K 3.2

EB-2016-0025

Enersource Hydro Mississauga Inc., Horizon Utilities Corporation, and PowerStream Inc.

Application for approval to amalgamate to form LDC Co. and for LDC Co. to purchase and amalgamate with Hydro One Brampton Networks Inc.

AMPCO Compendium

Panel 2

September 15, 2016

B-AMPCO-4

Reference(s): Exhibit B, Tab 6, Schedule 1

Preamble:

The evidence indicates the anticipated gross savings of LDC Co. are $354.6 million in operating costs and $167.6 million in capital costs.

a) Please provide a detailed breakdown and description of the gross operating savings by year.

b) Please provide a detailed breakdown and description of the gross capital savings by year.

c) Please provide the assumptions, analysis and calculations used to arrive at the projected annual savings amounts.

d) Please identify any specific factors that may affect the achievement of the expected efficiencies and the recovery of costs associated with the proposed transaction in the timelines projected.

e) Please explain how the forecast savings take into account the forecast productivity savings previously identified in the last rebasing or Custom IR applications of the four LDCs pre-merger.

f) Please provide the total gross payroll reduction savings over the ten year period 2016 to 2025.

g) Please provide the total employee reductions by year for the years 2016 to 2025.

Response:

a) Please see the Applicants' response to Interrogatory B-Staff-7a).

b) Please see Table 1 below for a detailed breakdown of the gross capital savings by year.

Table 1 - Detailed Breakdown of Gross Capital Savings by Year ($MM)

Capital Synergies	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	Total
Integration of Asset Management systems	1.4	1.2	0.3	0.2							3.1
Integration of IT systems	17.8	13.8	20.8	15.1	22.0						89.5
Supply Chain discounts and rationalization	0.5	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	29.3
Other Operations economies of scale	3.3	4.4	4.5	4.7	4.8	4.8	4.8	4.8	4.8	4.8	45.7
TOTAL	**23.0**	**22.6**	**28.8**	**23.2**	**30.0**	**8.0**	**8.0**	**8.0**	**8.0**	**8.0**	**167.6**

c) The Applicants have used 2015 Budget numbers as the base for calculating operating and capital synergies.

The following assumptions apply to operating savings categories as identified in section a) above:

- Consolidation of core enterprise applications during years one, two and three post consolidation; to include: i) legacy Customer Information Systems will be migrated to a single consolidated Oracle Customer Care and Billing ("CC&B") system; ii) legacy Enterprise Resource Planning ("ERP") systems will be migrated to a single consolidated system; and iii) legacy Geographic Information Systems ("GIS") and Outage Management Systems ("OMS") will be consolidated to a single system;

- Consolidation of four existing Call Centres to two, and four existing Control Rooms to two;

- Utilization of six existing service centres for Construction and Maintenance, Trouble Response, Logistics, Fleet Services and Metering; and

- The Parties will leverage best practices in Asset Management; to include: i) evaluation of long term capital plans; ii) maintenance practices; iii) design standards; and iv) operating standards.

The following assumptions apply to capital savings categories as identified in section b) above:

Integration of Asset Management systems

- Consolidation of GIS and OMS of the legacy companies is expected to migrate into one common Intergraph GIS and OMS environment;

- All legacy GIS-OMS systems are expected to be migrated to a single consolidated Intergraph GIS-OMS system by the end of Year 3; and

- All legacy SCADA systems are expected to be migrated to a single consolidated SCADA system by mid of Year 2.

Integration of IT systems

- The new company will be standardized on a single set of common best-practices business processes;

- Consolidation of Customer Information Systems of all legacy companies is expected to migrate to one common Oracle CC&B system, by the end of year three, to facilitate integration of Customer Service business functions and improve service to customers;

- Consolidation of the ERP system of all legacy companies into the JD Edwards system environment is expected by the end of year two, to facilitate the integration business operations; and

- To consolidate enterprise cyber security practices and technologies into a single common set of processes and systems that provides the protection of information and the entire information technology architecture to support all business and regulatory requirements of the new company.

Supply Chain discounts and rationalization

- Synergies created through contract consolidations, standardization of materials and purchasing volume discounts realized by economies of scales; and

- Rationalization of fleet investments through applying best practices.

Other Operations economies of scale

- Better aligned contractor management strategies will lead to a reduction in contractor costs in the new organization.

d) Please see the Applicants response to Interrogatory B-Staff–9d).

e) As mentioned in c) above, the Applicants used the combined 2015 Budget numbers from each utility as the base for the calculating transition costs and savings. The 2015 Budget figures incorporated productivity savings that were previously identified in the last rebasing or Custom IR applications of each of the LDCs before the merger.

f) As indicated in Figure 28 on page 2 of Exhibit B, Tab 6, Schedule 2, the total gross payroll reduction savings over the ten year period 2016 to 2025 is $306.9MM.

g) Please see the Applicants' response to Interrogatory B-AMPCO-6c).

F-CCC-32

REF: Ex. F/T1/p. 10

The evidence states that PowerStream has a significant pole replacement program due to the quantity of wood poles in service. Please provide the annual historical costs of this program (2012-2014 and 2015 budget). With the introduction of pole reinforcements, how will the costs of this program change during the term of the plan?

RESPONSE:

As detailed in the consolidated DS Plan, Appendix A, Project Investment Summaries, Project Code 100867, the annual historical costs are shown below:

	Historical			Proposed
System Renewal	**2012**	**2013**	**2014**	**2015**
Overhead Lines - Planned Asset Replacement	**($)**	**($)**	**($)**	**($)**
Pole Replacement Program	4,111,507	5,045,992	4,872,277	4,645,383

It is estimated that PowerStream will use the pole reinforcement method at 30 pole locations per year. For each pole reinforcement location, it is estimated that the cost saving is $7,000-$9,500 for a typical pole (pole reinforcement cost vs. pole replacement cost). The potential cost savings for 30 poles is estimated to be $285,000 per year. This cost saving has been reflected in the pole remediation program from 2015 to 2020.

G-VECC-19

REF: G-2-1 Consolidated DSP (pdf pg. 450-)

The entire justification for $4.6 million in renovations to the Barrie building appears to be to create corporate uniformity in office space. The building is noted as being 20 years old.

a) How many staff are housed in this building?
b) When was the building last renovated?
c) It is noted that there is potential for leasing extra space in this building. Please explain what amount of space and expected revenue might be expected.

