked to calculate 600 kV HVDC capital costs and to implement a line loss calculator tool. The resulting modifications were presented to the TAS group on January 15, 2014. Following the presentation, TAS was given another opportunity to provide written comment regarding the proposed updates. During this period, no further comments were received. The WECC Technical Advisory Subcommittee reconvened on February 12, 2014 and accepted the recommended updates to the transmission capital cost estimates.

1.3 VARIABILITY OF COSTS

The costs included in this report are believed to reasonably represent the cost to develop transmission and substation facilities in the WECC region. It is imperative to note, however, that transmission lines and substations are all unique, and the cost of a specific line or substation may be significantly different than the costs provided here due to a variety of factors. Most new transmission and substation facilities interconnect to the existing grid, and a "typical" transmission project will include some level of new equipment and some upgrades to existing equipment. Furthermore, transmission facilities are developed not only to transmit incremental power generation, but also to provide additional system reliability and serve load. It is often impossible to segregate "capacity costs" from the cost to provide reliability and serve load. The costs here should be used as a guide to develop approximate costs for new transmission, but should not be used to measure the cost or cost-effectiveness of any specific transmission facility.

1.4 REPORT ORGANIZATION

Following this Introduction, this report is organized into the following sections:

- **Section 2 Transmission Capital Costs** – This section covers the methodology used to implement the recommended transmission capital cost updates.
- **Section 3 Substation Capital Costs** – This section presents the methodology used to implement the recommended substation capital cost updates.
- **Section 4 Summary of Capital Costs** – This section provides the transmission and substation capital cost values for years 2012, 2013, and 2014.

- **Section 5 Cost Calculator** – This section discusses the cost calculator workbook and provides screenshots for each of the calculators.

2.0 Transmission Capital Costs

Previously, Black & Veatch developed a methodology and tool to calculate indicative capital costs for transmission infrastructure projects throughout the WECC region. This methodology begins with using the current cost of specified transmission equipment and the expected cost of land. The costs are then adjusted to identify the differential cost of developing on different land with different terrain factor adjustments. In 2012, Black & Veatch identified the following categories and sub-categories to consider from a capital cost perspective:

- Voltage Class
  - Alternating Current (AC) - 230 kV, 345 kV, and 500 kV (single and double circuit)
  - HVDC 500 kV Bi-Pole
- Line Characteristics
  - Conductor Type
  - Pole Structure
  - Length of line
- New Construction or Re-conductor
- Terrain Type
- Location

In 2014, Black & Veatch recommended adding the following cost categories and sub-categories:

- Annual Inflation Multiplier
  - Year 2013
  - Year 2014
- Voltage Class
  - HVDC 600 kV Bi-Pole

To implement these recommendations, Black & Veatch used existing transmission methodology and internal knowledge of transmission equipment component costs.

2.1 TRANSMISSION CAPITAL COST UPDATES

This section of the report describes the methodology used to develop the recommended transmission capital cost revisions. The following sections of the report will describe the implementation of these recommendations in the context of the original transmission capital cost methodology.

2.1.1 Annual Inflation Multiplier

The primary purpose for revisiting 2012 capital cost recommendations was to determine 2013 and 2014 inflation values to better estimate the capital cost of transmission projects constructed during these years. Inflation multipliers were developed based on the commodity prices of raw materials, engineering records of construction costs, and overall Consumer Price Index (CPI) data.

In 2013, copper and aluminum commodity prices were down about 10 percent from 2012 averages. Steel prices were estimated to have increased 1.6 percent by the Engineering News-Record (ENR) during this same time period.[1] Aluminum is a primary metal used in transmission line conductor and steel is the primary material found in transmission towers. Price variations in these commodities will impact the base equipment cost of a transmission line. Furthermore, ENR estimates general construction costs are up 2.7 percent in 2013 over 2012, and the Consumer Price Index (CPI) estimates a 1.7 percent increase in overall goods and service costs.[2] Combining these data points, an overall inflation multiplier of 1.5 percent was estimated for 2013 capital costs over 2012 costs.

The 2014 inflation predictions were based on the expected general inflation rate. This value is estimated to be 2 percent and is used as the estimation basis for the 2014 capital cost increase over 2013 costs.

The multipliers defined above were applied to all substation and transmission capital costs previously reported in 2012 dollars.

2.1.2 HVDC 600 kV Bi-Pole

During the process of updating capital costs, a recommendation was made by a member of the TAS group to include an additional voltage class for 600 kV HVDC bi-pole transmission. The 2012 report included only 500 kV HVDC. This request was made because 600 kV HVDC has lower line losses than 500 kV HVDC at a relatively small increase in capital cost. Based on a preliminary comparison to 500 kV AC and 500 kV HVDC, it appears that 600 kV HVDC may be the lowest life-cycle cost in certain applications. This report has been updated to include this voltage class.

The transmission line capital cost for the 600 kV HVDC voltage class was estimated based on the 500 kV HVDC capital costs. Line capacity was defined to be 3000 MW (matching the capacity of the 500 kV HVDC bi-pole class) based on typical system planning practice. The resulting baseline capital costs for 600 kV HVDC were estimated to increase 5 percent over the 500 kV HVDC capital costs, due primarily to increases in transmission structure and insulation size.

The next sections of this report will describe the application of the 2013 and 2014 inflation multipliers and inclusion of the 600 kV HVDC voltage class in the context of the transmission capital costs methodology developed during 2012.

2.2 NEW TRANSMISSION

There are many factors that contribute to the total transmission line cost. To develop representative costs, Black & Veatch identified physical considerations. Three key factors were determined to be the most important cost considerations:

- Conductor type
- Structure type
- Length of line

This section presents base cost assumptions and the impacts of each factor on the cost.

[1] http://enr.construction.com/economics/
[2] http://www.bls.gov/news.release/cpi.nr0.htm

2.2.1 Baseline Costs

In the 2012 report, Black & Veatch started from the transmission capital costs developed in the Western Renewable Energy Zones (WREZ) project for the U.S. Department of Energy and the Western Governors' Association. The initial costs per mile for transmission from the WREZ model were escalated from the original 2008 values to 2012.

Most recently, Black & Veatch escalated 2012 baseline costs to develop 2014 values based on the inflation multipliers described in Section 2.1.1. Baseline costs were also developed for the new 600 kV HVDC voltage class using the 5 percent adder described in Section 2.1.2. These updates have been included in Table 2-1.

Table 2-1 Baseline Transmission Costs

LINE DESCRIPTION	NEW LINE COST 2014 ($/MILE)
230 kV Single Circuit	$959,700
230 kV Double Circuit	$1,536,400
345 kV Single Circuit	$1,343,800
345 kV Double Circuit	$2,150,300
500 kV Single Circuit	$1,919,450
500 kV Double Circuit	$3,071,750
500 kV HVDC Bi-pole	$1,536,400
600 kV HVDC Bi-pole	$1,613,200
Assumptions: Aluminum Conductor Steel Reinforced (ACSR), Tubular (230 kV)/ Lattice (345 kV – 600 kV), > 10 miles	

2.2.2 Conductor Type

Black & Veatch previously identified three common conductor types that could be used in new transmission lines: ACSR, Aluminum Conductor Steel Supported (ACSS), and High Tensile Low Sag (HTLS). Cost multipliers were developed for each of these conductor types, which could be multiplied against the base transmission cost for each voltage level.

Table 2-2 below shows the conductor cost multipliers for all voltage classes. An additional column had to be added to incorporate a 600 kV HVDC bi-pole transmission alternative that was not included in 2012. To populate this column, it was assumed that the conductor cost multipliers would remain constant for the 600 kV HVDC Bi-pole voltage class. This is consistent with the assumed multipliers for all other voltage classes.

Table 2-2 Conductor Cost Multipliers

CONDUCTOR	230 KV SINGLE	230 KV DOUBLE	345 KV SINGLE	345 KV DOUBLE	500 KV SINGLE	500 KV DOUBLE	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
ACSR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ACSS	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
HTLS	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60

2.2.3 Transmission Structure Type

In 2012, Black & Veatch quantified the capital cost multipliers associated with each type of transmission support structure. Structure types included lattice towers and tubular steel.

Table 2-3 below shows the transmission structure type cost multipliers for all voltage classes. An additional voltage class was added for the 600 kV HVDC bi-pole alternative based on the 500 kV HVDC bi-pole multiplier. The 500 kV HVDC bi-pole multiplier was originally developed based on the relative costs of lattice structures and tubular steel at very high voltage.

Table 2-3 Transmission Structure Type Cost Multipliers

STRUCTURE	230 KV SINGLE	230 KV DOUBLE	345 KV SINGLE	345 KV DOUBLE	500 KV SINGLE	500 KV DOUBLE	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
Lattice	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Tubular Steel	1.00	1.00	1.30	1.30	1.50	1.50	1.50	1.50

2.2.4 Length of Line

In general, the longer the transmission line, the less it costs per mile. This is because fixed construction, engineering, and equipment costs are recovered in a smaller overall project cost for short transmission lines. In 2012, Black & Veatch developed transmission length cost multipliers to account for this variable.

Table 2-4 below shows the transmission length cost multipliers for all voltage classes. An additional voltage class was added for the 600 kV HVDC bi-pole transmission alternative. To populate this column, it was assumed that transmission line length cost multipliers remain constant at all voltage levels.

Table 2-4 Transmission Length Cost Multipliers

LENGTH	230 KV SINGLE	230 KV DOUBLE	345 KV SINGLE	345 KV DOUBLE	500 KV SINGLE	500 KV DOUBLE	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
> 10 miles	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3-10 miles	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
< 3 miles	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

2.3 RE-CONDUCTORING

Previously, Black & Veatch determined that in areas where there are existing transmission lines, it may be necessary or more cost-effective to re-conductor an existing transmission line rather than to build a new line. Re-conductoring can be defined many different ways, but for simplicity re-conductoring in this effort is defined as replacing an existing conductor to increase ampacity. This assumes that the new conductor would be of similar size and weight; hence no upgrading of poles or insulators is required.

