

2016 Hydro Ottawa CIR Annual Report

As part the Hydro Ottawa's 2016 to 2020 (EB-2015-0004) Custom Incentive Rate (CIR) setting process, Hydro Ottawa agreed to report annually on the following:

- The progress of its capital spending program in the following categories;
 - a) Service Access,
 - b) System Service and System Renewal; and
 - c) General Plant.
- Key Performance Metrics (KPIs)

Hydro Ottawa's capital spending progress, and additional KPIs which are not included in the OEB's Electricity Distributor Scorecard or the Ontario Energy Board's Yearbook, will be reported as part of the CIR Annual Report. These additional metrics enhance the scorecard measures under the Operational Effectiveness performance outcome; namely Safety, System Reliability, Asset Management and Cost Control."

Hydro Ottawa uses KPIs to measure continuous improvement in asset management planning, capital investment planning and in customer oriented performance. These indicators include quantitative measures to monitor the effectiveness of planning processes, efficiencies in carrying out those plans, as well as identifying shortfalls as areas for continuous improvement.

Safety

Hydro Ottawa tracks and reports on oil spills and the cost of remediation¹. Reportable oil spills are reported to the Ministry of the Environment. In 2016, Hydro Ottawa's annual oil spills amounted to 825L with remediation costs estimated to be \$1,115,000².

¹ Cost represents external remediation contractor costs only.

² Oil spill work can continue into the next calendar year.

System Reliability

Customer Average Interruption Duration Index

The annual average time required to restore power to the average customer per sustained outage in 2016 was 1.21 hours including loss of supply and 1.13 hours excluding loss of supply.

Feeders Experiencing Multiple Sustained Interruptions

This represents the number of feeders that experienced 10 or more sustained outages greater than 1 minute. This performance metric provides an indication as to which regions have seen the highest localized issues. For 2016, 5 feeders had 10 or more sustained outages.

Worst Feeder Analysis

In 2016, 3 of the 10 worst feeders are seeing an improvement in reliability. It takes several years to see the impact of addressing worst feeders. The 2016 10 worst feeder list contains only 3 feeders from the 2015 list which means that 7 feeders from the previous year has seen an improvement in reliability and have fallen off the 10 worst feeder list.

The System Average Root Mean Square Variation Frequency Index

Measures the average number of voltage sags on the system. Poor voltage is considered to be outside $\pm 6\%$ of the system nominal voltage. Hydro Ottawa maintained voltage within these tolerances in 2016.

Stations Exceeding Planning Capacity

The percentage of stations with a summer peak operating above 100% of their planned capacity rating in 2016 was 10%.

Feeders Exceeding Planning Capacity

The percentage of feeders with a summer peak operating above 100% of their planned capacity rating in 2016 was 1.6%.

Stations Approaching Rated Capacity

The percentage of stations at or above 100% of the station rated capacity in 2016 was 1.1%.

Feeders Approaching Rated Capacity

The percentage of feeders at or above 90% of the rated capacity in 2016 was 0%.

Asset Management

Hydro Ottawa's capital spending is materially on plan. Hydro Ottawa forecasts no underspending by the end of its five year (2016 to 2020) approved capital spending plan.

System Access capital spending is driven by customer request, as a result Hydro Ottawa has limited control over activity in this category of spending. Budgets are based on historical trends. Please see Table 1 for the 2016 progress on System Access capital spending compared to plan.

Table 1 – 2016 Capital Spending Compared to Plan – System Access (\$000)

Investment Category / Capital Program	Budget Program	Planned	Actual	Variance
Plant Relocation	Plant Relocation	7,620	7,129	(491)
Residential	Residential	6,889	4,350	(2,539)
Commercial	Commercial	13,423	11,888	(1,535)
System Expansion	System Expansion	3,479	8,716	5,237
Stations Embedded Generation	Stations Embedded Generation	377	678	301
Infill & Upgrade	Infill & Upgrade	3,160	3,845	685
Damage To Plant	Damage To Plant	1,148	1,122	(26)
Metering	Metering	167	77	(90)
Total Spending		36,263	37,805	1,542

System Renewal and System Service overall budget spending is in line with budget. System Renewal spending is allocated for replacement and refurbishment of system assets to extend the original service life while System Service spending covers modifications to Hydro Ottawa's system to ensure the distribution system continues to meet operational objectives while addressing future customer electricity needs. Although some large variances occurred, due to both internal and external reasons, Hydro Ottawa's has worked within its current year spending. Please see Table 2 for the 2016 progress on System Renewal and System Service capital spending compared to plan.

Table 2 – 2016 Capital Spending Compared to Plan – System Renewal and System Service (\$000)

Investment Category / Capital Program	Budget Program	Planned	Actual	Variance
Stations Asset	Stations Transformer Replacement	10,729	8,956	(1,773)
	Stations Switchgear Replacement	5,424	5,751	327
	Stations Plant Failure	185	251	66
Stations Refurbishment	Stations Enhancements	597	760	163
Distribution Asset	Pole Replacement	8,641	11,069	2,428
	Insulator Replacement	0	86	86
	Elbow & Insert Replacement	289	440	151
	Dist. Transformer Replacement	804	539	(265)
	Civil Rehabilitation	3,153	1,011	(2,142)
	Cable Replacement	5,974	6,423	449
	Switchgear New & Rehab	1,222	1,468	246
	O/H Equipment New & Rehab	785	442	(343)
	Plant Failure Capital	2,815	7,564	4,749
Metering	Remote Disconnected Smart Meter	415	357	(58)
Stations Capacity	Stations New Capacity	5,676	657	(5,019)
Distribution Enhancements	Line Extensions	7,522	7,563	41
	System Voltage Conversion	2,758	4,502	1,744
	System Reliability	329	228	(101)
	Dist. Enhancements	682	382	(300)
Automation	SCADA Upgrades	1,011	612	(399)
	SCADA - RTU Additions	169	23	(146)
	Distribution Automation	3,953	1,204	(2,749)
	Stations Automation	136	135	(1)
Total		63,269	60,422	(2,847)

Capital spending in Hydro Ottawa's General Plant category is close to plan. Within the sub categories, timing of some projects have shifted and as a result some variances exist. Please see Table 3 for the 2016 progress on General Plant capital spending compared to plan.

Table 3 – 2016 Capital Spending Compared to Plan – General Plant (\$000)

Investment Category / Capital Program	Budget Program	Planned	Actual	Variance
Buildings - Facilities	Buildings - Facilities	688	356	(332)
Customer Service	Customer Service	3,740	1,296	(2,444)
ERP System	ERP System	5,043	3,721	(1,322)
Fleet Replacement	Fleet Replacement	1,455	2,619	1,164
IT New Initiatives	IT New Initiatives	2,127	1,658	(469)
IT Life Cycle & Ongoing Enhancement	IT Life Cycle & Ongoing Enhancement	1,424	1,152	(272)
Operations Initiatives	Operations Initiatives	1,074	937	(137)
Tools Replacement	Tools Replacement	512	390	(122)
Hydro One Payments	Hydro One Payments	4,575	4,647	72
Total		20,638	16,776	(3,862)

Cost Control

Hydro Ottawa utilizes two metrics in order to monitor labour utilization; productive time and labour allocation. In 2016 the metric results were, 74% and 62%, respectively. Productive time targets are set to maximize efficiencies while labour allocation metrics are set to ensure the appropriate amount of time is spent between capital and operation, maintenance and administrative activities.