RESPONSE:

a) The Barrie building accommodates 107 employees.

b) This is the first renovation for this building since it was built in 1989/1990 excluding minor changes to accommodate business needs.

c) PowerStream will have available 7,000 square feet for potential lease. It is believed that the space may lease for $8.00 - $10.00/sqf.

B-AMPCO-15

Reference(s): Exhibit B, Tab 6, Schedule 5, Page 1

Preamble:

At reference 1, the evidence states "The financial plan has been modelled on the basis that the ongoing sustainment and growth requirements of the electricity distribution system are provided for in a manner consistent with the long-term forecasts of the entities comprising LDC Co. Each entity has long-term capital plans based on detailed asset condition assessments, growth estimates, and sound engineering principles

a) Please complete the following Table regarding the current condition assessment of system assets:

LDC	Total # of Assets	% of Assets At or Beyond Typical Useful Life	% of Assets in Poor or Very Poor Condition	% of Assets in Fair Condition
Enersource				
Horizon				
PowerStream				
HOBNI				

Response:

a) The most recent summaries of the Asset Condition Assessments ("ACA") for Enersource, Horizon Utilities, Powerstream, and HOBNI are provided in the tables below.

Enersource

Enersource's ACA is based on the Kinectrics Inc. methodology where the assets are categorized and the Health Index is calculated for the assets within each group. An asset's Health Index is given as a percentage, with 100% representing "as new" condition. The Health Index results are categorized as follows:

Very Poor	Health Index < 25%
Poor	25% ≤ Health Index <50%
Fair	50% ≤ Health Index < 70%
Good	70% ≤ Health Index < 85%

Very Good Health Index ≥ 85%

Enersource's ACA does not determine the percentage of assets at or beyond typical useful life.

Table 1 below provides the asset information from Enersource's ACA dated June, 2016.

Table 1 – Enersource Asset Condition Assessment

Enersource				
Asset	Total # of Assets	% of Assets At or Beyond Typical Useful Life	% of Assets In Poor or Very Poor Condition	% of Assets In Fair Condition
Sustation Transformers - In Service	108	n/a	4%	8%
Sustation Transformers - Spares	12	n/a	8%	0%
Substation Circuit Breakers - All	432	n/a	0%	5%
Substation Circuit Breakers - High Voltage	56	n/a	0%	0%
Substation Circuit Breakers - Low Voltage	376	n/a	0%	6%
Transformers - Pole Mounted	5,353	n/a	3%	5%
Tansformers - Single Phase Pad Mounted	14,261	n/a	6%	5%
Tansformers - Three Phase Pad Mounted	1,860	n/a	4%	2%
Transformers - Vault	3,854	n/a	11%	6%
Pad Mounted Switchgear	834	n/a	7%	3%
Overhead Switches - 44 kV	337	n/a	2%	5%
Overhead Switches - 27.6 kV	206	n/a	0%	7%
Overhead Switches - Inline	2,000	n/a	4%	10%
Overhead Switches - Motorized	110	n/a	2%	9%
Underground Cable - Main Feeder Primary	2,238 (km)	n/a	12%	6%
Underground Cable - Distribution Primary	4,076 (km)	n/a	21%	10%
Poles - Wood	12,436	n/a	16%	26%
Poles - Concrete	9,488	n/a	3%	11%

Horizon Utilities

Horizon Utilities' ACA was also performed by Kinectrics Inc. using Kinectrics' methodology. Horizon Utilities' ACA does not determine the percentage of assets at or beyond typical useful life. Horizon Utilities utilizes the same Heath Index distribution as Enersource.

Table 2 below provides the asset information from Horizon Utilities' ACA dated November 27, 2013.

Table 2 – Horizon Utilities Asset Condition Assessment

Horizon				
Asset	Total # of Assets	% of Assets At or Beyond Typical Useful Life	% of Assets in Poor or Very Poor Condition	% of Assets in Fair Condition
Substation Transformers	70	n/a	0%	10%
Substation Circuit Breakers	279	n/a	23%	16%
Substation Switchgear	37	n/a	32%	49%
Pole Mounted Transformers	12,886	n/a	6%	4%
Overhead Conductors - Primary	3386 (km)	n/a	5%	1%
Overhead Conductors - Secondary	2196 (km)	n/a	9%	3%
Overhead Conductors - Service	1901 (km)	n/a	11%	4%
Overhead Line Switches	712	n/a	20%	10%
Wood Poles	42,037	n/a	11%	7%
Concrete Poles	9,761	n/a	5%	2%
Underground Cables - XLPE Primary	2060 (km)	n/a	29%	18%
Underground Cables - PILC Primary	1532 (km)	n/a	1%	2%
Underground Cables - Direct Buried Secondary	757 (km)	n/a	42%	22%
Underground Cables - In Duct Secondary	533 (km)	n/a	42%	18%
Underground Cables - Direct Buried Service	447 (km)	n/a	63%	21%
Underground Cables - In Duct Service	588 (km)	n/a	4%	18%
Pad Mounted Transformers	5,906	n/a	0%	0%
Pad Mounted Switchgear	186	n/a	1%	3%
Vault Transformers	4,169	n/a	49%	40%
Utility Chambers	2,075	n/a	1%	2%
Vaults	3,413	n/a	0%	0%
Submersible LBD Switches	117	n/a	46%	23%

PowerStream

PowerStream uses the ACA methodology developed by Kinectrics Inc. On an on-going basis, PowerStream continues to fine-tune the ACA models and updates the parameters to reflect PowerStream's current asset information. The Health Index results are categorized as follows:

Very Poor	Health Index < 30%
Poor	30% ≤ Health Index <50%
Fair	50% ≤ Health Index < 70%
Good	70% ≤ Health Index < 85%
Very Good	Health Index ≥ 85%

PowerStream does calculate the percentage of assets at or beyond typical useful life. This calculation is based on the asset age compared to the Useful Life as indicated in the Asset Amortization Study conducted by Kinectrics Inc. for the OEB.

Table 3 below provides the asset information from PowerStream's ACA dated December 31, 2014.