To quantify the capital costs associated with re-conductoring a transmission line, Black & Veatch made the following list of assumptions which have been revised to include the 600 kV HVDC Bi-Pole conductors:

- 230 kV Transmission Conductors
  - 2 conductors per phase
  - Conductor assumed to be 35 percent of total capital cost
- 345 kV Transmission Conductors
  - 3 conductors per phase
  - Conductor assumed to be 45 percent of total capital cost
- 500 kV Transmission Conductors
  - 4 conductors per phase
  - Conductor assumed to be 55 percent of total capital cost
- 500 kV Bi-Pole Transmission Conductors
  - 3 conductors per pole
  - Conductor assumed to be 55 percent of total capital cost
- 600 kV Bi-Pole Transmission Conductors
  - 3 conductors per pole
  - Conductor assumed to be 55 percent of total capital cost

The 600 kV bi-pole transmission re-conductor assumptions were the same as the 500 kV bi-pole transmission class. Both voltage classes utilize three circuit bi-pole configurations and conductor cost is assumed to remain a constant percentage of the baseline capital cost of the project.

2.4 TERRAIN MULTIPLIER

In 2012, Black & Veatch identified nine different terrain types and then developed cost multipliers to compensate for the difficulty of construction in each terrain type. The lowest cost of development was identified as scrub or flat terrain, and the most difficult and expensive type of terrain is forested areas. Table 2-5 identifies the different types of terrain assessed.

No modifications were recommended to these terrain cost multipliers.

Table 2-5 Terrain Cost Multipliers

TERRAIN	PG&E[3]	SCE[4]	SDG&E[5]	WREZ	WECC
Desert	1.00	1.10	1.00	-	**1.05**
Scrub / Flat	1.00	1.00	1.00	1.00	**1.00**
Farmland	1.00	1.00	1.00	1.10	**1.00**
Forested	1.50	3.00	-	1.30	**2.25**
Rolling Hill (2-8% slope)	1.30	1.50	-	-	**1.40**
Mountain (>8% slope)	1.50	2.00	1.30	-	**1.75**
Wetland	-	-	1.20	1.20	**1.20**
Suburban	1.20	1.33	1.20	-	**1.27**
Urban	1.50	1.67	-	1.15	**1.59**

2.5 RIGHT OF WAY COSTS

Previously, Black & Veatch developed estimates for both right of way widths and right of way costs per acre which can be applied across the WECC region.

2.5.1 Right of Way Widths

To obtain the original right of way widths, Black & Veatch drew from a large set of data sources which focused on utilities and projects in the WECC region. Table 2-6 below shows the right of way widths specified for each voltage class in each data source. This was based on adopting the most common value from the various data sources for each voltage class, and also ensuring a logical progression so that widths increased at successively higher voltages and double circuit line widths were greater than those for single circuits.

The same methodology was used when adding the 600 kV HVDC bi-pole voltage class. The 600 kV HVDC right of way was assumed to increase over the 500 kV HVDC at the same rate as the increase demonstrated between a 345 kV single circuit and a 500 kV single circuit.

[3] 2012 PG&E Per Unit Cost Guide - http://www.caiso.com/Documents/PGE_2012FinalPerUnitCostGuide.xls
[4] 2012 SCE Per Unit Cost Guide - http://www.caiso.com/Documents/SCE_2012FinalPerUnitCostGuide.xls
[5] 2012 SDG&E Per Unit Cost Guide - http://www.caiso.com/Documents/SDGE_2012FinalPerUnitCostGuide.xls

Table 2-6 Right of Way Widths by Voltage Class

	230-KV SINGLE CIRCUIT	230-KV DOUBLE CIRCUIT	345-KV SINGLE CIRCUIT	345-KV DOUBLE CIRCUIT	500-KV SINGLE CIRCUIT	500-KV DOUBLE CIRCUIT	500-KV DC BI-POLE	600-KV DC BI-POLE
ROW (ft)	125	150	175	200	200	250	200	225
Acres/mile*	15.14	18.17	21.20	24.23	24.23	30.29	24.23	27.27

*Acres/mile values were calculated by multiplying the right of way width by 5,280 feet per mile and dividing by 43,560 sq. ft. per acre.

2.5.2 Right of Way Costs per Acre

To develop estimates of right of way costs, the Peer Review Group adopted a methodology based on the Bureau of Land Management's (BLM) Linear Right of Way Schedule for Year 2015 (taken from 43 CFR Parts 2800, 2880, 2920).[6] Table 2-7 lists the BLM land rental costs by zone and the equivalent capital cost by zone.

No modifications were recommended to the BLM land rental costs by zone. The costs were already estimated for 2015 based on the BLM Linear Right of Way Schedule.

Table 2-7 BLM Land Rental and Land Capital Costs by Zone

BLM ZONE NUMBER	LAND RENTAL COST ($/ACRE-YEAR)	LAND CAPITAL COST ($/ACRE)
1	$ 9	$ 85
2	$ 17	$ 171
3	$ 34	$ 341
4	$ 52	$ 512
5	$ 69	$ 683
6	$ 103	$ 1,024
7	$ 172	$ 1,707
8	$ 345	$ 3,414
9	$ 690	$ 6,828
10	$ 1,035	$ 10,242
11	$ 1,724	$ 17,071
12	$ 3,449	$ 34,141

[6] http://www.blm.gov/pgdata/etc/medialib/blm/wo/MINERALS_REALTY_AND_RESOURCE_PROTECTION_/cost_recovery.Par.47392.File.dat/RentLinearRentSchedule2009-2015-NoHighlight.pdf

2.6 TRANSMISSION CALCULATION METHODOLOGY

Multiplying the right of way acres per mile by the land cost per acre yields the total right of way cost per mile of transmission line. This value was added to the base transmission costs discussed in Sections 2.2, 2.3, and 2.4 to develop the total transmission line capital cost.

Total Transmission Line Cost = [(2014 Base Transmission Cost) x (Conductor Multiplier) x (Structure Multiplier) x (Re-conductor Multiplier) x (Terrain Multiplier) + (ROW Acres/Mile) x (Land Cost/Acre)] x (# of Miles)

2.7 TRANSMISSION LOSS CALCULATION METHODOLOGY

During the 2014 update, Black & Veatch added a line loss calculator to the Transmission Cost Calculator to enable the comparison of power loss between transmission alternatives. This tool provides high level, "back of the envelope" estimates of transmission power losses that can be used for additional consideration when comparing the capital costs of various transmission alternatives. This tool is conceptual and is not meant to replace more sophisticated approaches used in load flow or production cost models.

Previously, Black & Veatch created a line loss calculator for the WREZ project, and this same methodology was adopted for the line loss calculator included in the WECC Transmission Cost Calculator. The WREZ transmission loss calculator included line capacity and configuration assumptions for each voltage class as shown below in Table 2-8. The 600 kV HVDC bi-pole values were added for 2014 and were based on the existing WREZ 500 kV HVDC bi-pole values.

Table 2-8 Transmission Line Configuration Adopted from WREZ

	230 KV SINGLE CIRCUIT	230 KV DOUBLE CIRCUIT	345 KV SINGLE CIRCUIT	345 KV DOUBLE CIRCUIT	500 KV SINGLE CIRCUIT	500 KV DOUBLE CIRCUIT	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
Capacity (MW)	400	800	750	1500	1500	3000	3000	3000
No. of Conductors Per Phase	1	1	2	2	3	3	3	3
No. of Circuits Per Line	1	2	1	2	1	2	2	2

Conductor selection for each configuration was based on the calculated line ampacity for each line. The following assumptions were made regarding the selected conductor resistance:

- Conductor options matched WECC conductor types (ACSR, ACSS and HTLS)
- Assumed an operation temperature 50°C for ACSR conductor.
- Assumed an operation temperature of 75°C for ACSS and HTLS conductors.

- Used manufacturer data sheets and thermal rating program to develop final resistance values.[7]

Table 2-9 below includes conductor sizes and resistance values used for each voltage class.

Table 2-9 Transmission Line Conductor Size and Resistance

	230 KV SINGLE CIRCUIT	230 KV DOUBLE CIRCUIT	345 KV SINGLE CIRCUIT	345 KV DOUBLE CIRCUIT	500 KV SINGLE CIRCUIT	500 KV DOUBLE CIRCUIT	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
				ACSR				
Size (kcmil)	1272	1272	795	795	1590	1590	1780	1780
Resistance (Ohm/Mile)	0.083	0.083	0.128	0.128	0.068	0.068	0.057	0.057
				ACSS				
Size (kcmil)	477	477	336.4	336.4	605	605	636	636
Resistance (Ohm/Mile)	0.225	0.225	0.319	0.319	0.178	0.178	0.154	0.154
				HTLS				
Size (kcmil)	477	477	336	336	557	557	636	636
Resistance (Ohm/Mile)	0.228	0.228	0.315	0.315	0.186	0.186	0.164	0.149

Transmission losses increase with line load (current). Since lines rarely operate at full load, it is necessary to adjust the loss calculation to account for lower loads. Full load adjustment factors were developed in the WREZ project to account for the expected line utilization values. The method for calculating the full load adjustment factor from the capacity factor is to average the maximum possible load and minimum possible load at a given capacity factor.

For example, a 60 percent capacity factor, or line utilization, would correspond to a maximum utilization of 60 percent of hours at full load and a minimum utilization of all hours at 60 percent of full load. The average of these values would be equivalent to ((0.6 * Full Load) + (0.6^2 * Full Load))/2 = 0.48 * Full Load. This is called a 48 percent Load Adjustment Factor.

[7] ACSR
http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheet16,
ACSS
http://www.southwire.com/ProductCatalog/XTEInterfaceServlet?contentKey=prodcatsheet28
HTLS
http://multimedia.3m.com/mws/mediawebserver?mwsId=66666UF6EVsSyXTtmxME4xM6EVtQEVs6EVs6EVs6E666666--&fn=ACCRSpecSheet_9802792.pdf

Table 2-10 reflects example Load Adjustment Factors for various line utilization values.

Table 2-10 Load Adjustment Factor at Sample Line Utilization Values

	30 PERCENT UTILIZATION	50 PERCENT UTILIZATION	70 PERCENT UTILIZATION	90 PERCENT UTILIZATION
Load Adjustment Factor	0.195	0.375	0.595	0.855

Using the transmission configuration, conductor and full load adjustment assumptions detailed above, transmission line losses are calculated according to the following equation:

Total Transmission Loss (Per Mile) = {[(Phase Current)/ (No. Conductors per Phase)]^2 **x** (Resistance per mile) **x** (No. Conductor per Phase) **x** (No. Circuits per Line) **x** (No. Phases)} **x** (Full Load Adjustment)

3.0 Substation Capital Costs

This section quantifies the substation costs associated with transmission infrastructure development.

