

Asset Base of PowerStream Underground Cable Population

PowerStream ACA 2014 Asset Counts	
Asset	Total
Distribution Transformer	44,112
Distribution Switchgear	1,821
Wood Poles	38,070
Underground Primary Cable (km)	8,220
Mini-Rupter Switch	433
Automated Switch	360

Table 10: Summary of Distribution System Assets

Asset Base of Manitoba Hydro Underground Cable Population

Demographics		
Age (Yrs)	Total (km)	%
0 to 10	949.9	15.7%
10 to 20	867.4	14.3%
20 to 30	1,398.7	23.0%
30 to 40	2,026.3	33.4%
40 to 50	570.8	9.4%
50 to 60	66.2	1.1%
60 to 70	67.7	1.1%
70 to 80	67.7	1.1%
> 80	54.1	0.9%
Grand Total	6,069.0	100.0%
Replacement value	\$1,500M	

- Manitoba Hydro's underground cable population is similar to that of PowerStream.

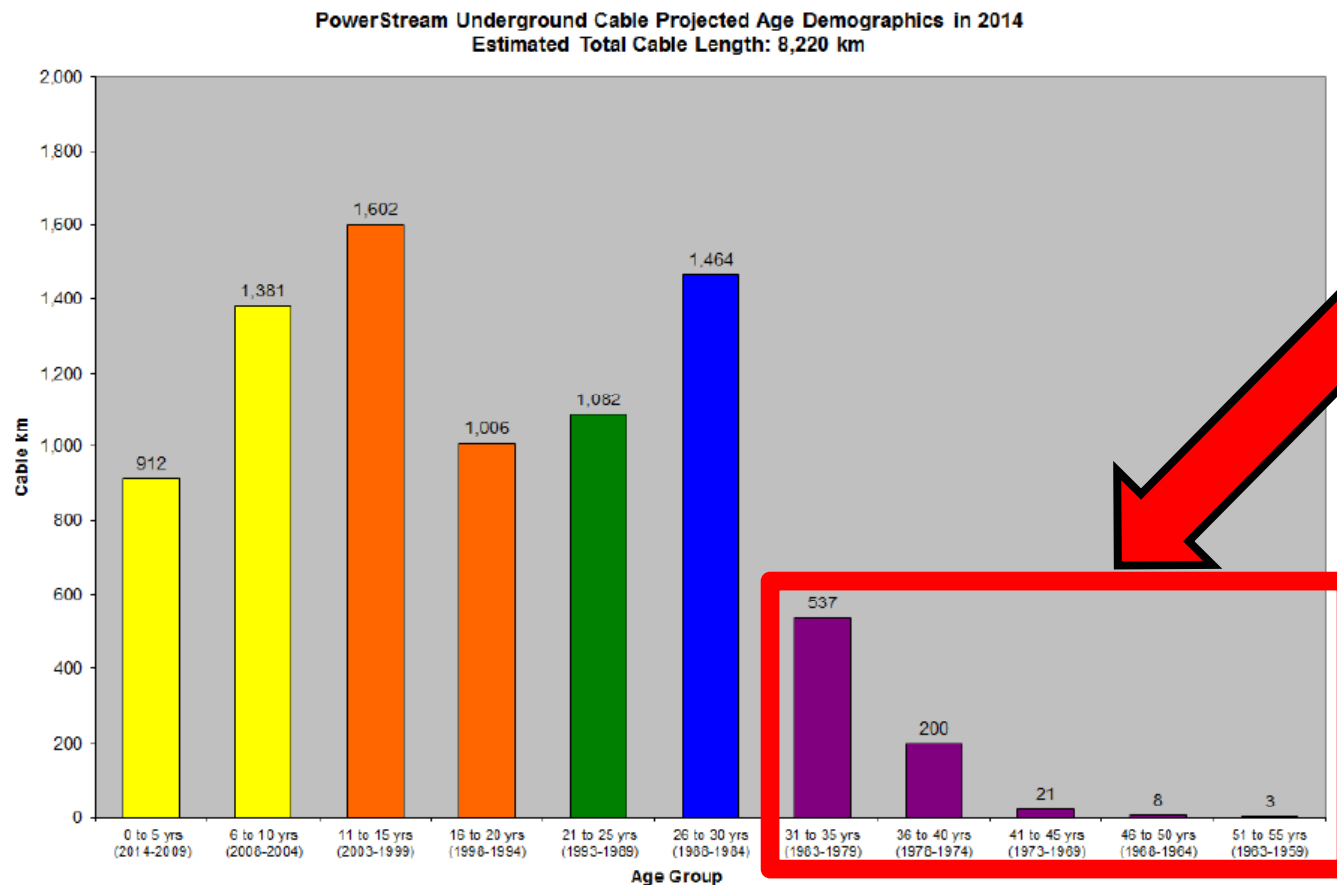
Annual Material Investment for Underground Cable Replacement by PowerStream