Table 3 – PowerStream ACA Asset Information

PowerStream				
Asset	Total # of Assets	% of Assets At or Beyond Typical Useful Life	% of Assets in Poor or Very Poor Condition	% of Assets in Fair Condition
Transformer Station Power Transformers	24	0%	0%	0%
Municipal Station Power Transformers	72	25%	0%	1%
Transformer and Municipal Station Circuit Breakers	398	10%	13%	1%
Transformer Station 230 kV Primary Switches	22	0%	0%	0%
Municipal Station Primary Switches	58	1%	0%	0%
Transformer Station Capacitor Banks	9	0%	0%	0%
Transformer Station Reactors	34	0%	0%	0%
TS Station Service Transformers	20	0%	0%	0%
TS 230 kV Primary Metering Units	30	0%	0%	0%
TS P&C Relays - Electromechanical	35	11%	23%	17%
TS P&C Relays - Solid State	45	20%	9%	38%
TS P&C Relays - Microprocessor	115	2%	0%	8%
Underground Cable	8,220 (km)	33%	29%	13%
Distribution Transformers	44,112	2%	14%	20%
Switchgear	1,821	10%	10%	6%
Mini-Rupter Switches	433	17%	9%	28%
Automated Switches	360	2%	4%	5%
Wood Poles	38,070	9%	3%	19%

HOBNI

HOBNI's ACA was also performed by Kinectrics Inc. using Kinectrics' methodology. HOBNI's ACA does not determine the % of assets at or beyond typical useful life. HOBNI utilizes the same Heath Index distribution as Enersource.

Table 4 below provides the asset information from Hydro One Brampton ACA dated May 31, 2013.

Table 4 – HOBNI Asset Condition Assessment

HOBNI				
Asset	Total # of Assets	% of Assets At or Beyond Typical Useful Life	% of Assets in Poor or Very Poor Condition	% of Assets in Fair Condition
Substation Transformers	20	n/a	25%	5%
Substation Breakers - Air	7	n/a	86%	0%
Substation Breakers - SF6	19	n/a	0%	0%
Substation Breakers - Vacuum	47	n/a	0%	4%
Transformer - Single Phase Pole Mount	1,582	n/a	10%	6%
Transformer - Mini-Pad	12,431	n/a	1%	4%
Transformer - 3 Phase Pad Mounted	825	n/a	0%	1%
Transformer - Vault	1,413	n/a	6%	3%
Switches - Load Break	140	n/a	0%	0%
Pad Mount Switchgear	292	n/a	7%	0%
Wood Poles - Less than 55 feet	5,716	n/a	9%	32%
Wood Poles - Greater than 55 feet	3,851	n/a	1%	11%
Underground Feeder Cable - Primary XLPE	711 (km)	n/a	23%	2%
Underground Distribution Cable - Primary XLPE	2,411 (km)	n/a	27%	3%
SCADA Batteries	157	n/a	10%	6%

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to replace assets in groups. The results were also examined in light of execution feasibility by THESL. Based upon these analyses, the recommend unit replacement forecast is listed in Table 5.

Table 5 Recommended unit replacement forecast

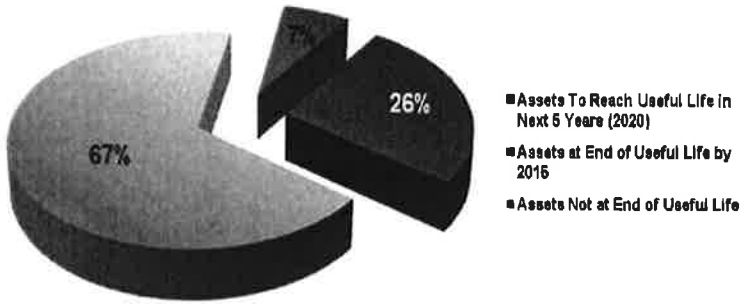
Asset Classes	Units in each year										
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Station Transformers	6	6	6	7	7	7	7	6	5	5	61
Circuit Breakers	23	22	23	25	25	25	25	23	21	21	232
Switchgear Assemblies	4	4	4	4	4	4	4	4	4	4	40
Buildings	0	0	0	0	0	0	0	0	0	0	0
Network trans/protectors	55	59	64	69	69	69	69	64	58	58	634
Submersible Transformers	327	597	635	688	688	688	688	635	587	587	6118
Vault Transformers	33	25	26	29	29	29	29	26	24	24	273
Pole Mounted Transformers	452	341	363	393	393	393	393	363	335	335	3761
Pad Mounted Transformers	109	172	180	193	193	193	193	180	169	169	1750
Wood Poles	1431	1080	1149	1243	1243	1243	1243	1149	1061	1061	11902
Overhead Switches - Remote Operated	50	50	50	50	50	50	50	50	50	50	500
Pad Mounted Switchgear	30	56	59	64	64	64	64	59	55	55	571
Automatic Transfer Switches	5	5	5	5	5	5	5	5	5	5	50
Underground Cable In Duct (conductor km)	77	50	53	58	58	58	58	53	49	49	561
Underground Cable Direct Buried (conductor km)	124	230	245	266	266	266	266	245	226	226	2361
Network Vaults	10	10	10	10	10	10	10	10	10	10	100
Cable Chambers	30	30	30	30	30	30	30	30	30	30	300
TOTAL	2766	2736	2902	3132	3132	3132	3132	2902	2690	2690	29214

3.5 Sustaining Capital Requirements

Table 5 was further simplified by grouping assets that work together as part of the distribution system and then estimates generated for the unit replacements of assets in each group. THESL forecasts that it will need to make sustaining capital investments of approximately $1.2 billion over the next ten years to maintain asset condition. Nearly

including a secondary network system, is unique in its span and configuration in Ontario's distribution sector.

Toronto Hydro's distribution system includes a large and growing backlog of assets that are operating beyond their expected useful lives – an estimated 26% by 2015. If the utility were to invest in a minimal and reactive way (i.e., run-to-failure), this number is forecast to reach 32% by 2020 and reliability would likely deteriorate.[3] Toronto Hydro's system also faces pressures from economic (system load) growth and capacity constraints. This results in part from large-scale projects in Toronto such as transit projects, and increased proliferation of distributed generation. Changes in climate and extreme weather also put additional strain on the distribution system.



In addition, approximately 50% of Toronto Hydro's workforce is projected to retire over the next decade, and 25% during the next five years. Of that 25%,

[3] Toronto Hydro projects that a run-to-failure approach would result in SAIFI (System Average Interruption Frequency Index) worsening by approximately 30% and SAIDI (System Average Interruption Duration Index) worsening by approximately 24% from 2015-2019.