In 2012, WECC approved a methodology for estimating substation capital costs for various sized substations with different line and transformer positions, additional reactive equipment, or new transformers. The following cost components were identified to calculate the substation cost:

- Base Substation Cost
- Line/Transformer Positions
- Transformers
- HVDC Converter Station
- Static VAR Compensators, Shunt Reactors and Series Capacitors

In 2014, Black & Veatch has recommended the addition of the following cost components to calculate the substation cost:

- Annual Inflation Multiplier
  - Year 2013
  - Year 2014
- Year 2014 HVDC Converter Station
  - HVDC 600 kV Bi-Pole Converter Station

3.1 SUBSTATION CAPITAL COST UPDATES

This section 3.1 of the report describes the methodology used to develop recommended substation capital cost components. Sections 3.1-3.7 of the report will describe the implementation of these recommendations in the context of the original substation capital cost methodology.

3.1.1 Annual Inflation Multiplier

The inflation multipliers used to calculate substation capital costs for years 2013 and 2014 are consistent with the inflation multipliers used to calculate transmission capital costs over the same period. Inflation for 2014 capital costs are predicted to be roughly 2 percent over 2013 costs, which were estimated to be roughly 1.5 percent over 2012 costs. Section 2.1.1 contains detailed information regarding the development of these multipliers.

Inflation multipliers were applied to all substation capital costs previously reported in 2012 dollars.

3.1.2 HVDC 600 kV Converter Station

A 600 kV HVDC converter station was added to the set of substation capital cost components based on the addition of a 600 kV HVDC transmission alternative. Consistent with previous methodology, a 600 kV HVDC transmission alternative would require new converter facilities to convert HVDC power and to connect to the existing grid.

Black & Veatch estimated that 600 kV HVDC converter station costs would increase roughly 10 percent over the capital cost of a 500 kV HVDC converter station. Primary drivers for this increase

include upgrades to power electronics voltage ratings, greater equipment insulation size, and larger space requirements to meet increased electrical clearances.

It is assumed that the DC/AC conversion stations will convert the 600 kV HVDC power to AC power at typical transmission voltages. Since typical AC voltages in WECC are limited to levels of 500 kV AC and below, 600 kV AC equipment costs were not considered, and only the HVDC converter equipment costs were revised to include a 600 kV component.

Detailed information regarding the recommendation of a 600 kV HVDC transmission alternative can be found in Section 2.1.2.

The remainder of Section 3.0 will describe the implementation of these recommendations within the framework of assumptions and methodologies previously adopted by WECC.

3.2 NEW SUBSTATION BASE COST

The first component of the substation cost is the base cost for a substation without any equipment. New substation base costs in this methodology assumed flat, barren land with relatively easy site access and included land costs, substation fencing, and the control building.

Black & Veatch has recommended updated new substation base costs for 2014 as shown in Table 3-1. These values were developed using the 2013 and 2014 inflation multipliers as previously described in Section 3.1.1.

Table 3-1 New Substation Base Capital Costs

EQUIPMENT	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Base Cost	$1,706,250	$2,132,700	$2,559,250

3.3 LINE AND TRANSFORMER POSITIONS

In addition to the new substation base cost, Black & Veatch previously considered the cost of breaker positions necessary to interconnect lines and transformers for new and existing substations. These considerations were used to develop line/transformer position costs and multipliers.

Table 3-2 provides line/transformer position costs that have been updated for 2014. Costs have been developed by applying 2013 and 2014 inflation values. Line/transformer position multipliers were assumed to remain constant from 2012 to 2014 as the physical configuration of these layouts has not changed.

Table 3-2 Line/Transformer Position Cost and Multipliers

COST / MULTIPLIER	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Ring Bus Multiplier	1	1	1
Breaker and a Half Multiplier	1.5	1.5	1.5

3.4 TRANSFORMERS

Black & Veatch identified the capital costs associated with each voltage class of transformer in a cost per mega-volt ampere (MVA) unit. Table 3-3 below reflects transformer capital costs that have been updated with 2014 values.

Table 3-3 Transformer Capital Costs

TRANSFORMER COST ($/MVA)	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
115/230 kV XFMR	$7,250	-	-
115/345 kV XFMR	-	$10,350	-
115/500 kV XFMR	-	-	$10,350
138/230 kV XFMR	$7,250	-	-
138/345 kV XFMR	-	$10,350	-
138/500 kV XFMR	-	-	$10,350
230/345 kV XFMR		$10,350	-
230/500 kV XFMR	$11,400	-	$11,400
345/500 kV XFMR	-	$13,450	$13,450

3.5 REACTIVE COMPONENTS

In 2012, Black & Veatch identified three key reactive components commonly used for transmission level grid support. Each piece of equipment has its own level of complexity, size, and cost.

- Shunt Reactor
- Series Capacitor
- Static VAR Compensator (SVC)

Reactive component costs are considered to be "turnkey" installations including engineering, design, and construction support. 2014 updates for reactive component costs are shown in Table 3-4 and include shunt reactors, series capacitors and SVCs.

Table 3-4 Reactive Component Capital Costs

EQUIPMENT	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Shunt Reactor ($/MVAR)	$20,700	$20,700	$20,700
Series Capacitor ($/MVAR)	$31,000	$10,350	$10,350
SVC ($/MVAR)	$88,000	$88,000	$88,000

3.6 HIGH VOLTAGE DIRECT CURRENT CONVERTER STATION

Previously, Black & Veatch determined the various costs associated with a 500 kV HVDC converter station. To calculate the cost of a 600 kV HVDC station, the total 500 kV HVDC converter station cost was escalated 10 percent as described in Section 3.1.2. The capital costs in Table 3-5 are for the HVDC converter station in 2014 dollars.

Table 3-5 HVDC Converter Station Costs

HVDC CONVERTER STATIONS	
MW Rating	3000 MW
500 kV HVDC Converter Station	$460,708,500
600 kV HVDC Converter Station	$506,779,350

3.7 SUBSTATION CALCULATION METHODOLOGY

Using the substation components detailed above, the total substation cost is calculated using the following equation, including cost for the HVDC converter station if applicable:

Total Individual Substation Cost = [(Substation Base Cost) + (Line/XFMR Position Base Cost) x (# of Line/XFMR Positions) x (RB or BAAH Multiplier) + (XFMR Cost/MVA) x (XFMR MVA Rating) x (# of XFMRs) + (SVC Cost/MVAR) (# MVARs) + (Series Cap. Cost/MVAR) x (# MVARs) + (Shunt Reactor Cost/MVAR) x (# MVARs) + (HVDC Converter Station Cost)]

If the substation has a high side and a low side voltage, both Line/XFMR Position costs have to be calculated; however, the Substation Base Cost does not have to be added again. The highest voltage of the substation will be the basis for the Substation Base Cost.

4.0 Summary of Capital Costs

The methodology in Sections 2.0 and 3.0 above considers multiple components to compute a complete capital cost for a transmission infrastructure project. The capital costs above are summarized in the sections below.

4.1 TRANSMISSION CAPITAL COSTS

Using the methodology discussed in Section 2.0, Black & Veatch surveyed various transmission costs as well as used internal industry knowledge to determine typical values for transmission costs. While industry costs can vary substantially, the Peer Review Group determined that these values are reasonable for projects installed in the WECC region, except potentially for those in California.[8]

Using the numbers from tables below and the equation below, the total capital cost for a transmission line can be calculated.

Total Transmission Line Cost = [(Base Transmission Cost) x (Conductor Multiplier) x (Structure Multiplier) x (Re-conductor Multiplier) x (Terrain Multiplier) + (ROW Acres/Mile) x (Land Cost/Acre)] x (# of Miles)

For reference, tables have been included for 2012, 2013 and 2014 transmission capital costs.

[8] In the 2012 report, the methodology was benchmarked against actual project costs and found to provide reasonable planning-level estimates for total costs. However, applying the methodology to California projects (e.g., Tehachapi and Sunrise) was difficult due to the unique nature of those projects. For this reason, further review of California-specific factors is recommended before this methodology is broadly applied there.

Table 4-1 2012 Transmission Capital Cost Summary

	230 KV SINGLE CIRCUIT	230 KV DOUBLE CIRCUIT	345 KV SINGLE CIRCUIT	345 KV DOUBLE CIRCUIT	500 KV SINGLE CIRCUIT	500 KV DOUBLE CIRCUIT	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
Base Cost ($/mi)	$927,000	$1,484,000	$1,298,000	$2,077,000	$1,854,000	$2,967,000	$1,484,000	1,558,200
Multipliers								
Conductor								
ACSR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ACSS	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
HTLS	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Structure								
Lattice	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Tubular Steel		1.00	1.30	1.30	1.50	1.50	1.50	1.50
Length								
> 10 miles	1.20	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3-10 miles	1.50	1.20	1.20	1.20	1.20	1.20	1.20	1.20
< 3 miles		1.50	1.50	1.50	1.50	1.50	1.50	1.50
Age								
New	0.35	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Re-conductor		0.45	0.45	0.55	0.55	0.65	0.55	0.55
Terrain								
Desert	1.00	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Scrub / Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farmland	2.25	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Forested	1.40	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Rolling Hill (2-8% slope)	1.75	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Mountain (>8% slope)	1.20	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Wetland	1.27	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Suburban	1.59	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Urban	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59

Table 4-2 2013 Transmission Capital Cost Summary

	230 KV SINGLE CIRCUIT	230 KV DOUBLE CIRCUIT	345 KV SINGLE CIRCUIT	345 KV DOUBLE CIRCUIT	500 KV SINGLE CIRCUIT	500 KV DOUBLE CIRCUIT	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
Base Cost ($/mi)	$940,905	$1,506,260	$1,317,470	$2,108,155	$1,881,810	$3,011,505	$1,506,260	$1,581,573
Multipliers								
Conductor								
ACSR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ACSS	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
HTLS	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Structure								
Lattice	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Tubular Steel	1.00	1.00	1.30	1.30	1.50	1.50	1.50	1.50
Length								
> 10 miles	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3-10 miles	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
< 3 miles	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Age								
New	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Re-conductor	0.35	0.45	0.45	0.55	0.55	0.65	0.55	0.55
Terrain								
Desert	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Scrub / Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farmland	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Forested	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Rolling Hill (2-8% slope)	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Mountain (>8% slope)	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Wetland	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Suburban	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Urban	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59

