

2017 Hydro Ottawa CIR Annual Report

As part of the Hydro Ottawa's 2016 to 2020 (EB-2015-0004) Custom Incentive Rate (CIR) setting process, Hydro Ottawa committed 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 2017, Hydro Ottawa's annual oil spills amounted to 1,119L with remediation costs estimated at \$1,263,000².

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 2017 was 1.54 hours including loss of supply and 1.82 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 2017, 13 feeders had 10 or more sustained outages.

Worst Feeder Analysis

In 2017, 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 2017 10 worst feeder list contains only 6 feeders from the 2016 list which means that 4 feeders from the previous year have 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 2017 with the exception of 1 event. This metric is exclusive of transmission events.

Stations Exceeding Planning Capacity

The percentage of stations with a summer peak operating above 100% of their planned capacity rating in 2017 was 9.1%.

Feeders Exceeding Planning Capacity

The percentage of feeders with a summer peak operating above 100% of their planned capacity rating in 2017 was 2%.

Stations Approaching Rated Capacity

The percentage of stations at or above 100% of the station rated capacity in 2017 was 0%.

Feeders Approaching Rated Capacity

The percentage of feeders at or above 90% of the rated capacity in 2017 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

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 2017 progress on System Access capital spending compared to plan. At the end of 2017 system access is below plan by 3.8%.

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

Investment Category / Capital Program	Budget Program	2017			Cumulative		
		Planned	Actual	Variance	Planned	Actual	Variance
Plant Relocation	Plant Relocation	7,773	5,196	(2,577)	15,393	12,325	(3,068)
Residential	Residential	7,027	4,948	(2,079)	13,916	9,298	(4,618)
Commercial	Commercial	13,042	11,078	(1,964)	26,465	22,966	(3,499)
System Expansion	System Expansion	2,366	3,729	1,363	5,845	12,445	6,600
Stations Embedded Generation	Stations Embedded Generation	384	291	(93)	761	969	208
Infill & Upgrade	Infill & Upgrade	3,223	4,787	1,564	6,383	8,632	2,249
Damage To Plant	Damage To Plant	1,171	851	(321)	2,320	1,972	(347)
Metering	Metering	170	26	(143)	336	103	(233)
Total Spending		35,156	30,907	(4,249)	71,419	68,711	(2,708)

System Renewal and System Service

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 has worked within its cumulative spending. Please see Table 2 for the 2017 progress on System Renewal and System Service capital spending compared to plan.

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

Investment Category / Capital Program	Budget Program	2017			Cumulative		
		Planned	Actual	Variance	Planned	Actual	Variance
Stations Asset	Stations Transformer Replacement	4,620	3,843	(778)	15,350	11,426	(3,924)
	Stations Switchgear Replacement	7,088	9,431	2,344	12,512	14,519	2,008
	Stations Plant Failure	107	326	219	291	577	285
Stations Refurbishment	Stations Enhancements	634	659	25	1,231	1,419	188
Distribution Asset	Pole Replacement	6,592	10,521	3,929	15,233	21,590	6,357
	Insulator Replacement	168	274	105	168	360	192
	Elbow & Insert Replacement	190	10	(180)	479	450	(29)
	Dist. Transformer Replacement	808	63	(745)	1,612	602	(1,010)
	Civil Rehabilitation	636	1,314	678	3,789	2,325	(1,464)
	Cable Replacement	5,262	6,780	1,518	11,236	13,203	1,967
	Switchgear New & Rehab	376	1,292	916	1,598	2,760	1,162
	O/H Equipment New & Rehab	902	268	(634)	1,687	710	(977)
	Plant Failure Capital	2,893	8,978	6,085	5,709	16,543	10,834
Metering	Remote Disconnected Smart Meter	1,547	890	(656)	1,961	1,247	(714)
Stations Capacity	Stations New Capacity	15,272	4,195	(11,076)	20,947	7,348	(13,599)
Distribution Enhancements	Line Extensions	6,180	9,468	3,288	13,702	16,571	2,869
	System Voltage Conversion	4,964	2,226	(2,738)	7,722	6,729	(993)
	System Reliability	445	769	325	773	998	224
	Dist. Enhancements	694	954	260	1,376	1,335	(41)
Automation	SCADA Upgrades	1,011	759	(252)	2,022	1,371	(651)
	SCADA - RTU Additions	76	1	(75)	244	24	(220)
	Distribution Automation	4,719	5,636	917	8,672	6,840	(1,832)
	Stations Automation	597	1	(596)	734	136	(598)
Total		65,780	68,659	2,880	129,047	129,081	34

General Plant

Capital spending in Hydro Ottawa's General Plant category is 10.4% above plan. Within the sub categories, timing of some projects has shifted and resulted in variances. Please see Table 3 for the 2017 progress on General Plant capital spending compared to plan.

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

Investment Category / Capital Program	Budget Program	2017			Cumulative		
		Planned	Actual	Variance	Planned	Actual	Variance
Buildings - Facilities	Buildings - Facilities	509	618	109	1,197	975	(223)
Customer Service	Customer Service	2,361	2,275	(86)	6,101	3,570	(2,531)
ERP System	ERP System	354	7,309	6,956	5,396	11,030	5,634
Fleet Replacement	Fleet Replacement	1,209	1,584	375	2,664	4,203	1,539
IT New Initiatives	IT New Initiatives	1,166	651	(515)	3,292	2,309	(983)
IT Life Cycle & Ongoing Enhancement	IT Life Cycle & Ongoing Enhancement	1,737	858	(879)	3,161	2,009	(1,151)
Operations Initiatives	Operations Initiatives	452	1,327	876	1,526	2,265	738
Tools Replacement	Tools Replacement	521	442	(79)	1,033	831	(201)
Hydro One Payments	Hydro One Payments	5,000	5,649	649	9,575	10,296	721
Total		13,309	20,713	7,404	33,946	37,489	3,543

Cost Control

Hydro Ottawa utilizes two metrics in order to monitor labour utilization; productive time and labour allocation. In 2017 the metric results were, 73% and 60%, 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.