Table 23. Asset Health Index Summary

Asset Category		Population	Average Health Index	Health Index Distribution					Average Age
				Very Poor (< 25%)	Poor (25 - <50%)	Fair (50 - <70%)	Good (70 - <85%)	Very Good (>= 85%)	
Substation Transformers	In Service	108	82%	< 1%	2%	14%	36%	47%	22
	Spares	12	80%	8%	0%	17%	8%	67%	33
Circuit Breakers		510	94%	2%	< 1%	2%	4%	93%	20
Pole Mounted Transformers		5346	92%	2%	< 1%	6%	11%	80%	21
Pad Mounted Transformers	1 Phase	14242	87%	< 1%	4%	7%	29%	59%	21
	3 Phase	1821	94%	< 1%	2%	4%	9%	84%	16
Vault Transformers		3861	87%	2%	7%	7%	13%	71%	27
Pad Mounted Switchgear		862	84%	6%	3%	7%	19%	65%	19
Overhead Switches	44 kV	338	95%	0%	5%	< 1%	6%	88%	20
	27.6 kV	213	97%	0%	1%	3%	2%	93%	18
	Inline	2002	93%	1%	3%	4%	5%	86%	18
	Motorized	104	85%	8%	7%	2%	6%	78%	16
Underground Cables *Note that results are given in terms of conductor-km	Main Feeder	2233	78%	12%	9%	0%	7%	73%	18
	Distribution	4038	70%	21%	13%	0%	6%	60%	21
Poles	Wood	12917	79%	9%	9%	7%	15%	60%	27
	Concrete	8966	97%	0%	< 1%	1%	4%	95%	20

Table 24. Asset Management Strategy

Type	Analysis	Strategy	Frequency
Substation	Switchgear Inspections	Preventative	1 Year
	Breaker & Recloser	Preventative	4-6 Years
	Station Switches	Preventative	1 Year
	SCADA Inspections	Preventative/Predictive	1 Year
	Relay	Preventative	4-6 Years
	Station Inspections	Predictive/Corrective	1 Month
	Battery Maintenance	Predictive	1 Year
	Transformer Maintenance	Preventative	3-5 Years
	Transformer Doble Test	Predictive	3-5 Years
	Transformer Oil Analysis	Predictive	1 Year
	Transformer Tapchanger Maintenance	Preventative/Predictive	3-5 Years
	Padmounted Switchgear IR and Visual Inspection	Predictive/Corrective	5 Years
Distribution	Switchgear Dry Ice Cleaning	Preventative	3-5 Years
	All Transformers Visual Inspection	Predictive/Corrective	3 Years
	Graffiti Abatement	Corrective	1 Year
	Vault Dry Ice Cleaning	Preventative	5 Years
	Vegetation Management	Preventative/Corrective	3 Years
	O/H Visual & Pole Inspection	Predictive/Corrective	3 Years
	Critical Switch Operation	Preventative	1 Year
	O/H Insulator Washing	Preventative	2 Years
	O/H IR Inspection	Predictive	1 Year

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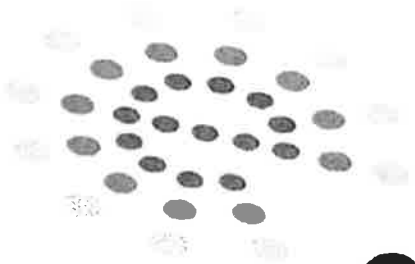


enersource

Enersource Hydro Mississauga Inc.

Distribution System Plan

2015

Description	2016	2017	2018	2019	2020	2021
Underground Distribution Renewal and Sustainment	3,750	4,500	4,500	4,500	4,500	4,500
Emergency Replacement Program	320	320	320	320	320	320
Total	**34,735**	**37,243**	**38,240**	**40,280**	**38,570**	**38,490**

System Renewal investments are driven by long term plans to replace assets that are near or at the end of their useful lives. The Asset Management Planning Process is the main driver for determining proposed projects and expenditures within the System Renewal category. System Renewal strategies are prioritized based on condition of assets, age, as well as the impact on system reliability. In particular, the Kinectrics' Asset Condition Assessment (ACA) and replacement recommendations were used as the basis for determining the investment requirements for System Renewal. The level of spending within System Renewal is driven by the assessment of project criticality, asset condition, reliability, and safety.

Asset Condition Assessment Investment Requirements

Table 37 below illustrates the forecasted number of assets flagged for replacement. This forecast and the asset health index distribution were the key outputs of the ACA process carried out by Kinectrics. The timing of replacements, as identified by Kinectrics, represents the optimum timing for asset renewal. As such, the year one values are substantially higher than subsequent years due to the high percentage of Enersource's distribution system with a health index of either 'very poor' or 'poor' and recommended for immediate replacement.

Table 37. Condition-based replacement schedule by asset category

Years from Now	Asset Category															
	Substation Transformers		Circuit Breakers	Pole Mounted Transformers	Pad Mounted Transformers		Vault Transformers	Pad Mounted Switchgear	Overhead Switches				Underground Cables *Note that results are given in terms of conductor km		Poles	
	In Service	Spares			1 Phase	3 Phase			44 kV	27.6 kV	Inline	Motorized	Main Feeder	Distribution	Wood	Concrete
0	3	N/A	10	58	177	6	89	31	1	0	32	5	254	799	1021	3
1	0	N/A	0	49	161	7	67	16	2	0	29	3	91	259	709	5
2	0	N/A	0	40	148	7	62	11	2	0	26	3	59	159	499	5
3	0	N/A	0	35	139	7	58	9	2	0	26	2	51	126	372	8
4	1	N/A	0	33	126	7	55	6	2	0	29	2	46	101	297	10
5	0	N/A	0	34	124	8	53	8	1	1	27	3	41	82	256	13
6	1	N/A	0	36	126	8	50	7	1	0	28	1	37	70	235	15
7	1	N/A	0	39	136	6	46	6	2	2	27	2	34	62	234	14
8	0	N/A	0	40	141	6	43	10	1	0	26	1	33	59	238	19
9	0	N/A	0	42	151	9	40	12	3	2	26	2	32	58	240	24

Undertaking No. JTC1.16

Reference: Page 156 of Transcripts Volume 1

Provide the asset replacement rate as a percentage for each individual LDC for the years 2010 to 2015 and forecast for 2016; and the forecast asset replacement rate for LDC Co. for the 10-year period and show the calculation.