Table 4-3 2014 Transmission Capital Cost Summary

	230 KV SINGLE CIRCUIT	230 KV DOUBLE CIRCUIT	345 KV SINGLE CIRCUIT	345 KV DOUBLE CIRCUIT	500 KV SINGLE CIRCUIT	500 KV DOUBLE CIRCUIT	500 KV HVDC BI-POLE	600 KV HVDC BI-POLE
Base Cost ($/mi)	$959,723	$1,536,385	$1,343,819	$2,150,318	$1,919,446	$3,071,735	$1,536,385	$1,613,204
Multipliers								
Conductor								
ACSR	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
ACSS	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08
HTLS	3.60	3.60	3.60	3.60	3.60	3.60	3.60	3.60
Structure								
Lattice	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Tubular Steel	1.00	1.00	1.30	1.30	1.50	1.50	1.50	1.50
Length								
> 10 miles	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
3-10 miles	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
< 3 miles	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50
Age								
New	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Re-conductor	0.35	0.45	0.45	0.55	0.55	0.65	0.55	0.55
Terrain								
Desert	1.05	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Scrub / Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Farmland	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Forested	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Rolling Hill (2-8% slope)	1.40	1.40	1.40	1.40	1.40	1.40	1.40	1.40
Mountain (>8% slope)	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75
Wetland	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Suburban	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Urban	1.59	1.59	1.59	1.59	1.59	1.59	1.59	1.59

In addition to the capital cost of equipment for transmission lines, the acquisition of land for ROW was determined based on BLM land values. The land costs are detailed on Table 2-7.

4.2 SUBSTATION CAPITAL COSTS

As with transmission costs, the Peer Review Group determined that substation values are reasonable for projects installed in the WECC region, with the key assumption that the substation would be constructed on flat, barren land with relatively easy site access. For reference, tables have been included for 2012, 2013 and 2014 substation capital costs.

Table 4-4 2012 Substation Capital Cost Summary

EQUIPMENT	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Base Cost (New Substation)	$1,648,000	$2,060,000	$2,472,000
Cost Per Line/XFMR Position	$1,442,000	$2,163,000	$2,884,000
Ring Bus Multiplier	1	1	1
Breaker and a Half Multiplier	1.5	1.5	1.5
500 kV HVDC Converter Station	-	-	$445,000,000
600 kV HVDC Converter Station	-	-	$489,500,000
Shunt Reactor ($/MVAR)	$20,000	$20,000	$20,000
Series Capacitor ($/MVAR)	$30,000	$10,000	$10,000
SVC Cost ($/MVAR)	$85,000	$85,000	$85,000
Transformer Cost ($/MVA)			
115/230 kV XFMR	$7,000	-	-
115/345 kV XFMR	-	$10,000	-
115/500 kV XFMR	-	-	$10,000
138/230 kV XFMR	$7,000	-	-
138/345 kV XFMR	-	$10,000	-
138/500 kV XFMR	-	-	$10,000
230/345 kV XFMR		$10,000	-
230/500 kV XFMR	$11,000	-	$11,000
345/500 kV XFMR	-	$13,000	$13,000

Table 4-5 2013 Substation Capital Cost Summary

EQUIPMENT	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Base Cost (New Substation)	$1,672,720	$2,090,900	$2,509,080
Cost Per Line/XFMR Position	$1,463,630	$2,195,445	$2,927,260
Ring Bus Multiplier	1	1	1
Breaker and a Half Multiplier	1.5	1.5	1.5
500 kV HVDC Converter Station			$451,675,000
600 kV HVDC Converter Station			$496,842,500
Shunt Reactor ($/MVAR)	$20,300	$20,300	$20,300
Series Capacitor ($/MVAR)	$30,450	$10,150	$10,150
SVC Cost ($/MVAR)	$86,275	$86,275	$86,275
Transformer Cost ($/MVA)			
115/230 kV XFMR	$7,105		
115/345 kV XFMR		$10,150	
115/500 kV XFMR			$10,150
138/230 kV XFMR	$7,105		
138/345 kV XFMR		$10,150	
138/500 kV XFMR			$10,150
230/345 kV XFMR		$10,150	
230/500 kV XFMR	$11,165		$11,165
345/500 kV XFMR		$13,195	$13,195

Table 4-6 2014 Substation Capital Cost Summary

EQUIPMENT	230 KV SUBSTATION	345 KV SUBSTATION	500 KV SUBSTATION
Base Cost (New Substation)	$1,706,174	$2,132,718	$2,559,262
Cost Per Line/XFMR Position	$1,492,903	$2,239,354	$2,985,805
Ring Bus Multiplier	1	1	1
Breaker and a Half Multiplier	1.5	1.5	1.5
500 kV HVDC Converter Station			$460,708,500
600 kV HVDC Converter Station			$506,779,350
Shunt Reactor ($/MVAR)	$20,706	$20,706	$20,706
Series Capacitor ($/MVAR)	$31,059	$10,353	$10,353
SVC Cost ($/MVAR)	$88,001	$88,001	$88,001
Transformer Cost ($/MVA)			
115/230 kV XFMR	$7,247		
115/345 kV XFMR		$10,353	
115/500 kV XFMR			$10,353
138/230 kV XFMR	$7,247		
138/345 kV XFMR		$10,353	
138/500 kV XFMR			$10,353
230/345 kV XFMR		$10,353	
230/500 kV XFMR	$11,388		$11,388
345/500 kV XFMR		$13,459	$13,459

Using the above tables and the equation below, the capital cost for the substation can be calculated.

Total Individual Substation Cost = [(Substation Base Cost) + (Line/XFMR Position Base Cost) x (# of Line/XFMR Positions) x (RB or BAAH Multiplier) + (XFMR Cost/MVA) x (XFMR MVA Rating) x (# of XFMRs) + (SVC Cost/MVAR) (# MVARs) + (Series Cap. Cost/MVAR) x (# MVARs) + (Shunt Reactor Cost/MVAR) x (# MVARs) + (HVDC Converter Station Cost)]

4.3 ALLOWANCE FOR FUNDS USED DURING CONSTRUCTION AND OVERHEAD COSTS

The transmission and substation costs described in Sections 2.0 and 3.0 above are given as "overnight" costs, i.e. the cost if the project could be engineered, procured and constructed overnight without financing or overhead costs. To address this, Black & Veatch previously developed estimates of Allowance for Funds Used During Construction (AFUDC) and overhead, which could be added to the transmission and substation costs to produce realistic total project cost estimates.

Black & Veatch surveyed a number of sources to understand the range of these estimates and to develop a recommended value which could be used by WECC to reasonably represent all types of project ownership structures. These estimates have not been revised, and the original sampling of AFUDC and overhead costs from 2012 are shown in Table 4-7 below.

Table 4-7 Black & Veatch Survey of AFUDC and Overhead Costs and Recommended Values

	INDEPENDENT DEVELOPER	INVESTOR-OWNED UTILITY	PUBLIC UTILITY
Source	B&V Estimate	NV Energy/PacifiCorp	BPA
AFUDC Cost	10.0%	8.6%	4.1%
Overhead Cost	10.0%	6.2%	23.0%
Recommended Values	7.5% (AFUDC) + 10.0% (Overhead) = 17.5%		

Based on the collected data, Black & Veatch recommended and the Peer Review Group adopted a value of 7.5 percent for AFUDC costs and 10.0 percent for overhead costs, for a total of 17.5 percent.

4.4 TOTAL PROJECT COST

Adding the cost of the transmission calculated in Section 2.0 and the substation costs calculated in Section 3.0 together will result in the total project capital costs prior to AFUDC and overhead. Using the above information on AFUDC and overhead cost assumptions, the entire cost of a project can be calculated.

Total Project Cost = [(Total Transmission Capital Cost) + (Total Substation Capital Cost)] x (1+AFUDC + Overhead)

5.0 Cost Calculator

After developing the capital cost estimates for transmission and substations described in Section 2.0 and Section 3.0, Black & Veatch created a cost calculator which incorporated all of the cost estimates for transmission and substations cost components into a single, user-friendly Excel-based tool. The cost calculator is simple but flexible, and can be used to estimate the costs of hypothetical transmission projects and associated substations within the WECC region. The calculator employs the cost formulas for transmission and substations to calculate total project costs (for the entire line length and on a per-mile basis), and is automated to the extent possible to allow for quick estimates. The cost calculator workbook is split into three different sheets, each of which is described below:

- Transmission Cost Calculator (including the Transmission Line Loss Calculator)
- Substation Cost Calculator
- Cost Totals

5.1 TRANSMISSION COST CALCULATOR

A screenshot of the Transmission Cost Calculator sheet workbook is shown in Figure 5-1 below.