Material Investments	2015	2016	2017	2018	2019	2020
System Renewal	(\$)	(\$)	(\$)	(\$)	(\$)	(\$)
UG Lines - Planned Asset Replacement						
Cable Injection Program	4,024,212	4,230,242	4,230,463	4,313,774	4,433,323	4,626,212
Cable Replacement Program	11,718,862	12,538,684	13,607,273	14,288,297	15,085,861	15,340,181
Emerging Cable Replacement Projects	431,667	520,801	1,030,738	1,081,378	1,113,267	1,143,313
Submersible Transformer Replacement	1,040,300	620,000	-	-	-	-
Switchgear Replacement Program	2,003,445	2,327,404	2,462,129	2,533,373	2,606,624	2,681,945
Distribution Lines - Emergency/Reactive Replace						
Storm damage - Replacement of Distribution Equip. due to Storms	999,785	1,000,232	1,005,603	1,005,624	1,010,352	1,010,159
Switchgears - Unscheduled Replacement of Failed Switchgear	1,420,148	1,431,384	1,420,148	1,421,218	1,400,444	1,140,858
Unscheduled Replacement of Other Failed Distribution Equip	4,904,357	5,107,035	5,206,156	5,358,281	5,455,354	5,305,986
Overhead Lines - Planned Asset Replacement						
Pole Replacement Program	4,645,383	4,933,143	5,570,700	5,870,246	6,241,483	6,244,377
Unforeseen Projects Initiated by PowerStream	1,046,472	1,070,527	1,093,812	1,117,360	1,141,172	1,165,266
Storm Hardening						
Storm Hardening & Rear Lot Supply	3,499,998	7,900,017	7,999,752	7,499,834	6,900,540	7,200,072
Stations/P&C - Planned & Emergency						
Planned Circuit Breaker Replacement Markham TS1&2, Lazenby TS1	747,766	-	-	1,087,788	1,119,281	-
Station Switchgear Replacement (ACA) 8th Line MS323	-	-	412,339	1,106,666	-	-
Station Switchgear Replacement (ACA) Patterson MS336	-	-	-	421,896	895,805	-

Table 3: Material Investments - System Renewal

- The 2015 Cable Replacement Program Budget of \$11,718,862 represents an investment of \$1,425 per kilometre of cable.
- If this rate is applied to Manitoba Hydro's underground cable population, an annual investment of \$8,648,325 would be required in 2015.

Age Distribution of Underground Cable Population for PowerStream



- 769km +30 years of age

- 9.3% of the known population

Age Distribution of Underground Cable Population for Manitoba Hydro

- 2,853km +30 years
- 47%
- 3.7 times greater then that of PowerStream.

Demographics		
Age (Yrs)	Total (km)	%
0 to 10	949.9	15.7%
10 to 20	867.4	14.3%
20 to 30	1,200.7	22.0%
30 to 40	2,026.3	33.4%
40 to 50	570.8	9.4%
50 to 60	66.2	1.1%
60 to 70	67.7	1.1%
70 to 80	67.7	1.1%
> 80	54.1	0.9%
Grand Total	8,885.0	100.0%
Replacement Value	\$1,500M	