Response:

The asset replacement rate as a percentage of total assets for each of Enersource, Horizon Utilities, Hydro One Brampton ("HOBNI") and PowerStream is not available. The asset replacement rate has not been computed on a historical (2010-2015) or forecast basis (2016) for any of the individual LDCs. The forecast asset replacement rate for the ten year period from 2017-2026 has not been determined, as yet.

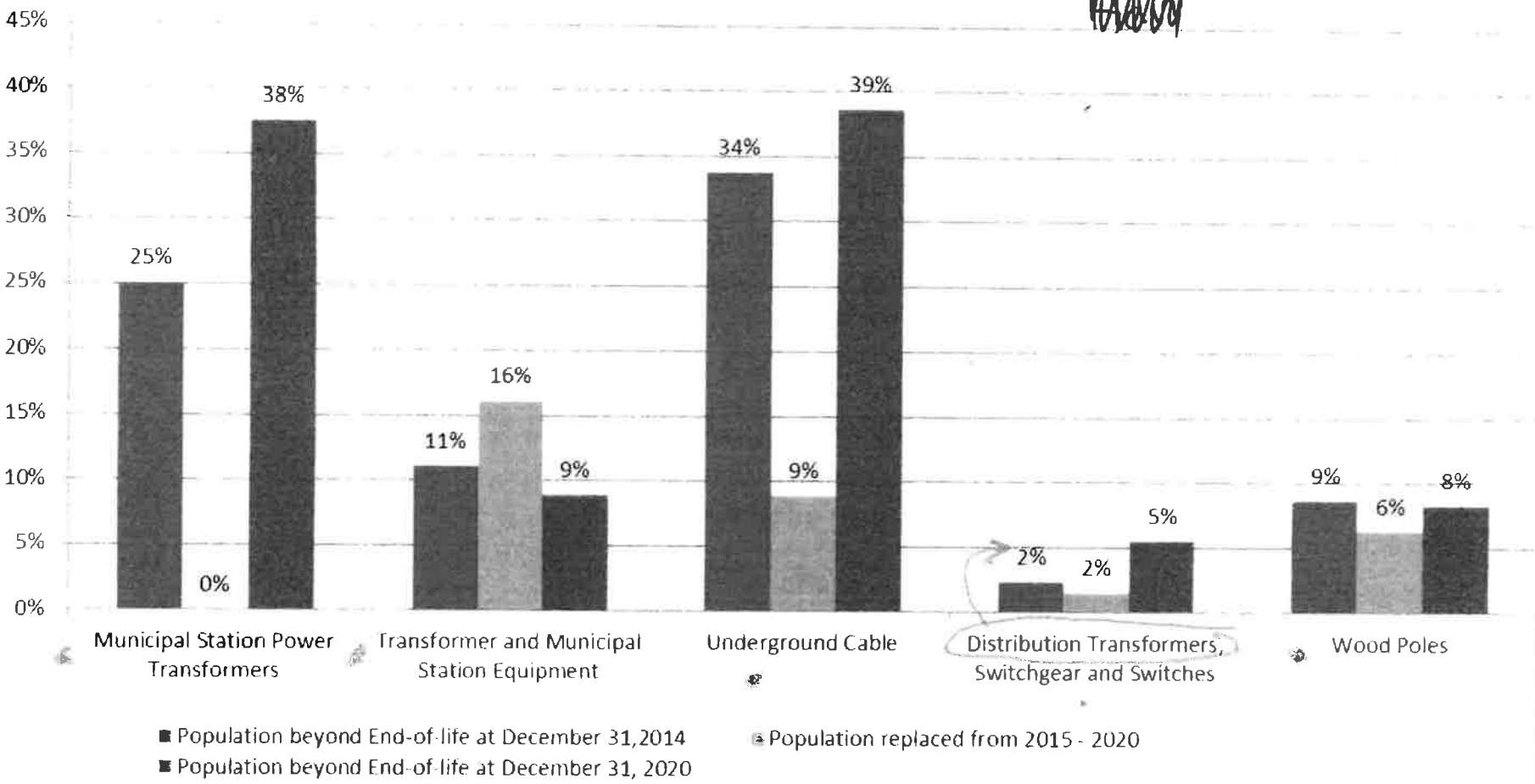
As stated in the Applicant's response to Interrogatory B-SEC-17, the Applicants have not prepared a Distribution System Plan ("DSP") for LDC Co, as yet. The Applicants expect to file a DSP for all four rate zones no later than 2019, at which time information on asset replacement for LDC Co will be available.

Individual DSPs have been filed in response to Undertaking JTC1.6. The DSPs for Horizon Utilities and HOBNI are for a five-year term expiring in 2019. The DSPs for Enersource (draft) and PowerStream expire in 2020.

The Applicants expect to continue with the level of capital investment for the distribution system, as identified in each LDC's DSP. In each of the service areas (or rate zones), the electricity distribution system will need to be expanded and refurbished (Exhibit B, Tab 6, Schedule 1, page 1). As identified in the response to Interrogatory B-Staff-8, the Applicants anticipate capital savings to be generated from business areas that do not impact the reliability of the distribution system such as Information Technology and Procurement.

Additionally, Horizon Utilities, in its settlement agreement for its Custom IR (EB-2014-0002), is required to, at a minimum, invest at the same level of capital investment approved in its DSP. It is the Applicants' intention to continue to be compliant with the Settlement Agreement, subject to changes in OEB policy as identified in its response to Interrogatory B-CCC-15.

Comparison of Population: Beyond End-of-Life (2014); Future Projected End-of-life (2020); and Replaced for 2015-2020



Power Stream
YOUR CURRENT CONNECTION

Overview
July 28, 2015

6-G	Managing Interest Rate Risk	CIBC Presentation	Disclosed publicly
6-H	LDC Tax Status	Tax "primer"	Disclosed publicly
9-A	Golder & Associates Environmental Due Diligence Report		**DISCLOSED IN CONFIDENCE** The report identifies sites within the four consolidating utilities' service areas in which potential environmental issues exist. Its disclosure may reasonably be expected to result in undue loss or gain to owners of those properties. The Applicants do not have the consent of property owners to release that information. Confidential treatment of this information is contemplated by section 17(1)(c) of FIPPA and section 10(1)(c) of MFIPPA.
9-B	Vanry and Associates Report – Distribution Assets Due Diligence Review		Disclosed publicly

Please note that the fact that certain of the Appendices are being filed should not be taken as an acknowledgement by the Applicants that they are within the scope of this proceeding. When the Business Plan was filed in July as an attachment to the Applicants' response to Interrogatory B-Staff-1, portions of the Plan were redacted on the basis that they were out of scope, and the reasons varied depending on the portion of the Business Plan being considered. Those reasons will not be repeated here. However, the same reasoning applies to these Appendices. Specifically:

- Appendix 6-B is out of scope because it contains a discussion of relative valuations that remain the subject of ongoing negotiation;
- Appendix 6-C is out of scope because it involves a discussion of an aspect of the potential Limited Partnership structure for LDC Co, and that structure is not being pursued in this Application. It is also a draft of a document that has been superseded by another document that has already been filed in confidence in this proceeding;
- Appendices 9-A and 9-B are out of scope because they pertain to due diligence, and the OEB has clearly indicated that matters related to the extent of due diligence are beyond the scope of a MAADs proceeding.