Black & Veatch Transmission Line Capital Cost Calculator					User Selection Auto-calculated Adjustable Parameter
	Selection	Multiplier	Cumulative Cost/Mile		
Voltage Class	345 kV Double Circuit	1	$ 2,150,318.10		
Conductor Type	230 kV Single Circuit 230 kV Double Circuit 345 kV Single Circuit	1	$ 2,150,318.10		
Structure	345 kV Double Circuit	1	$ 2,150,318.10		
Length Category	500 kV Single Circuit 500 kV Double Circuit	1	$ 2,150,318.10		
New or Re-conductor?	600 kV HVDC Circuit 600 kV HVDC Circuit	1	$ 2,150,318.10		
Average Terrain Multiplier		1.00	$ 2,150,318.10		
Terrain Type	Miles of Terrain Type	Multiplier	Weighted Miles		
Forested	0.0	2.25	0.0		
Scrubbed/Flat	100.0	1	100.0		
Wetland	0.0	1.2	0.0		
Farmland	0.0	1	0.0		
Desert/Barren Land	0.0	1.05	0.0		
Urban	0.0	1.59	0.0		
Rolling Hills (2-8% Slope)	0.0	1.4	0.0		
Mountain (>8% Slope)	0.0	1.75	0.0		
Total Miles	100.0				
BLM Cost Zone Number	ROW Miles in BLM Zone	$/Acre	$/Mile of ROW	Zone ROW Costs	
1	0.0	$ 85.34	$ 2,068.80	$ -	
2	0.0	$ 170.68	$ 4,137.60	$ -	
3	100.0	$ 341.45	$ 8,277.60	$ 827,760.00	
4	0.0	$ 512.13	$ 12,415.20	$ -	
5	0.0	$ 682.80	$ 16,552.80	$ -	
6	0.0	$ 1,024.25	$ 24,830.40	$ -	
7	0.0	$ 1,707.06	$ 41,383.20	$ -	
8	0.0	$ 3,414.11	$ 82,766.40	$ -	
9	0.0	$ 6,828.23	$ 165,532.80	$ -	
10	0.0	$ 10,242.34	$ 248,299.20	$ -	
11	0.0	$ 17,070.57	$ 413,832.00	$ -	
12	0.0	$ 34,141.14	$ 827,664.00	$ -	
AFUDC/Overhead Cost	17.5%				
Project Cost Results	Per Mile	Total			
Line Cost	$ 2,150,318.10	$ 215,031,810.00			
ROW Cost	$ 8,277.60	$ 827,760.00		Project Line Losses	Per Mile (MW/Mile) 0.3212 / Total (MW) 32.12
AFUDC/Overhead Cost	$ 377,754.25	$ 37,775,424.75			
All Costs	$ 2,536,349.95	$ 253,634,994.75			

Figure 5-1 Transmission Cost Calculator Sheet of Cost Calculator Workbook

On this sheet, the user first selects the basic transmission line characteristics from a series of drop-down menus. The options for each follow the different equipment types and specifications described in Section 2.2. After that, the user must enter information about the line routing. This information consists of the number of miles of line which pass through each terrain type described in Section 2.4, and the number of miles of line which pass through each BLM cost zone described in Section 2.5. These line routing values are not calculated within this sheet—rather, the user must obtain these values by performing a separate Geographic Information System (GIS) analysis.

Once all selections are made and all values are entered, the transmission line, right of way, and AFUDC/overhead costs for the project are automatically calculated at the bottom of the sheet in the "Project Cost Results" section, for the entire line length and on a per-mile basis.

The calculator is also flexible. In addition to the cells highlighted in yellow, which indicate places where the user must select from a drop-down menu or enter a value, a number of cells are highlighted green, to indicate that the values in those cells are parameters that can be adjusted by the user. Adjusting these values allows the user to test the sensitivity of the project cost results to certain parameters. The following are parameters which can be adjusted on this sheet:

- Terrain type multipliers
- AFUDC/overhead cost adder
- Transmission base costs
- Conductor type multipliers
- Structure type multipliers
- Length category multipliers
- New vs. re-conductor multipliers
- Right of way width assumptions
- BLM zone land rental costs
- Land tax rate
- Capitalization rate
- Inflation variables

5.2 TRANSMISSION LINE LOSS CALCULATOR

A screenshot of the Transmission Line Loss Calculator located in the Transmission Cost Calculator sheet of the cost calculator workbook is shown in Figure 5-2 below.

Black & Veatch Transmission Line Loss Calculator								
Assumed Line Utilization	60%							
Full Load Adjustment	0.48							
	230 kV Single Circuit	230 kV Double Circuit	345 kV Single Circuit	345 kV Double Circuit	500 kV Single Circuit	500 kV Double Circuit	500 kV HVDC Circuit	600 kV HVDC Circuit
Capacity	400	800	750	1500	1500	3000	3000	3000
Phase Current (amps)	1057	1057	1321	1321	1823	1823	3000	2500
No. Conductors Per Phase	1	1	2	2	3	3	3	3
No. Circuits Per Line	1	2	1	2	1	2	2	2
No. Phases	3	3	3	3	3	3	1	1
ACSR Size	1272	1272	795	795	1590	1590	1780	1780
Resistance	0.08305	0.08305	0.1278	0.1278	0.06765	0.06765	0.057344	0.057344
ACSS Size	477	477	336.4	336.4	605	605	636	636
Resistance	0.2253	0.2253	0.319	0.319	0.178	0.178	0.153778	0.153778
HTLS	477	477	316	316	557	557	636	636
Resistance	0.2275	0.2275	0.315	0.315	0.1860	0.1860	0.1635	0.1493
Line Loss MW / Mile	230 kV Single Circuit	230 kV Double Circuit	345 kV Single Circuit	345 kV Double Circuit	500 kV Single Circuit	500 kV Double Circuit	500 kV HVDC Circuit	600 kV HVDC Circuit
ACSR	0.1336	0.2672	0.1606	0.3212	0.1079	0.2159	0.1652	0.1147
ACSS	0.3624	0.7249	0.4009	0.8018	0.2840	0.5680	0.4429	0.3076
HTLS	0.3660	0.7319	0.3959	0.7918	0.2968	0.5936	0.4709	0.2986

Figure 5-2 Transmission Loss Calculator in Cost Calculator Workbook

The transmission line losses will be automatically calculated based on the line parameters entered in the Transmission Cost Calculator, as described in Section 2.7. The per mile and total losses will be recorded in MW in the Project Line Loss row located next to the Project Cost Results. The adjustable parameters in this section of the sheet are:

- Line utilization factor
- Line capacity in MW
- Number of conductors per phase
- Number of circuits per line
- Number of phases
- ACSR conductor size
- ACSR line resistance
- ACSS conductor size
- ACSS line resistance
- HTLS conductor size
- HTLS line resistance

5.3 SUBSTATION COST CALCULATOR

A screenshot of the Substation Cost Calculator sheet of the cost calculator workbook is shown in Figure 5-3 below.

Black & Veatch Substation Capital Cost Calculator				User Selection
				Auto-calculated
	Selection	Cost Component	Cost	Adjustable Parameter
Voltage	500 kV Substation	Base Cost	$ 2,472,000	
New or Existing Site?	New	Circuit Breakers	$ 17,304,000	
Circuit Breaker Type	Breaker and a Half	500 kV HVDC Converter	N/A	
# of Line/XFMR Positions	4	Transformer(s)	$ 11,000,000	
500-kV HVDC Converter?	No	SVC(s)	$ 10,000,000	
Transformer Type	230/500 kV XFMR	Shunt Reactor(s)	$ 10,000,000	
MVA Rating Per Transformer	115/345 kV XFMR 115/500 kV XFMR	Series Capacitor(s)	$ 20,000,000	
# of Transformers	138/230 kV XFMR	AFUDC/Overhead Cost	$ 12,385,800.000	
SVC MVAR Rating	138/345 kV XFMR 138/500 kV XFMR			
Shunt Reactor MVAR Rating	230/345 kV XFMR	Total Substation Cost	$ 83,161,800	
Series Capacitor MVAR Rating	230/500 kV XFMR			
AFUDC/Overhead Cost	345/500 kV XFMR 17.5%			

Figure 5-3 Substation Cost Calculator Sheet of Cost Calculator Workbook

On this sheet, the user selects the basic substation characteristics from a series of drop-down menus, and also enters appropriate values for certain characteristics (e.g., "# of Transformers"), according to the options described in Section 3.0. The cost for each substation component is shown on the right side, the AFUDC/overhead cost is automatically calculated, and the total substation cost is automatically summed at the bottom.

It is important to note that this sheet can be used to calculate costs for only one individual substation at a time. If a particular transmission project involves more than one substation, then information about each substation will need to be entered separately, and the total cost of each individual substation will need to be entered in the empty cells in the Cost Totals sheet of the workbook.

There are also a number of adjustable parameters in this sheet, which are:

- AFUDC/overhead cost adder
- Base substation costs
- Cost per line position
- Line position type multipliers
- HVDC converter station cost
- Shunt reactor cost
- Series capacitor cost
- SVC cost
- Transformer costs
- Inflation variables

5.4 COST TOTALS

A screenshot of the Cost Totals sheet of the cost calculator workbook is shown in Figure 5-4 below.

Black & Veatch Transmission and Substation Cost Totals

Project Cost Results	Per Mile	Total
Line Cost	$ 1,998,533.77	$ 463,873,675.03
ROW Cost	$ 41,649.31	$ 9,667,096.80
Substation #1	N/A	$ 83,161,800.00
Substation #2	N/A	$ 50,000,000.00
Substation #3	N/A	
Substation #4	N/A	
Substation #5	N/A	
AFUDC Cost	$ 357,032.04	$ 106,172,950.07
All Costs	$ 2,397,215.12	$ 712,875,521.90

User Selection
Auto-calculated

Figure 5-4 Cost Totals Sheet of Cost Calculator Workbook

On this sheet, the transmission and substation costs calculated on the other two sheets are summed to find the total project cost, for the entire line length and on a per-mile basis. The transmission line and right of way cost data are automatically transferred from the Transmission Cost Calculator sheet. Since it is anticipated that most projects will have multiple associated substations and each individual substation cost must be calculated separately, there are five empty cells in which the user can enter the cost of individual substations from the Substation Cost Calculator sheet. Once the substation costs are entered, the AFUDC and overhead cost is automatically calculated and the total project cost is automatically summed at the bottom.

UNDERTAKING JT1.28

UNDERTAKING

TR 1, page 137

NextBridge to provide the IESO's response about net benefit differences in the 2015 and 2017 reports by the IESO

RESPONSE

NextBridge received the following response from the IESO in response to this undertaking request:

> The $1.1 billion benefit from the 2015 assessment was the net cost savings, under reference case assumptions, of implementing the East-West Tie project rather than the least cost generation alternative to meet the identified capacity needs in the northwest. The $200 million benefit from the 2017 assessment is the revised net cost savings, under reference assumptions.

UNDERTAKING JT1.29

UNDERTAKING

TC TR 1, page 153

To update the response to Hydro One's Interrogatory No. 7, item c (1) to provide the narrow range of cost estimates for class 2; (2) to provide the timeline when you would be able to provide class 1 estimates.

RESPONSE

NextBridge estimates its American Association of Cost Engineers ("AACE") class 2 estimate to be subcategorized as having an approximate +10% / -10% accuracy.

In order to provide an AACE class 1 estimate, NextBridge would need additional scope definition and certainty around the following: (1) the timing of the issuance of permits needed to start construction, as the timing of the issuance of the permits could impact seasonal construction constraints; (2) any conditions included in the permits that are more onerous than anticipated; (3) the timing of the completion of the procurement of the Owner Furnished Equipment (structures, conductors, OPGW/OHGW); and (4) the timing of the land rights and expropriation as needed. All of these factors may not be known prior to the start of construction.

UNDERTAKING JT1.30

UNDERTAKING

TR 1, page 159

To examine whether or not NextBridge can produce the reports that were prepared for the board of directors that gave rise to the quarterly reports to the Ontario Energy Board.

RESPONSE

There is no specific report prepared and provided to the NextBridge Board of Directors that forms the basis of the reports that are made to the Ontario Energy Board. When NextBridge prepares its Ontario Energy Board reports (at first monthly, now on a quarterly basis) (the "OEB Report"), the process is as follows:

1. Internal monthly project financial information is prepared for the Project Management Office ("PMO") and circulated to the team leads for their review. The financial information is summarized as part of the Board of Directors materials. Attached is a sample of the financial information provided to the Board of Directors. The actual project to date expenditures are captured in the OEB Report.

2. Team leads provide updates related to the status of work towards outstanding development milestones.

3. The draft OEB Report is compiled by the PMO and is sent for review, updating, etc. to the team leads, Operations Committee and Board of Directors.

4. A conference call is completed on Business Day 14, i.e., the day before the OEB Report is due to the OEB, to finalize OEB Report content, which may or may not be attended by a member of the Board of Directors.

Financial Update – March

- March spend was $862K, bringing the total budgeted spend to $31 MM

Cost Category	Actuals at February 28, 2017 project to-date ("PTD")	March Estimates	March Actuals	March variance $ better/positive - (worse/negative)	PTD Actuals	Balance of Project Forecast @95%	TOTAL PROJECT ESTIMATE: Total Forecast (actuals + forecast)	TOTAL PROJECT ESTIMATE: Budget - May 2015	TOTAL PROJECT ESTIMATE: Variance $ better/positive - (worse/negative)	TOTAL PROJECT ESTIMATE: % Spent of Total Budget
	All amounts are in Canadian dollars)									
Engineering, Design and Procurement Activity	9,632,611	149,000	171,578	(22,578)	9,804,189	1,107,006	10,911,195	12,322,998	1,411,803	89.9%
Permitting and Licensing	84,781	-	-	-	84,781	-	84,781	77,320	(7,461)	100.0%
Environmental and Regulatory Approvals	5,677,998	59,000	97,023	(38,023)	5,775,021	669,000	6,444,021	8,482,680	2,038,659	89.6%
Land Acquisition (Excludes Aboriginal)	4,569,658	188,000	252,937	(64,937)	4,822,595	156,450	4,979,045	4,571,000	(408,045)	96.9%
First Nations and Métis Consultation	2,476,171	169,000	255,923	(86,923)	2,732,094	800,500	3,532,594	5,474,000	1,941,406	77.3%
Other Consultation	1,540,635	53,000	(82,894)	135,894	1,457,740	346,850	1,804,590	2,516,000	711,410	80.8%
Regulatory	1,614,010	22,000	44,479	(22,479)	1,658,489	787,725	2,446,214	2,495,000	48,786	67.8%
Interconnection Studies	83,859	-	-	-	83,859	57,000	140,859	239,000	98,141	59.5%
Project Management	4,527,796	151,000	123,745	27,255	4,651,541	794,853	5,446,394	4,630,000	(816,394)	85.4%
Contingency	-	-	-	-	-	1,960,000	1,960,000	1,960,002	2	0.0%
Total Budgeted	**30,207,519**	**791,000**	**862,791**	**(71,791)**	**31,070,310**	**6,679,384**	**37,749,694**	**42,768,000**	**5,018,306**	**82.3%**
First Nations and Métis Land Acquisition	16,862	-	-	-	16,862	-	16,862			
First Nations and Métis Participation	3,132,601	353,000	28,365	324,635	3,160,967	-	3,160,967			
Other Costs Not Included In Above Categories	230,163	-	-	-	230,163	-	230,163			
Carrying Charges	678,699	-	33,705	(33,705)	712,405	-	712,405			
Taxes and Duties	-	-	-	-	-	-	-			
Total Unbudgeted	**4,058,325**	**353,000**	**62,070**	**290,930**	**4,120,396**	**-**	**4,120,396**			
Grand Total	**34,265,845**	**1,144,000**	**924,861**	**219,139**	**35,190,706**	**6,679,384**	**41,870,090**			

UNDERTAKING JT1.31

UNDERTAKING

TC TR 1, page 164

To provide a response if there would be need to amend the Environmental Assessment if the TM1 line is to be relocated.

RESPONSE

It is likely that NextBridge would need to adjust its proposed right of way (ROW) to abut the Hydro One existing EWT ROW, and shift the NextBridge structure locations accordingly to accommodate a move of the T1M lines; however, this refinement would not be considered a change to the undertaking as contemplated by the Environmental Assessment Act (the "Act"). The area is directly adjacent to the existing EWT corridor and was included within the individual Local Study Areas and Regional Study Areas for each criterion assessed in NextBridge's amended Environmental Assessment ("EA") Report submitted to the Minister of the Environment and Climate Change ("MOECC") in February 2018. Therefore, such a shift would not result in a change to the baseline environment assessment or the overall effects assessment. On this basis, further amendment to the NextBridge EA would not be required to shift the NextBridge structures if the T1M line were to be relocated. Placement of NextBridge's EWT Line structures could proceed based on the EA completed to date once the appropriate approvals are received. Any site-specific details would continue to be assessed as part of the permitting process, where applicable.

Since the T1M lines are owned and operated by Hydro One, relocation of the T1M lines would need to be deemed required, proposed and undertaken by Hydro One. In such a case, Hydro One may need to apply to the Minister of the MOECC for approval under the Act, and any EA requirements under the Act would be the responsibility of Hydro One as the proponent. NextBridge would not need to amend its EA as it would not be the proponent and the scope of the relocation of the T1M lines would not be part of NextBridge's proposed undertaking.

UNDERTAKING JT1.32

UNDERTAKING

TC TR 1, page 168

To confer with First Nations and Métis communities and determine what can be done, and to respond accordingly.

RESPONSE

NextBridge conferred with all of the First Nation and Métis communities that it currently has capacity funding agreements with. Eight communities explicitly declined to have NextBridge release the agreements, one community agreed to disclose their agreement and there was no response from the other communities.

Attached is a copy of the Capacity Funding Agreement between NextBridge and Missanabie Cree First Nation, excluding appendices, since the appendices contain personal and commercial financial information, and competitive sensitive confidential financial information that if publically disclosed could/would harm the competitive position of NextBridge. It would give providers of similar competitive services information useful in making their own decisions, without expending the time and means necessary to gather and develop the data, and would allow providers of these competitive services to profit or otherwise derive benefits at the expense of NextBridge.

EXECUTION VERSION

CAPACITY FUNDING AGREEMENT

THIS AGREEMENT ("Agreement") made as of the 13th day of March, 2014.

BETWEEN:

MISSANABIE CREE FIRST NATION

being a duly recognized First Nation and a "band" within the meaning of the *Indian Act* (Canada), as represented by the Research, Lands and Membership Office (hereinafter referred to as the "First Nation")

- and –

NEXTBRIDGE INFRASTRUCTURE LP

a partnership formed under the Laws of Ontario and having an office in Toronto, Ontario; (hereinafter referred to as "NextBridge" and, collectively with the First Nation as the "Parties")

WHEREAS the First Nation has certain aboriginal and treaty rights;

WHEREAS NextBridge has been designated by the Ontario Energy Board to undertake the development work for a new electricity transmission line between Northeast and Northwest Ontario known as the East-West Tie line (the "EWT"), the general routing of which is shown on the attached Schedule "A" hereto (the "Project");

WHEREAS NextBridge recognizes the unique cultural and traditional interests of the First Nation and its position respecting its aboriginal and treaty rights throughout its traditional territory, and will continue to take all reasonable steps to respect those rights and interests;

WHEREAS the Parties have established a cooperative and respectful relationship and wish to continue and broaden their relationship by furthering consultation and, if appropriate, discussing mitigation measures relating to the Project; and

WHEREAS in order to facilitate such consultation and discussion, the Parties wish to enter into a Capacity Funding Agreement on the terms and conditions set out herein.

NOW THEREFORE in consideration of the covenants and agreements herein contained the Parties agree as follows:

1. <u>Scope</u>

The Parties agree that the purpose of this Agreement is to:

(a) provide capacity funding to the First Nation for the purposes of understanding, assessing and providing feedback on the Project through the development, construction, and operational phases of the Project;

(b) establish mechanisms to further the long-term relationship between the Parties;

(c) facilitate the negotiation of any further relationship and/or benefits agreement or any other agreements or arrangements determined appropriate and as agreed upon by the

Parties to address potential mitigation measures relating to the proposed Project and related infrastructure; and

(d) such other purposes as the Parties may agree.

2. **Financial Considerations**

(a) Capacity Funding Payments: Subject to section 4 below, NextBridge agrees to provide capacity funding payments to the First Nation in an amount not to exceed CDN $28,440 in the aggregate in accordance with the budget worksheet attached as Schedule B hereto (the "Capacity Funding Payments"), except as may be amended by mutual agreement of the Parties. The Parties agree that payments will be made by NextBridge by cheque or bank transfer and upon receipt of an undisputed invoice from the First Nation explaining in reasonable detail any reasonable fees and expenses, along with supporting invoices and any corresponding reports or documentation. The Parties agree that the amounts reflected in the invoices and other documentation set forth on Schedule C represent all reimbursable costs and expenses incurred by the First Nation prior to the date of this Agreement. NextBridge shall make a Capacity Funding Payment in respect of the amounts set forth on Schedule C not later than 30 business days following the date of this Agreement (the "Initial Capacity Funding Payment"). For the avoidance of doubt, the amount of the Initial Capacity Funding Payment is included in the budgeted amounts set forth in Schedule B. All subsequent invoices should be addressed directly to "NextBridge Infrastructure LP", and "EWT" should be noted in the text of each invoice. Invoices should be submitted electronically to the following address: Ap@nee.com

(b) Restriction on Payments: The Parties acknowledge that the amount set forth on Schedule B is based on the Project proceeding to commercial operation. In the event that the Project does not proceed to commercial operation, NextBridge's obligation to make any future capacity funding payments to the First Nation in respect of that Project shall cease upon NextBridge's providing notice to the First Nation that such Project will not proceed to commercial operation.