Yours very truly,

BORDEN LADNER GERVAIS LLP
Per:

Original signed by James C. Sidlofsky

James C. Sidlofsky
Encls.

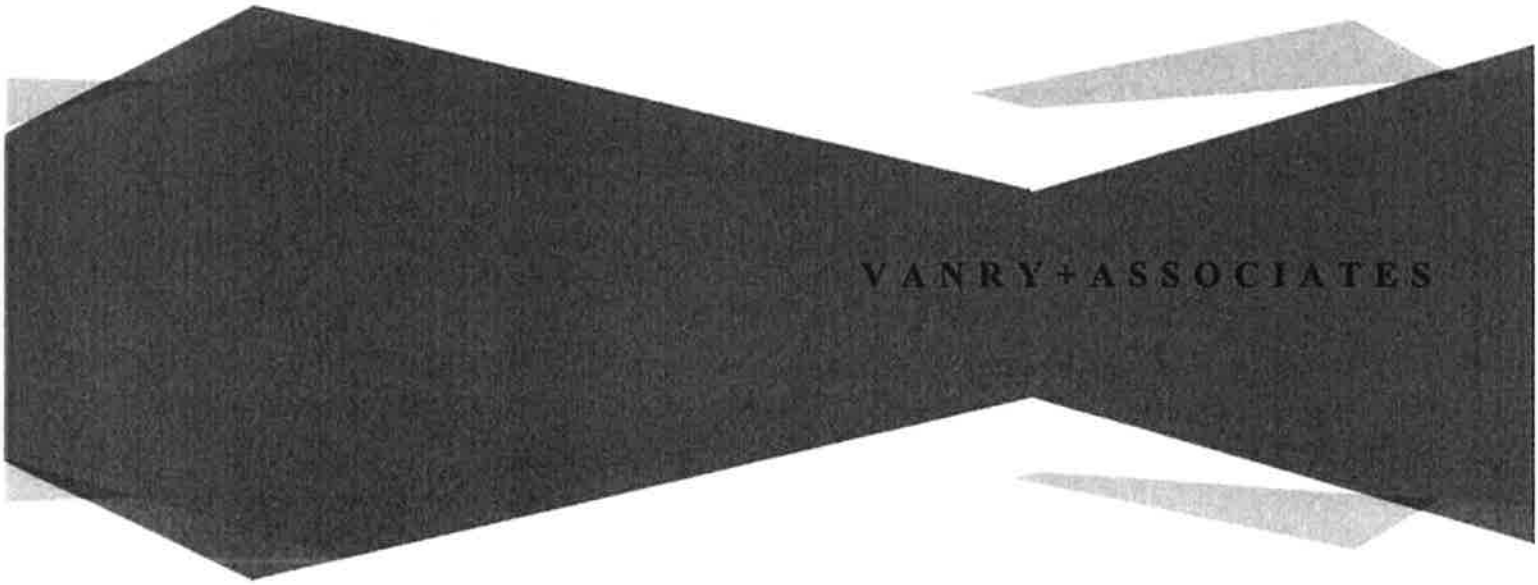
high performance executive counsel

PROJECT TITAN

DISTRIBUTION ASSETS DUE DILIGENCE REVIEW

Report prepared for:

Jim Harbell, Stikeman Elliott
Mark Rodger, Borden Ladner Gervais
Robert Hull, Gowling Lafleur Henderson



EXECUTIVE SUMMARY

Vanry + Associates, Inc. (VAI) was engaged through Horizon Utilities, on behalf of counsel, to undertake an independent, third-party review in support of the due diligence process related to the potential merger of four Local Distribution Companies (LDCs). The four LDCs are: Enersource Hydro Mississauga (EHM), Horizon Utilities Corporation (Horizon), PowerStream Inc. (PS), and Hydro One Brampton Networks Inc. (HOBNI). The scope of the review was to evaluate the respective Asset Condition Assessment (ACA) methodologies and resulting capital investment planning processes, as well as to assess the overall asset health and subsequent 20-year investment for each of the four LDCs.

The review was conducted under a compressed time frame. VAI's proposal was accepted on May 8, 2015. The Non-disclosure agreement (NDA) necessary to enable VAI to have access to the LDCs' documentation to conduct the work was provided to VAI on May 13, 2015 and executed by both parties that same day. Horizon, on behalf of the LDCs, began uploading copies of the respective ACA reports as well as the distribution system plans (DSP) containing the capital investment plans to VAI's document storage on May 14, 2015. The final ACA was uploaded to the site on May 19, 2015.

VAI conducted in person interviews at each of the LDCs May 19, 2015 through May 21, 2015. During these interviews additional supporting documents were provided. The initial draft report was delivered May 22, 2015 for review by counsel.

The ACA practices at Horizon, HOBNI, and Enersource are generally well aligned. The approach at PowerStream is somewhat different, but consistent in the sense that it is a more advanced version of the same concept in use at the other three. There is no reason to believe that a merger would result in any major philosophical change of any of the ongoing renewal approaches. It is possible that applying the economic life methodology used at PowerStream to the assets at the other three utilities (and to PowerStream's cable program) would result in somewhat lower renewal spending, although this is hard to predict with certainty.

All four utilities are aligned in terms of pursuing minimum life-cycle cost as the basis for renewal spending. All are committed to a customer-focused business case approach to making spending decisions. This is important because it means that changes that come about from a possible merger of the asset management practices will tend to be improvement opportunities at the margin due to minor variations in expertise. The asset classes considered, the approach to condition assessment and failure projection, and the resulting capital spending recommendations are generally compatible.

There is a range of variation among the methodologies used by the four LDCs. In most cases the variation is due to differences in their stages of evolution in a particular area. One result of the variation is that there are a number of complementary strengths among the four LDCs. Where more than one LDC is using best practice methodologies or approaches, they are generally consistent though not necessarily the same.

In our review, we did not identify any aspects of an individual LDC's approach, or anything in the potential combination of LDC's that we would expect to result in dramatic changes in overall spending levels in a combined LDC. We do believe that certain approaches among the LDCs are sufficiently different that combining the four could lead to the potential for reductions in overall spending. We also see a distinct possibility that a merged LDC, adopting a common set of leading practices, could lead to the overall capital investment program being redistributed among the respective systems in proportions that are different than the current allocations. This is due in part from different assessments of criticality and in part in recognition of the current variations in system performance and failure rates among the four LDCs. In short a merged entity would expect to see funding flowing to the areas of greatest value, or greatest risk potential. We observed from the reports that the range of need among the systems varies sufficiently that spending might flow to the portions of the combined system with the greatest need.

The Asset Management philosophies among the four are consistent and generally well aligned. The skills and capabilities that we observed also appear to be complementary. Given that several of the AM organizations appear to be resource constrained, there is the potential for a combined LDC to be able to produce significantly better AM results through a combination of talent that has sufficient resources to address a broader scope of AM activities.

Each of the four LDCs has processes in place to address Renewal, Access and Service investments. The processes in use by the LDCs to assess and validate Access and Service investments are generally consistent, with minor variations. Each of the LDCs appears to have applied a sound set of standards and criteria to evaluating the Access and Service investments, including them in their optimization/prioritization processes. These investments are largely non-discretionary with limited latitude in timing. Given the levels of rigour and consistency within each of the LDCs with regard to these investments, we focused the majority of our findings and conclusions on those areas where differences exist and where insights may be gained for a merged entity.

The capital renewal spending plans at all four utilities are increasing based in part on the application of their ACA processes. This is consistent with industry experience: implementation of asset management helps utilities identify and justify the need for increased spending to renew aging infrastructure. All four utilities have applied sound judgment and methodologies to develop achievable plans to meet this need.

OBSERVATIONS AND ASSESSMENTS

In preparing our findings we adopted a format that we believe will enable a ready comparison between the four LDCs. While each of them demonstrates areas of strength, there are opportunities for each of the four to learn from and support the others.

Three of the four companies use the same external consultant for either conducting or auditing their ACAs. PowerStream had previously used the same consultant but has since moved the work in-house and has engaged with other consultants to provide input into its ACA process. References to the external consultant in the paragraphs below are to the consultant used by Enersource, Horizon and HOBNI.

PowerStream

The VAI consultant (Stewart Ramsay) met in person with PowerStream on May 19 to review the ACA and DSP materials that PowerStream provided and to address specific questions VAI had regarding the ACA process, methodology and its use in developing the capital investment plans. We noted that PowerStream transitioned away from external consultants to prepare the ACA. It currently prepares the ACA internally using its own staff, though it may rely on external expertise in support of components of the ACA.

For PowerStream, the meeting was attended by:

- Irv Klajman, Director, Asset Investment Planning
- Riaz Shaikh, Manager, System Planning
- Phil Dubeski, Manager, Asset Planning and Agreements
- Shelly Cunningham, SVP, Engineering Services

The meeting was productive and provided VAI with greater clarity around the process, the data elements used, the respective roles of different parts of the PowerStream organization in the development of the ACA, and most importantly an understanding of how the ACA results are used in the identification and development of capital investments.

Our observations and assessments are summarized, by topic, in the following paragraphs.

POWERSTREAM ACA ASSET CATEGORIES
Transformers • Distribution • TS • MS
Circuit Breaker
Distribution Switchgear
Switches • Mini-Rupter • Automated • 230 kV • MS Primary
Station • Capacitor • Reactor
Wood Poles
Underground Primary Cable
New Stations ACA programs have been added for • Station Service Transformer • 230kV Primary Metering Unit • TS DC Systems • TS Protection and Control System

ACA

1. **Asset Categories**

   PowerStream uses internal personnel for the development of the ACA. Data is provided by a combination of internal resources and testing contractors.

   The determination of Asset Categories is based on the historical work done; and has been added to over the last few years to address the observed need to separate asset types into more distinct sub-groups based on the uniqueness of factors that affect end of life. PowerStream's ACA is focused on the Asset Categories identified in the table to the right.

   Assets are generally well subdivided for Health Indexing purposes; some multipliers are included (e.g. tap-changer, non-TR XLPE cable). Further stratification may be beneficial to zero in on the highest-risk sub-populations. For instance, currently PowerStream treats poles as a homogeneous asset group. They have also acknowledged that the risk/replacement cost trade off for a 100-ft pole is different than for a 40-ft pole. We would expect that over time

Horizon Utilities

VAI consultants (Stewart Ramsay and Darin Johnson) met in person with Horizon Utilities on May 20, 2015 to review the ACA and DSP materials that HU had provided, and to address specific questions VAI had regarding the ACA process, methodology and its use in developing the capital investment plans. We noted that Horizon uses an external consultant to prepare the ACA based on input from Horizon.

The meeting was attended by Jim Butler, Director, Engineering & Operating for Horizon.

The meeting was productive and provided VAI with greater clarity around the process, the data elements used, the respective roles of Horizon and its consultant in the development of the ACA, and most importantly an understanding of how the ACA results are used in the identification and development of capital investments.

Our observations and assessments are summarized by topic in the following paragraphs.

ACA

1. Asset Categories

Horizon uses an external consultant for the development of the ACA. Horizon provides the input data, but relies heavily on the external consultant for the calculations and the methodology.

The determination of Asset Categories is done in collaboration with the consultant based on the combined experience of Horizon and the consultant, as well as Horizon's knowledge of assets that have significant financial or reliability impact on the system. Horizon's ACA is focused on the Asset Categories identified in the table to the right.