(c) Accounting and Record-Keeping: The First Nation agrees to keep, in accordance with generally accepted accounting principles, complete and accurate books, records and accounts related to the Capacity Funding Payments, and agrees to maintain such books, records and accounts for a period of at least seven (7) years from receipt of the last payment from NextBridge to the First Nation made under this Agreement. The First Nation agrees to make any such books, records and accounts available for examination or audit by NextBridge upon being provided reasonable notice by NextBridge. If requested by the First Nation, such examination or audit shall be conducted by an independent third party selected by mutual agreement of the parties hereto, acting reasonably. The First Nation agrees to cooperate fully with any such examination or audit.

3. **Agreement without Prejudice**

Except as otherwise provided in this Agreement, the execution and implementation of this Agreement is not intended to derogate from or abrogate the rights of the First Nation or any of its members. Nothing in this Agreement shall limit, diminish, abrogate or derogate the rights of NextBridge in and under any present or future permits, licenses or other authorizations that NextBridge has obtained or may obtain in relation to the Project.

4. **First Nation Undertakings**

Provided that all actions taken by NextBridge are in material compliance with the terms of this Agreement, the First Nation hereby undertakes to:

(a) not institute any legal proceeding or take other action (directly or indirectly, including, without limitation, sending correspondence to any governmental authorities) that could reasonably be foreseen to delay, block or in any way hinder the development or operation of the Project, including interfering with NextBridge's access or the access of its employees contractors and agents; and

(b) not encourage (directly or indirectly) and make best efforts to discourage First Nation members from engaging in any conducted described in section 4(a) above, and in the event of such action or conduct agrees to use best efforts to facilitate the cessation of such action or conduct. The Parties mutually agree that no portion of the Capacity Funding Payments made pursuant to this Agreement will be used to discourage a First Nation member from engaging in any conduct described in section 4(a) above or compel a First Nation member to cease such conduct.

5. **NextBridge Undertakings**

Provided that all actions taken by the First Nation are in material compliance with this Agreement, NextBridge hereby undertakes to:

(a) make payments to the First Nation in accordance with the terms of this Agreement; and

(b) comply with the terms of any applicable laws (including environmental laws), government or regulatory licenses, permits, regulations or other authorizations in respect of the Project.

6. **Confidentiality**

(a) Confidential Information: For the purposes of this Agreement, "Confidential Information" means the confidential information of a Party, and includes, but is not limited to, legal analyses, communications, potential or actual negotiating positions, written materials, documents, reports, records, data, studies, compilations, analyses, forecasts and opinions regarding the Project that pertain to the negotiations between the Parties. The Parties agree that the positions, discussions and actions pursued and taken by the Parties during and in respect of the negotiations between the Parties will be kept confidential and each Party will take all prudent measures to ensure that any Confidential Information provided by it to any other Party is treated as confidential and is not disclosed to any person except:

(i) to its employees, officers, partners, directors, elected officials and legal, financial or other professional advisors, so long as such parties agree in writing to be bound by the confidentiality obligations in this section 6 of this Agreement prior to receiving Confidential Information;

(ii) First Nation members attending private membership meetings to consider this Agreement and other agreements with NextBridge and where members are requested at such meeting to keep matters confidential and prudent steps are taken by the First Nation to safeguard written confidential material from distribution outside of the meeting;

(iii) as may be required by applicable law;

(iv) to advance the approvals, permits or other regulatory processes relating to any of the Project;

(v) where such information becomes generally known or available in the public domain, without a breach of this Agreement; or

(vi) as otherwise consented to in advance by the other Party providing the information.

(b) Notwithstanding any other provision of this Agreement, the fact that this Agreement exists will not be considered Confidential Information and may be disclosed by any Party and NextBridge is permitted to disclose any Confidential Information at NextBridge's sole discretion: (i) to the Crown, in accordance with the Crown Consultation MOU (as defined below); and (ii) to any regulatory or government body, including the Ontario Energy Board or the Ministry of the Environment, to advance the permitting or approvals required for the Project, provided that NextBridge only discloses what is reasonably required, at NextBridge's sole discretion, to advance such permits or approvals.

(c) The Parties agree that each Party will, upon request in writing of any other Party, promptly return all documents and other materials provided by the requesting Party that are in its possession or control containing or embodying any of the Confidential Information and agrees to at the same time delete and destroy all electronic files in their possession or control containing or embodying such Confidential Information.

7. Term and Termination

(a) Term: The term of the Agreement commences as of the date written above and, subject to earlier termination as described in (b) below, shall expire on December 31, 2014.

(b) Early Termination. This Agreement shall terminate upon the earliest to occur of the following:

(i) NextBridge's decision to permanently cease or abandon Project operations;

(ii) the Parties agreement in writing to termination;

(iii) by First Nation upon material default of this Agreement by NextBridge, and the First Nation provides written notice of such termination to NextBridge;

(iv) by NextBridge upon material default of this Agreement by First Nation, and NextBridge provides written notice of such termination to First Nation; or

(v) in accordance with section 8(h) of this Agreement.

(c) Consequences of Termination: Upon termination or expiration of this Agreement, each of the Parties will be relieved of all obligations under this Agreement, subject to the following exceptions:

(i) payment of any monies that have accrued to the First Nation pursuant to this Agreement as of the date of termination;

(ii) the First Nation's accounting and record keeping obligations under section 2(c) of this Agreement, which shall survive for a period of seven (7) years following the date of termination; and,

(iii) each Party's confidentiality obligations under section 6 of this Agreement, which shall survive for a period of two (2) years following the date of termination.

8. **General Provisions**

(a) Consultation Approach: The Parties acknowledge that NextBridge must comply with the procedural aspects of consultation that have been delegated to NextBridge by the Crown consistent with the agreement signed between it and the Her Majesty the Queen In Right of Ontario as represented by the Ministry of Energy for the Province of Ontario on November 4, 2013 (the "Crown Consultation MOU").

(b) Assignment: Neither Party may assign its rights or obligations under this Agreement in whole or in part by operation of law or otherwise without the prior written consent of the other Party, provided that NextBridge may assign this agreement to an affiliate provided that such assignee agrees to be bound by the terms of this Agreement and enters into an assignment agreement to evidence this obligation.

(c) Enurement: This Agreement enures to the benefit of and is binding upon the Parties and their respective heirs, successors, administrators and assigns.

(d) Governing Law: This Agreement and all matters arising hereunder are governed in all respects by and construed in accordance with the laws of Ontario and the laws of Canada applicable therein.

(e) Disputes: The Parties agree that, in the event of any concern, controversy, dispute, or claim (a "Dispute") arising in connection with the interpretation, performance or implementation of this Agreement, a concerned Party will provide written notice to the other of the Dispute. The Parties agree to use commercially reasonable efforts to settle the Dispute by consulting and negotiating with each other, in good faith and understanding of their mutual interests, to reach a just and equitable solution satisfactory to all Parties. In the event that a Dispute cannot be satisfactorily resolved by senior representatives of the Parties, the Project Director of NextBridge will confer in order to resolve the Dispute. However, if the Parties do not resolve the Dispute within thirty (30) days of the receipt of the written notice, then either Party may refer the Dispute to arbitration for settlement. Any such Disputes will be finally settled by arbitration in accordance with the provisions of the *Arbitration Act* (Ontario) based upon the following: (i) the arbitration tribunal will consist of one arbitrator appointed by mutual agreement of the Parties, or in the event of failure to agree within ten (10) business days, any Party may apply to a judge of the Superior Court of Ontario to appoint an arbitrator; (ii) the arbitrator will be qualified by education and training to pass upon the particular matter to be decided; (iii) the arbitration will take place in Toronto, Ontario; (iv) the arbitration award will be given in writing and will be final and binding on the Parties, not subject to appeal, and will deal with the question of costs of arbitration and all matters related thereto; and (v) judgment upon the award rendered may be entered in any Court having jurisdiction, or, application may be made to such Court for a judicial recognition of the award or an order of enforcement thereof, as the case may be.

(f) Waiver of Jury Trial: The Parties agree that, to the extent permitted by law, each of the Parties hereto hereby knowingly, voluntarily and intentionally waives the right either of them may have to a trial by jury in respect of any litigation based hereon, or arising out of, under, or in connection with, this Agreement. This provision is a material inducement for the Parties entering into this Agreement.

(g) Limit of Liability: The Parties agree that, notwithstanding anything contained in this Agreement, each Party's liability to any other Party in connection with this Agreement will be limited to direct damages and will exclude any other liability, including without

limitation, liability for special, indirect, punitive or consequential damages in contract, tort, warranty, equity, strict liability or otherwise.

(h) Compliance with Anti-Corruption Legislation: The Parties agree that any payments to be made to First Nation under this Agreement will be used only for the purposes set forth in this Agreement and in accordance with Canada's anti-corruption laws, the U.S.' *Foreign Corrupt Practices Act*, and all other applicable laws. The Parties agree that no payments will be made for the improper personal gain of any individual nor will any payments be made to any First Nation leader or official in order to influence any act or decision of such individual, induce such individual to use his influence with the First Nation or any First Nation leader or official, or otherwise secure any improper advantage. NextBridge reserves the right to terminate this Agreement if it determines that any payments made to First Nation are being used for purposes other than those set forth in this Agreement or in violation of any Canadian anti-corruption laws, the U.S.' *Foreign Corrupt Practices Act*, or any other applicable law.

(i) Non-Waiver: No provision of this Agreement may be deemed to be waived unless such waiver is in writing. Any waiver of any default committed by any of the Parties hereto is limited to such default and does not extend to any other default.

(j) Amendment: No amendment to the terms and conditions of this Agreement is valid and binding on the Parties unless made in writing and signed by an authorized representative of each of the Parties.