HORIZON UTILITIES ACA ASSET CATEGORIES
Transformers • Substation • Pole Mounted • Pad Mounted • Vault
Substation Circuit Breakers
Substation Switchgear
Overhead Conductors
Switches • Overhead Line • Submersible Load Break
Poles • Wood • Concrete
Underground Cables
Utility Chambers
Vaults

Within the main asset categories in the Horizon ACA some assets are further subdivided, e.g. circuit breakers broken into air and oil for Health Index (HI) purposes; cable split into XLPE, PILC, and secondary. This is in recognition that the HI factors for these asset types differ sufficiently from one another that they require distinct analysis and review. This is a positive practice, consistent with better performing utilities. For Horizon this stratification is limited and has been based on its experience with specific sub-groups of assets that have been problematic, "a few bad-actors". Further stratification may be beneficial such as tap-changers, type-U bushings, etc.

When examining Horizon's ACA process, in industry terms, Horizon assesses a large number of assets. We do note that the level of rigour and detail drops off after the most critical assets. This is not unusual and is common among utilities that have recently begun using Health Indices and Condition Assessment. From our discussions with Horizon, it appears that Horizon expects to continue to increase the rigour and data collection for these sub-categories as well as add new categories to improve the granularity of its assessments. Our understanding is that Horizon does not have a plan for targeting specific assets but does expect to make these additions to the ACA based on seeing significant anomalies or variations in the ACA results. This is also a common practice, though leading utilities tend to have a more deliberate approach to looking for and assessing the next level of detail for the HI and ACA.

Protective relays and communication systems are not evaluated in Horizon's ACA. This is inconsistent with better performing utilities as these assets are often high-value, high-risk impact assets.

Hydro One Brampton - HOBNI

VAI consultants (Darin Johnson and Stewart Ramsay) met in person with Hydro One Brampton (HOBNI) on May 21 to review the ACA and DSP materials that HOBNI has provided, and to address specific questions VAI had regarding the ACA process, methodology and its use in developing the capital investment plans.

For HOBNI, the meeting was attended by:

- Tom Wasik, Director of Asset Management & Engineering
- Wolf Schaefer, Manager, Project & Asset Management
- Rolando Mena, Supervisor, Asset Management
- Jessica Davis, Restructuring Secretariat Observer

The meeting was productive and provided VAI with greater understanding of the process, the data elements used, the respective roles of different parts of the HOBNI organization in the development of the ACA, and a more complete understanding of how the ACA results are used in the identification and development of capital investments.

Our observations and assessments are summarized, by topic, in the following paragraphs.

ACA

2. Asset Categories

HOBNI contracts with an external consultant for the development of the ACA. HOBNI provides the input data, but relies on the external consultant for the calculations and the methodology.

The determination of Asset Categories was done in collaboration with the consultant based on the combined experience of HOBNI and the consultant, and its experience regarding assets that have significant financial or reliability impact on the system. HOBNI's ACA is focused on the Asset Categories identified in the table to the right.

HOBNI ACA ASSET CATEGORIES
Transformers • MS • Pole Mounted o 1 Phase o 3 Phase • Pad Mounted o Mini o 3 Phase • Vault
Breakers
Load Interrupting Switches
Pad Mounted Switchgear
Wood Poles
Primary XLPE Cable • Feeder • Distribution
SCADA Batteries

Some assets are subdivided based on significant variation in the end of life drivers, e.g. circuit breakers are divided into air and oil for HI purposes; cable is split into XLPE, PILC, secondary. However, this stratification is limited.

In industry terms, HOBNI assesses a large number of assets in its ACA. The level of rigour and detail tends to drop off after the most critical assets. This is common among utilities who are starting the ACA process. We expect that HOBNI will continue to add to the rigour and data collection. HOBNI appears to see additional value in further separation based on the performance of subsets of assets in some of the large asset categories.

Protective relays and communication systems are not evaluated in HOBNI's ACA. This is inconsistent with better performing utilities as these assets are often high-value, high risk impact assets.

a. Impact on renewal investment plans

For HOBNI, as is the case with most utilities, the somewhat limited detailed stratification to identify specific problem types or highly critical assets, makes planning difficult. It tends to limit the ability to undertake more meaningful "bottoms-up" cost assessments which leads to a top-down spending cap approach to estimating spending need. The limited ability to do

Enersource

VAI consultants (Darin Johnson and Stewart Ramsay) met in person with Enersource on May 21 to review the ACA and DSP materials that Enersource has provided, and to address specific questions VAI had regarding the ACA process, methodology and its use in developing the capital investment plans.

For Enersource, the meeting was attended by:

- Alykhan Premji, Reliability Engineer
- Chris Master, Capital Manager
- Chris Hudson, VP Asset Operations
- Branko Boras, Manager, Asset Planning & Analysis

The meeting was productive and provided VAI with greater clarity around the process, the data elements used, the respective roles of different parts of the Enersource organization in the development of the ACA, and most importantly an understanding of how the ACA results are used in the identification and development of capital investments.

Our observations and assessments are summarized by topic in the following paragraphs.

ACA

1. Asset Categories

Enersource uses an external consultant for the development of the ACA. Enersource provides the input data, but relies heavily on the external consultant for the calculations and the methodology.

The determination of Asset Categories was done in collaboration with the consultant based on the combined experience of Enersource and the consultant, and its experience regarding assets that have significant financial or reliability impact on the system. Enersource's ACA is focused on the Asset Categories identified in the table to the right.

ENERSOURCE HYDRO ACA ASSET CATEGORIES

Transformers
• Substation
  ○ In Service
  ○ Spares
• Pole Mounted
• Pad Mounted
  ○ 1 Phase
  ○ 3 Phase
• Vault

Substation Circuit Breakers
Pad Mounted Switchgears
Overhead Line Switches • 44kV • 27 6 kV • Inline • Motorized
Underground Cables • Main Feeder • Distribution
Poles • Wood • Concrete

Assets are generally well subdivided for Health Indexing purposes; some "bad actors" have been identified by manufacturer, e.g. certain types of breakers and line transformers. These specific types of equipment have been validated with specific failure modes and risks that warrant specific treatment in the ACA and risk prioritization.

Further breakdown may be beneficial to Enersource in enabling better identification of opportunities to manage cost and risk. These include: tap-changers, type-U bushings, etc. These breakdowns should be based on actual data wherever possible.

In industry terms, a large number of assets were assessed in Enersource's ACA, although the level of rigour and detail drops off after the most critical assets. This is common among utilities who are starting the ACA process. We expect that Enersource will continue to add to the rigour and data collection. It is clear that there is funding in their plans to accomplish that objective and the plans for specific data capture and analysis appear to be well defined.