(k) Construction: Words importing the singular include the plural and vice versa, and words importing the use of any gender include the masculine, feminine and neutral genders.

(l) Notices: Any notices required or permitted to be given pursuant to this Agreement must be in writing and addressed to:

(i) in the case of NextBridge to:

NextBridge Infrastructure LP
Suite 1720, 390 Bay Street
Toronto, Ontario
Canada M5H 2Y2
Attn: Project Director

(ii) In the case of First Nation, to:

Missanabie Cree First Nation
174B Hwy 17B
Garden River, Ontario
Canada P6A 6Z1
Attn: Jason Gauthier, Chief

(m) Severability: If any provision of this Agreement is held to be invalid or unenforceable, that provision will be deemed severed from this Agreement and will not affect the validity of the remaining provisions or their enforceability by any court of competent jurisdiction.

(n) The First Nation's Signatory Authorized: First Nation represents and warrants its undersigned signatories are duly authorized to execute this Agreement and to legally bind First Nation. A copy of the Band Council Resolution authorizing the entering into of this Agreement is attached as Schedule "D".

(o) NextBridge's Signatory Authorized: NextBridge represents and warrants that the undersigned signatory are duly authorized to execute this Agreement and to legally bind NextBridge.

(p) Further Assurances: Each of the Parties hereto will, from time to time, execute all such further documents and instruments and do all acts and things as the other Party may reasonably require to give effect to the intent of this Agreement.

(q) Counterparts: This Agreement may be executed and delivered by facsimile or electronic transmission. This Agreement may be executed in one or more counterparts, each of which will be deemed an original and all such counterparts together will constitute one and the same document.

(r) No Agency or Third Party Beneficiaries: It is understood, acknowledged and agreed that nothing contained in this Agreement nor any acts of the Parties will constitute or be deemed to constitute the First Nation and NextBridge as partners, joint-venturers or principal and agent in any way or for any purpose. No provision of this Agreement is intended to confer any rights, benefits, remedies, obligations or liabilities hereunder upon any person other than the Parties and their respective successors and assigns

(s) Entire Agreement: This Agreement constitutes the entire agreement of the Parties with respect to the matters referred to herein.

(t) Time of Essence: Time is of the essence for this Agreement.

IN WITNESS WHEREOF THE PARTIES HAVE EXECUTED THIS AGREEMENT AS OF THE DATE FIRST WRITTEN ABOVE:

MISSANABIE CREE FIRST NATION

Name: JASON GAUTHIER
Title: CHIEF

NEXTBRIDGE INFRASTRUCTURE LP

By: Upper Canada Transmission, Inc., its General Partner

Name: Cindy Tindell
Title: Director

MICHAEL POWER
PROJECT DIRECTOR,

UNDERTAKING JT1.33

UNDERTAKING

TC TR 1, page 170

To explain why carrying charges were not included in the designation amount.

RESPONSE

Upper Canada Transmission, Inc. ("UCT" or "NextBridge") did not include interest during construction ("IDC") or AFUDC, i.e., carrying charges in the designation amount because in Section 5.8 of its Designation Application NextBridge proposed a cash return on CWIP, and not IDC or AFUDC.

At the time, NextBridge cited several reasons for this proposal, including that it was consistent with OEB policy. In addition, Board Staff Interrogatory No. 26, during the Designation proceeding to all applicants, set out a standardized template for the reporting of development and construction costs. This template required the reporting of costs, including IDC or AFUDC, if those costs were included in an Applicant's cost estimates. Since NextBridge did not include IDC or AFUDC in its January 4, 2013 application, IDC or AFUDC was not included in response to Board Staff Interrogatory No. 26 to all applicants in EB-2011-0140. In response to Board Staff Interrogatory No. 10 to UCT in EB-2011-0140, NextBridge elaborated on its proposal for a cash return on CWIP in lieu of IDC or AFUDC, and quantified the amounts for both a cash return on CWIP and IDC or AFUDC.

Further, NextBridge stated that it would be open to accrue IDC or AFUDC in lieu of receiving a cash return on CWIP, if that was preferable to the OEB. Therefore, while carrying charges were disclosed, they "were not included in the designation amount" in keeping with the proposed cash return on CWIP.

UNDERTAKING JT1.34

UNDERTAKING

TR 1, page 171

To provide the breakdown of three categories of the 4.7 million dollar figure provided in response to IR Staff 30.

RESPONSE

The three categories that make-up the annual OM&A charges forecast are:

		in CADs
Operations & Maintenance		1,272,147
Regulatory		205,000
Compliance, including administration		3,248,463
TOTAL		4,725,610

UNDERTAKING JT1.35

UNDERTAKING

TC TR 1, page 172

To provide copies of what NextBridge asked the IESO to say and their response in full.

RESPONSE

Attached to this response is the January 2018 exchange between NextBridge and IESO in relation to preparing a response to CCC Interrogatory #6, found at Exhibit I.B.NextBridge.CCC.6.

Tidmarsh, Jennifer

From: Tidmarsh, Jennifer
Sent: Wednesday, January 17, 2018 1:59 PM
To: Miriam Heinz
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Thanks Miriam! We'll incorporate and let you know if we have other questions.

Jennifer Tidmarsh
President, NextEra Energy Transmission - Canada
NextEra Energy Canada, LP
(o) 647-789-5661
(m) 416-895-6632

From: Miriam Heinz [mailto:Miriam.Heinz@ieso.ca]
Sent: Wednesday, January 17, 2018 1:57 PM
To: Tidmarsh, Jennifer
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Hi Jennifer! Attached please find the IESO's response to IR CCC 6.

Should there be any follow-up questions of us please don't hesitate to reach out.

Thanks!
Miriam

From: Tidmarsh, Jennifer [mailto:Jennifer.Tidmarsh@nexteraenergy.com]
Sent: January 15, 2018 11:19 AM
To: Miriam Heinz
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Thanks Miriam!

Jennifer Tidmarsh
President, NextEra Energy Transmission - Canada
NextEra Energy Canada, LP
(o) 647-789-5661
(m) 416-895-6632

From: Miriam Heinz [mailto:Miriam.Heinz@ieso.ca]
Sent: Monday, January 15, 2018 10:55 AM
To: Tidmarsh, Jennifer
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Good approach Jenn! I spoke with Megan this morning and she's likely going to have a response ready this afternoon. I'll send your request over to her as she continues to work on it!

Miriam

From: Tidmarsh, Jennifer [mailto:Jennifer.Tidmarsh@nexteraenergy.com]
Sent: January 15, 2018 10:33 AM
To: Miriam Heinz
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Hi Miriam,

Just a note as we're moving along in our IRs (is it Friday yet ?!), can you add the cite in your IR to where the HONI station work costs are included? Probably better coming from you than us. I'm betting you're already doing it, but I'm all about belt and suspenders over here.

Thanks!
Jen

Jennifer Tidmarsh
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From: Miriam Heinz [mailto:Miriam.Heinz@ieso.ca]
Sent: Wednesday, January 10, 2018 2:03 PM
To: Tidmarsh, Jennifer
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Hi Jennifer! I will forward that section to the planners to write the response and we'll send it back promptly. You will include/copy our response into your full response to IRR CCC 6, indicating as a preface to the question, that the IESO was consulted and indicated that…….

As an intervenor we will receive a copy of all IRRs.

Does that make sense to you?

Miriam

From: Tidmarsh, Jennifer [mailto:Jennifer.Tidmarsh@nexteraenergy.com]
Sent: January 10, 2018 1:50 PM
To: Miriam Heinz
Cc: Krista Hughes (Krista.Hughes@enbridge.com)
Subject: RE: EWT IRs for IESO?

Hi Miriam

Happy New Year to you too!

Thanks for checking in. The only IR I have found so far is CCC-6 from the Consumers Council (below).

I think we have the answer covered. It looks like they didn't know you did a Needs Assessment on December 1, 2017, so we have updated that information. We deferred to you in our answer to the highlighted section. Not sure how this works – would you submit your own response to the OEB/CCC?

CCC-6
Ex. B/T4/S1/Attachment 2
The IESO update report filed on December 15, 2015 indicated that the Project is projected to provide a net economic benefit of $1.1 billion compared to a local generation alternative under the reference assumptions used in the studies. Has the IESO done any subsequent studies related to the overall costs and benefits of the EWT Project? If so, please provide any further studies prepared by the IESO. Does the IESO intend to undertake any further analysis prior to the commencement of the EWT Project? Does the net economic benefit include all costs including the Hydro One Networks Inc.'s component of the project?

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From: Miriam Heinz [mailto:Miriam.Heinz@ieso.ca]
Sent: Wednesday, January 10, 2018 1:40 PM
To: Tidmarsh, Jennifer
Subject: EWT IRs for IESO?

Hello Jennifer! Happy New Year to you and Cam! I hope you enjoyed your holidays and are looking forward to 2018!

I'm checking in to find out whether there's a need for the IESO to assist with responses to any IRs that have come in on your Section 92 application. We are standing by! ☺

Thanks!
I look forward to seeing you via work or socially this year!

Miriam

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CCC-6
Ex. B/T4/S1/Attachment 2
The IESO update report filed on December 15, 2015 indicated that the Project is projected to provide a net economic benefit of $1.1 billion compared to a local generation alternative under the reference assumptions used in the studies. Has the IESO done any subsequent studies related to the overall costs and benefits of the EWT Project? If so, please provide any further studies prepared by the IESO. Does the IESO intend to undertake any further analysis prior to the commencement of the EWT Project? Does the net economic benefit include all costs including the Hydro One Networks Inc.'s component of the project?

The IESO will continue to perform its normal planning and monitoring functions for the Northwest but does not, at this time, intend to undertake any further analysis of the E-W Tie Project.

The IESO's 2015 and 2017 need update reports included all relevant costs in the net economic benefit calculation including the cost of Hydro One Network Inc.'s component of the E-W Tie Project. The cost of the stage one facilities was considered in all scenarios while the cost of the stage two facilities was included as required based on the capacity need in the study period for the relevant demand outlook.

The station costs have been updated since the 2015 update report. The current cost and staging of facilities is outlined in the IESO's evidence in Exhibit B, Tab 4, Schedule 1, Attachment 2.